Proposals to support the uptake of smart electric vehicle charging

Consultation document

JULY 2025

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

Te Kāwanatanga o Aotearoa
New Zealand Government

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

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Minister's foreword

As New Zealand's energy system transitions, my priority as Minister for Energy is ensuring it remains affordable, reliable, and resilient for all consumers. We also need to empower smarter use of electricity as this lowers New Zealanders' power bills. That's why I'm pleased to release this consultation document on proposals to support the uptake of smart electric vehicle (EV) charging.

EVs are becoming more common on our roads, and most charging happens at home. While this is convenient for drivers, it also adds to electricity demand—especially during peak times when the grid is already under pressure. If we don't manage this demand effectively, we risk higher infrastructure costs that will ultimately be passed on to Kiwi households and businesses in their power bills.

Smart EV chargers offer a practical solution to this challenge. By enabling charging to occur when electricity is cheaper and more readily available, they can help reduce pressure on the grid, lower household power bills, and delay the need for costly network upgrades. They also give consumers more control over their energy use and help ensure our electricity system remains secure and affordable.

This document outlines a range of options to encourage the uptake of smart chargers, including voluntary and mandatory labelling, and a proposal to require that all new EV chargers supplied in New Zealand have smart functionality. It also considers how we can align with international best practice, while ensuring consumer choice and market flexibility.

While smart charging will support energy security and affordability, it is also an important step in achieving New Zealand's broader climate goals by making better use of our renewable electricity and reducing the need for fossil-fuelled generation during peak periods.

I am seeking your views on these proposals. Your feedback will help develop our understanding of the opportunities and challenges of smart charging, and ensure that any future regulation is well-informed, proportionate, and effective. Whether you are an EV owner, a network operator, a technology provider, or simply interested in the future of energy, I encourage you to engage with this consultation.

Hon Simon Watts
Minister for Energy

Have your say

We are seeking your feedback on options to support uptake of smart EV charging in New Zealand. We welcome all submissions but are particularly interested in the questions included later in this document.

Note that MBIE may upload submissions, or a summary of submissions, received to MBIE's website at www.mbie.govt.nz.

How to Submit:

You can submit this form by 5pm, 1 August 2025 by

- Emailing your submission to energyuse@mbie.govt.nz with the subject line 'Submission on proposals to support the uptake of smart EV charging' or
- Posting to:

  Submission on proposals to support the uptake of smart EV charging
  Energy Policy
  Ministry of Business, Innovation and Employment
  PO Box 1473 Wellington 6140

The Official Information Act 1982

Your feedback will contribute to policy advice and decisions on proposal to support the uptake of smart EV charging. It will also become official information, which means it may be requested under the Official Information Act 1982 (OIA).

The OIA specifies that information is to be made available upon request unless there are sufficient grounds for withholding it. If we receive a request, we cannot guarantee that feedback you provide us will not be made public. Any decision to withhold information requested under the OIA is reviewable by the Ombudsman.

The Privacy Act 2000

The Privacy Act 2020 applies to submissions.

Please Advise us if:

a) you do not wish your name or other personal information to be included in any information about submissions that MBIE may publish; and/or
b) If you do not want your submission or a summary of your submission to be placed on our website; and/or:
c) You wish for your submission (or parts of your submission) to be kept confidential under section 9 of the OIA.

To assist us, please provide us with your reasoning if b or c above apply to your submission.

1 Context and problem definition

Electric vehicle uptake is on the rise and charging is predominantly done at home

The uptake of electric vehicles (EVs) is expected to gradually increase as the economics improve and people and businesses replace their vehicles. At the end of May 2025, there were nearly 121,000 light EVs in New Zealand, including plug-in hybrids, which is up 12.5 per cent from May 2024.[1]

There are many different charging options available for EVs:

- Type of charger:
  - The **portable 3-pin charger** supplied with the EV that plugs into a **standard power point** — provides a slow (usually overnight, depending on battery size) charge.
  - A **standard fixed charging unit** — provides faster, more convenient, and safer charging (compared to a portable 3-pin charger), and often programmable by the user. Requires install by an electrician.
  - A **'smart' fixed charging unit** — as above but capable of two-way communication with connectivity and interoperability that allow the charger to easily interact with the electricity system and charge dynamically. Requires install by an electrician.
- Output of charger
  - **Direct current (DC) fast chargers** — the fastest charging option, built in charging cable/plug.
  - **Alternating current (AC) chargers** — offer a slower charge than DC, either built in charging cable/plug, or customer supplied.
- Application:
  - **Public –** uses fixed charging units (both smart and standard), and can be AC or DC depending on charging speed required
    - DC - Typically used for public charging e.g., on state highways.
    - AC – Typically used at places like supermarkets and malls.
  - **Private –** can be portable or fixed charging units (both smart and standard), typically AC, but DC can be used for specific business needs.

Common EV charger sizes are 7.4kW AC (for home use), 22kW AC (for business/public use), 50kW DC for business/public use, and up to 350kW DC for much larger very fast public charging.

What do we mean by a 'smart charger'?

The term 'smart' is used widely when talking about EV chargers, but it can be used to refer to very different levels of functionality. For instance, an EV charger that can simply connect to the internet or be controlled through an app is often described as 'smart' in its marketing material.

Smart in the context of this paper means chargers that have two-way communication with connectivity and interoperability that allow the charger to easily interact with the electricity system and charge dynamically.

Breaking it down further, a smart charger:

- uses standardised communication protocols, that enable a range of systems to easily connect and control them

[1] Fleet statistics | Ministry of Transport

- has a minimum set of responses available e.g., turn on, turn off, turn up, turn down
- measures and can provide a minimum set of data externally e.g., charging duration, amount of electricity used, or current power demand.

Chargers meeting a minimum level of smartness will ensure that they can be used to:

- manage demand (peak load) either generation constraints or distribution constraints
- optimise the use of renewable energy
- enable the development of a flexibility market
- enable greater consumer control over how and when their charger is used, including to reduce their electricity costs.

This paper discusses options to increase the uptake of smart chargers

Fixed charging units (as described above), now referred to as "chargers" in this document, come with an upfront purchase and installation cost to the consumer.

Currently, most EV charging takes place at home and is done using a portable 3-pin unit.[2] EECA (Energy Efficiency and Conservation Authority) research on current EV owners shows only 19 percent of charging at home is done using a smart EV charger.

Some EV chargers also provide for two-way (bidirectional) charging, enabling the EV battery to power a household or be a source of electricity supplied to the grid, providing demand flexibility and potentially a more resilient supply of energy. This is referred to as Vehicle to Home (V2H) and Vehicle to Grid (V2G) respectively. The term V2X is used to refer to power feeding from a vehicle to an end use e.g., home, the grid, or a product.

These activities could become more prevalent in future as technology develops so there may be a need for some standard functionality to ensure V2X can integrate into and support the electricity system.

EV chargers can also be integrated into other products such as solar or battery systems. It is beneficial if smart functionality applies across all these systems when this integration occurs.

Widespread electrification is causing the need for electricity infrastructure upgrades, costing all consumers

There is a risk that household peak electricity demand could significantly increase (estimated at up to 40 per cent by 2050[3]) as EV uptake increases. Alongside wider electrification of households and industrial processes, this potential for higher electricity demand peaks causes a need for electricity network upgrades.

The costs of infrastructure upgrades are passed onto all consumers. The Commerce Commission's 2025 default price-quality pathway (DDP4) decision (regulating electricity distribution network revenue) noted that bills would rise by about $10 per month from April 2025, partly due to higher levels of investment.[4]

Managing increased electricity demand through smart charging could reduce infrastructure requirements and costs for all consumers

Demand flexibility is the ability for consumers to use smart devices, such as EV chargers, to easily optimise their energy use for their benefit and wider system benefits. The benefits come from reduced costs, reduced

[2] Using the portable charger that comes with the EV that plugs into a normal power point.
[3] Concept Consulting and Retyna (October 2021). Shifting gear, How New Zealand can accelerate the uptake of low emission vehicles. Report 2: Consumer electricity supply arrangements.
[4] Commerce Commission - 2025 reset of the electricity default price-quality path

electricity consumption (or injection) when there is a tight supply of generation or network constraints, and consuming electricity when intermittent renewables are available e.g., wind and solar.

Smart charging provides EV owners with demand flexibility and the opportunity to take full advantage of electricity bill savings that can more than offset the upfront cost of installing a charger. A smart EV charger is one which is capable of two-way communication (can send and receive information) and can respond to signals (e.g., to turn on, off, up or down) to dynamically manage when and how charging occurs.

Transpower estimates that smart EV charging can reduce peak demand by 1.9 GW (18 percent) by 2035 [5], reducing or deferring the need for electricity infrastructure upgrades. EECA modelling shows widespread use of smart and energy efficient EV chargers could save the country $4 billion by 2050.[6]

The best chance of realising the potential of smart chargers is now while we can influence the types of chargers being supplied

EV chargers can last up to 15 years (depending on a number of factors including type, size, and usage), so each EV charger installed now that is not smart will lock in non-dynamic EV charging for some time. EV chargers have the potential to be the cornerstone of a smart home and a building block for wider adoption of distributed flexibility across the energy system.

Charging smartly means we can make the most of New Zealand's highly renewable energy to:

- enable better use of local intermittent renewable generation such as solar and wind, supporting energy security and resilience
- deliver our domestic and international climate goals, including COP28 with commitments to double energy efficiency and triple renewable generation by 2030.

As more new intermittent renewable generation is built, demand flexibility will be more valuable to both individual users and the system as a whole. Electricity network owners, retailers, and third-party service providers, need to be able to rely on common functionality in chargers to enable them to be managed dynamically. Consumers also need certainty their charger will be interoperable with different systems including networks and retailers. If non-smart chargers are installed at scale, New Zealand may lose the opportunity to reduce electricity infrastructure costs. There may also be an underdevelopment of the flexibility market if end devices do not have common functionality and control.

Questions for consultation

1. Research indicates that most EV charging occurs at home. Do you have any comments on the split between private (home) and public charging and how this may change into the future?
2. Do you have comments on the current state of private EV charging in New Zealand?
3. Do you agree that smart charging can support network infrastructure needs, and in turn realise benefits for end consumers?
4. What are your views on whether the supply of chargers in New Zealand would move to predominantly smart charging without regulation?
5. Do you have any comments on the availability of private EV charging for varying demographics, for example, homeowners versus renters?

Please provide evidence or data where possible to inform our analysis

[5] TP Whakamana i Te Mauri Hiko.pdf - Transpower
[6] Residential smart EV chargers and demand flexibility | EECA

2 Proposal for smart EV chargers

Our proposal is to require EV chargers supplied in New Zealand to be 'smart'

We are seeking feedback on a proposal to require that new EV chargers supplied in New Zealand must have smart functionality. This would not mean that consumers would be required to install and utilise a smart EV charger. EV owners would continue to have the option of using portable 3-pin charging, or any charging unit they have already purchased.

This is an initial consultation on options (section 3) to inform a decision on whether to regulate. If the government decides to regulate, there will be further consultation on specific requirements.

Where possible, we seek to align with international approaches. Arrangements between the New Zealand and Australian governments means that New Zealand should endeavour to coordinate with the Australian Government on EV charging. A summary of international approaches to regulating EV chargers is annexed.

There are also international obligations related to technical barriers to trade (TBT) arising through New Zealand's membership of the World Trade Organisation (WTO) and commitments under free trade agreements (FTAs) that need to be complied with. A TBT WTO notification will be issued for this proposal with a 60-day consultation period.

Any new requirements would not apply to charging units imported into or manufactured in New Zealand before the new requirements come into force, and would not apply to charging units already installed. They would also not apply to second hand charging units.

Amendments to the Energy Efficiency and Conservation Act will enable this proposal and wider work to address demand flexibility in the energy system

Legislation already exists to allow Minimum Energy Performance Standards (MEPS) and labelling requirements to be set for energy-using products and services, including vehicles.

These regulation making powers are set out in the Energy Efficiency and Conservation Act 2000 (the EEC Act), which provides the statutory basis for promoting energy efficiency, energy conservation, and the use of renewable energy in New Zealand.

The Government announced policy decisions in November 2024 to deliver a more effective regime that can respond to the latest market developments and support a smarter electricity system, and work is underway on an amendment bill to give effect these decisions.

The proposed changes will enable regulation beyond energy efficiency to include other factors necessary to enable demand flexibility, such as interoperability between devices and service providers in the electricity system. The amendments will enable demand flexibility capability requirements for EV chargers to be set.

This proposal would complement existing work to promote smart charging

Work has already been undertaken to support the uptake and use of smart EV chargers, including through providing the following guidance and consumer information.

Voluntary Publicly Available Specifications (PAS):

- **Residential EV charging PAS** – provides guidance for consumers on good practice for charging their EV at home, including information on efficiency and smart EV charging (last updated in June 2023 by EECA and Standards NZ).

- **EV chargers for commercial use PAS** – provides guidance on good practice for commercial EV charging stations, including WorkSafe requirements and NZ Transport Agency guidance (last updated in June 2023 by EECA and Standards NZ).
- **EV Smart Charger Approved List** – a list of approved residential and commercial electric vehicle chargers that meet efficiency and smart charging requirements.

FlexTalk pilots:

- FlexTalk 1.0 installed two-way smart EV charging functionality on three electricity networks to test real-time two-way connectivity with EV chargers in homes and businesses. It was designed to ensure the trial was reflective of the way network companies need to be able to "see and control" smart EV chargers (using a smart device software platform) and provided a cost-effective exemplar of how a New Zealand-wide system could function going forward.
- FlexTalk 2.0 is underway to add other smart consumer technologies to the platform created under 1.0 (e.g., hot water, heat pumps, and home energy management systems), creating exemplars of 'smart homes' of which smart EV chargers are a key component.

Pricing options will also be crucial to smart charger uptake and use

Electricity market settings play a crucial role in supporting the uptake of smart charging – requiring chargers to be smart will not alone ensure the benefits are realised. Price signals play an important role in shifting electricity use away from times of high demand or peaks.

EECA's research has demonstrated that simple off-peak plans are available to 69% of EV owners, through their home electricity retailer.[7] Among those EV owners that have access to off-peak power, nearly all (96%) of them utilise it for charging some, or most of the time, indicating that many owners are already capitalising on savings without a smart charger.

Our future electricity system is expected to become more dynamic due to more variable renewable generation, distributed energy resources (such as rooftop solar and batteries), flexible end-use products and increasing electrification. Greater savings will be achievable in future if there are more innovative or dynamic pricing options in the market, and this would encourage consumers to invest in a smart charger to take full advantage of the benefits.

The Energy Competition Task Force[8] is exploring proposals to better reward consumers for shifting electricity consumption (or injecting back into the grid). These proposals include requiring retailers to offer at least one time-varying consumption (and injection) plan which could give more choice to encourage businesses and households to change how they use electricity (i.e., shift their charging away from peak periods due to cheaper electricity).

Smart EV chargers are 'connected' devices that could be vulnerable to cyber threats

Consumers need to be confident that using an EV charger will not compromise their security or ability to charge, and the security and resilience of the wider electricity system must be protected. Network owners also need to be confident that the risk of cyber-attacks is managed to reduce the threat to network stability and disruption.

The use of V2X could broaden the implications of exposure to cybersecurity risks.

[7] Residential smart EV chargers and demand flexibility | EECA

[8] The Taskforce brings together regulatory experts from the Commerce Commission and the Electricity Authority with observers from the Ministry of Business, Innovation and Employment to assess how well the market is delivering efficient investment and affordable electricity.

Cybersecurity is managed across the electricity system using a best-practice approach. Device-level requirements could be a way to provide confidence to consumers and network owners, but there is currently no specific regime in place to regulate this.

Great Britain has had the following requirements relating to cybersecurity for EV chargers since the second phase of its smart charger regulations came into force on 30 December 2022:

- encryption of all communications
- the ability for electric vehicle and charge point owners to be able to change the settings (with the option to easily delete their personal data if they wish), including the ability to set a unique password
- the ability for chargers to check periodically if there are any security updates available
- measures to protect the hardware from physical damage, including tampering.

The process evaluation of Great Britain's smart charger regulations found that there was a lower level of compliance with these requirements (relative to the first phase requirements). The evaluation also found that the phased introduction of these requirements helped stakeholders in their implementation, although it was noted that they needed even more time overall to transition to all of the new requirements.

We are seeking views and information to build our understanding of this issue and whether there is a case for device-level requirements to manage cybersecurity risks associated with smart EV chargers.

Questions for consultation

6. Is there any other relevant context, such as industry developments or international practice that we should consider?
7. What cybersecurity risks do you see with greater uptake of smart EV chargers?
8. Do you see a role for cybersecurity to be managed alongside any requirements relating to smart functionality, or should this be managed by another mechanism?

Please provide evidence or data where possible to inform our analysis

3 Objectives and options

Objectives for assessing proposals

The objectives sought in supporting the uptake of smart EV charging are:

- **EV owners and electricity networks have tools to manage peak electricity demand** – technology supports shifting demand in response to price and network signals.
- **Electricity consumers benefit from managed EV demand** – EV owners benefit from time of use (ToU) pricing, network infrastructure is optimised, and system benefits flow through to all end consumers in reduced costs.
- **Consumer experience and ease of charging is maintained or enhanced** – there is no reduction in consumer experience or the ability to charge effectively.

We invite your feedback on these objectives.

Questions for consultation

9. Do you agree with the objectives? If you agree or disagree, please explain why.
10. Are there any additional objectives you think we should also adopt to inform decisions on this proposal?

Please provide evidence or data where possible to inform our analysis

Four options are proposed

Four options are proposed below that have been informed by prior consultation.

In mid-August 2022, EECA published a green paper seeking input on ways to improve the energy performance of EV chargers.[9] The majority of submitters endorsed the need to encourage the uptake of smart chargers, and submitters noted the importance of leveraging international case studies and keeping in step with evolving markets.[10]

There was general support for introducing smart EV charger requirements. The vast majority of submitters did not support the 'do nothing' option for New Zealand and felt that some form of intervention is needed to safeguard our electricity system and realise the full benefits of a functioning demand response/demand flexibility market.

A number of submitters supported the provision of subsidies or rebates to support the installation of smart chargers, noting that the upfront cost will continue to be the largest barrier to uptake of fixed charging units. Submitters also noted that this would only be a short-term solution. Others were not supportive due to equity grounds. For instance, some submitters felt the introduction of subsidies in the near term could solely benefit current EV owners and that this demographic tends to feature high-income households. Subsidies are not proposed as an option for this reason, and because of the current fiscally constrained environment.

These four options could apply to all chargers (public and private), or a subset of chargers – further information and questions on scope are covered after the options.

[9] Improving the performance of electric vehicle chargers – EECA.
[10] Summary of submissions: Improving the performance of electric vehicle chargers – EECA.

Option 1 – status quo

Option 1 is the status quo which is that there are no legal restrictions on the supply of EV chargers.

Existing non regulatory government-led activities include the promotion of PAS for Residential EV Charging and Commercial EV charging, EECA's list of 56 approved smart and efficient chargers, and other guidance to consumers and businesses to support the voluntary uptake and use of smart chargers.

As noted above, simple time of use pricing is becoming increasingly common and is used by existing EV owners. There is some pricing innovation and work underway to improve this (such as through the Energy Competition Task Force), providing greater market incentives for consumers to use smart products, such as EV chargers.

Electricity distribution businesses may be able to require certain standards (such as complying with EECA's PAS and associated smart requirements) for EV chargers connected to their network under the status quo. However, we understand there may be enforcement issues with this approach and therefore low compliance.

We understand that existing work to promote smart EV charging is already increasing the uptake of smart chargers, but the continued supply of non-smart chargers could mean New Zealand misses the opportunity to reduce electricity infrastructure costs.

Option 2 – Support voluntary labelling

An additional non-regulatory option we are considering is voluntary product labelling.

EV charger suppliers could be given the option of a standardised label that includes information about efficiency (similar to those seen on whiteware products) and key information about any smart functionality.

This could be a checklist indicating whether the charger does or does not perform the function (see table below for potential functions). This kind of label would enable consumers to more easily compare chargers based on efficiency and functionality.

Market research indicates that price, quality and brand are a key consideration in product purchase decisions. Energy efficiency is a second-order issue but can be a deciding factor when consumers are considering products that are otherwise similar. Labelling that indicates smart functionality could be more influential as it speaks to the ability of the product to benefit the consumer.

Option 3 – Mandatory labelling

Option 3 is to introduce mandatory labelling for all (or a subset of) EV chargers.

EECA currently administers mandatory labelling for other energy using appliances, such as Energy Rating Labels on whiteware and electronics (known as Mandatory Energy Performance Labelling). It also requires labelling on vehicles with information on emissions and energy economy, allowing consumers to make informed decisions on their purchases.

Labelling could be required to be supplied on the EV charger, as well as displayed instore, online, or in advertisements.

Option 4 – Require that all EV chargers supplied in New Zealand are smart and efficient

Option 4 is to introduce a regulatory requirement that all (or a subset of) EV chargers supplied for sale must be smart and efficient. Regulations and rules would set out the scope of EV chargers covered and requirements those chargers would have to meet.

In practice this would mean that only smart and efficient EV charging units would be available for supply in New Zealand from the date the new regulation applied. It would not, however, require consumers to install a smart charging unit – the option of 3-pin trickle charging would still be available.

The requirements would include a range of functionalities needed to ensure a charger is smart.

Option 4A – Option 4 requirements combined with mandatory labelling

Option 4A is option 4 with the addition of mandatory labelling for all (or a subset of) EV chargers. Mandatory labelling would enable consumers to easily compare chargers at the point of purchase, including both efficiency and smart functionality information as mentioned above. As with Option 3, labelling could be required to be supplied on the EV charger, as well as displayed instore, online, or in advertisements.

Option 4A is the preferred option at this stage as we believe it best supports achievement of the stated objectives.

The table below outlines the possible functionality outcomes/requirements that could be introduced under Option 4 or 4A.

Possible functionality outcomes/requirements for a 'smart' EV charger

Functionality outcome	Purposes / outcome
Interoperability The communication protocol used by the charger must be interoperable with other communication systems (e.g., with the vehicle, network owners, demand aggregator, home energy management or battery system).	Reduces duplication / increases efficiency for electricity system participants in managing EV charging by ensuring different devices and systems can speak to each other.
Connectivity / EV charger response Charger must be capable of responding to a third-party signal to modify (start, stop, increase, decrease) consumption or export over time.	Enables a flexible electricity system.
Consumer override While smart chargers can be controlled by a third-party under delegation from the user, EV charger owners must retain ultimate controllability over their charger. They must be able to manually override any managed charging.	Enables EV owners to charge their EV at times that suit them or when required, even if it is more expensive for them or the grid.
Measurement and visibility The charger must be able to measure the quantity of electricity consumed/injected in real time and make this available for the consumer or chosen assignee.	Consumers know the amount and time of charging to make informed decisions about time shifting. Network owners or third-party providers can assess the impact of EV charging in order to offer plans/services to consumers to time shift.
Continued charging The charger must continue charging even if it is disconnected from the communications network.	Vehicles will still charge in the event the charger loses communication (e.g., where it is safe, and the internet is down) and consumer is not aware.
Energy efficiency Minimum energy efficiency requirements for chargers being sold.	Chargers use energy efficiently which results in overall lower energy demand.

Functionality outcome	Purposes / outcome
Cybersecurity and privacy functionality Minimum communication cybersecurity and privacy requirements based on accepted standards. Note that there is currently no clear regulation-making power for this.	Prevent systems going down/user experience failure due to cyber-attacks. Users are able to easily control what data they share and provide to third parties.
Functionality to support V2X	Smart V2X chargers may have some additional requirements to support demand flexibility from a system perspective.
Labelling Label EV chargers with key standardised information about the product (e.g., functionalities) so that consumers can easily compare at the point of purchase.	Helps consumers factor functionality and potential energy savings into their buying decision. Encourages manufacturers to compete by making more efficient and more flexible products.

Assessment of options against objectives

An assessment of the **options** against the objectives is set out below.

The "**+**" indicates a positive impact, the "**-**" indicates a negative impact, and "O" indicates a no impact.

Objective	EV owners and electricity networks have tools to manage peak electricity demand	Electricity consumers benefit from managed EV demand	Consumer experience and ease of charging is maintained or enhanced
Option 1: Status quo	- Slow uptake of smart chargers imposes greater stress on distribution and transmission networks as higher kW standard chargers add demand	- Lower adoption of smart EV chargers means more charging on peak, contributing to higher infrastructure costs, passed through to consumers	0 Ease of charging but programmable for set times only limits opportunity to benefit from dynamic pricing
Option 2: Voluntary labelling	+ Possibly higher penetration of smart chargers than status quo results in some network load benefits – less effective than mandatory labelling	+ Consumers wanting to utilise smart charging are more likely to benefit, but less overall deferred infrastructure cost for all consumers	+ Consumers are better informed when purchasing chargers, but those purchasing non-smart chargers will not benefit from additional functionality
Option 3 – Mandatory labelling	++ Likely higher penetration of smart chargers than status quo results in some network load benefits – less effective than requiring EV chargers to be smart	++ Customers wanting to utilise smart charging have better information and can benefit. Likely supports lower infrastructure cost, but less than a smart charger requirement	++ Customers have complete information when purchasing charger. Those who purchase non-smart chargers will not benefit from additional functionality

Option 4: Require EV chargers supplied for sale in New Zealand are smart	+++ Distributed flexibility technology enables more efficient distribution of load across network avoiding higher network costs	++ Higher adoption of smart EV charging enabling off peak charging, reducing demand and lowering total infrastructure costs	+++ Smart requirements are designed to improve customer experience and better enable consumers to obtain lower operational costs without impacting use of their EV (in a set and forget way)
Option 4A: Require EV chargers supplied for sale in New Zealand to be smart and have labelling	+++ As above and mandatory labelling encourages even more efficient use of electricity	++ As above	+++ As above, and mandatory labelling encourages purchase of more efficient and chargers with greater functionality consumers can make use of.

Questions for consultation

11. Which option do you prefer and why? Are there other options you think should be considered?
12. Do you agree with our assessment of the options against the objectives? If you agree or disagree, please explain why.
13. What are your views on the functionality outcomes that could be adopted?
    a. Are there any outcomes that you think should be required?
    b. Do you think any functionality outcomes above should not be included, and if not why?
    c. Are there any different types of requirements we need to consider for V2X chargers?
14. Do you think there is a case for voluntary or mandatory labelling of EV chargers, and why or why not?
    a. If you support labelling, what content do you think should be incorporated in the label?

Please provide evidence or data where possible to inform our analysis

We are also seeking feedback on the proposed scope for options

The options proposed in this paper could potentially apply to all (private and public) EV chargers. For example, voluntary or mandatory labelling could apply to only private chargers or private *and* public chargers. Because of this, we are also seeking feedback on the proposed scope of all four options.

We expect the most opportunity and potential benefit from private charging as it is expected to remain the primary location for most EV charging. However, there may be additional benefits from regulating or requiring labelling for (larger) public chargers:

- Better peak load management – smart public chargers could enable the load to be flexible assets for the wider power system, helping to reduce overall grid costs.
- Open communication protocols – use across public chargers can lessen the risk of stranded assets by ensuring a new provider can take over management (even if proprietary software has been used) in the event that the original charging company collapses.

- Manage network constraints – using smart chargers on a group of public chargers enables the power draw to be software-limited to reduce the need for grid upgrades (limits can be removed or adjusted in the future if the physical grid capacity increases).
- Simplicity – some chargers are used for both private and public charging, so it may be simpler to regulate all EV chargers.
- Another option is to define the scope based on the physical or design characteristics of the charger e.g., type (AC, or DC) or size (7.4kW, 22kW, 50kW) as this has some correlation with use (private chargers tend to be AC and smaller).

Assessment of scope against objectives

An assessment of the **scope** against the objectives is set out below.

The "**+**" indicates a positive impact, the "**-**" indicates a negative impact, and "O" indicates a no impact.

Objective	**EV owners and electricity networks have tools to manage peak electricity demand**	**Electricity consumers benefit from managed EV demand**	**Customer experience and ease of charging is maintained or enhanced**
Scope: EV chargers for private use only	++ 80% of EV charging is done at home and shifting evening home charging is likely to have the greatest impact on managing peak demand	+ EV owners will benefit from time of use pricing through shifting home usage and all consumers benefit from lower infrastructure costs	++ Smart requirements for home chargers improve customer experience, and public charging behaviour is less likely to be impacted by managed charging
Scope: EV chargers for private and public use	++ All chargers, including public, are able to be managed flexibly enabling more efficient distribution of load across networks	+ EV owners will benefit from time of use pricing through shifting home usage and all consumers benefit from lower infrastructure costs	+ Smart requirements for home chargers improve customer experience, and public charging behaviour could be impacted by managed charging

Questions for consultation

15. What types of chargers should your preferred option be applied to? For instance, if you think different types of chargers (for example public vs private, or chargers smaller or larger than 2.4kW) should be subject to different parts of your preferred option, please explain.

16. Do you agree with our assessment of the scope against the objectives? If you agree or disagree, please explain why.

17. If you agree with option four – requiring EV chargers to be smart:

    a. What types of chargers should the requirements apply to? For example, should there be a minimum or maximum size?

    b. Is there a case to regulate public chargers as well as private, and what are the risks of including or excluding public chargers?

Please provide evidence or data where possible to inform our analysis

4 Potential costs and benefits

There is uncertainty about the impacts of options for EV charging due to other factors

There is some uncertainty about the impact of the options in terms of the uptake of smart charging, and related impacts on reduced network investment and costs for consumers. Other relevant factors likely to materially influence smart charger uptake include:

- Technological progress (both in chargers, the EVs themselves, and potentially smart home management systems) and its impact on the upfront cost of installing a fixed charger.
- Market forces – competition and innovation in pricing tariffs incentivising demand flexible enabled charging.
- Other policy work and regulatory system changes (e.g., Package Two of the Energy Competition Task Force work programme that includes a proposal to require retailers to provide time of use tariffs).

The impact on reduced network congestion, wholesale market volatility, and flow-on costs for consumers will also be influenced by factors including:

- the regulation of electricity distribution network asset management and investment by the Commerce Commission
- rates of household electrification (including EV uptake) and therefore increase in demand on networks.

We have identified possible impacts of each option below for public consultation. Regulatory impact analysis will be undertaken following this consultation to inform advice on progressing the proposal.

Costs and Benefits of Option 1 – status quo

Increasing uptake of EVs will increase household electricity demand and could lead to higher costs for all

Total electricity demand across the economy has been forecast to grow between 35-82 per cent by 2050, and from the late 2030s, electrification of transport plays a larger role with increased uptake of EVs.[11] While the increase in total demand is important, the likelihood of this also significantly increasing peak demand is particularly important. This is because charging of EVs at home, without intervention, is likely to also occur during the existing evening peak, adding congestion at a time of already heightened demand. It could also lead to new and higher peaks, if demand aggregates around times where pricing rates change (e.g., 9pm).

Increased peak electricity demand creates a need for additional network and generation capacity investment. Poorly managed peak demand growth could lead to unnecessary increased costs for all consumers (not just EV owners). The Commerce Commission's 2025 default price-quality pathway (DDP4) decision (regulating electricity distribution network revenue) noted that bills would rise by about $10 per month from April 2025, partly due to higher levels of investment.[12] Meeting the current electricity demand peaks already poses challenges, as seen during network constraint events such as on 10 May 2024.

While it is clear that EV uptake is expected to have an impact on the electricity system and this has been modelled, uncertainties around the status quo will affect the extent to which these effects will need to be managed, and ultimately result in increased costs for consumers.

[11] Electricity Demand and Generation Scenarios: Results summary July 2024 - MBIE
[12] Commerce Commission - 2025 reset of the electricity default price-quality path

These uncertainties include:

- the rate of EV uptake (particularly due to the impact of other policies such as accelerating the roll-out of public EV chargers)
- levels of uptake of charging units versus 3-pin trickle charging
- retail incentives such as time-of-use pricing encouraging consumers to utilise smart charging
- consumer knowledge of how to use a smart charger effectively and ease of use.

Costs and Benefits of Option 2 – voluntary labelling

We expect voluntary labelling to capture a portion of the benefits of Options 4 and 4A with lower regulatory costs

Product labelling is intended to allow consumers to make informed decisions about their purchases and ultimately make a decision to purchase a product that meets their needs. We anticipate that labelling for smart functionality (and efficiency if appropriate) could improve uptake of smart chargers compared to the status quo, but not be as effective as requiring all chargers to be smart (under options 4 and 4A).

Quantification of the increase in smart charger purchases through labelling is highly uncertain, especially for a voluntary option. Reliance on voluntary labelling would mean consumers would likely only have incomplete information as only some suppliers may adopt and implement labelling across their EV chargers.

Where labelling is implemented, its effectiveness will also be dependent on consumers understanding and acting on the information contained in a label. In this context even incomplete adoption of labelling could support uptake given the direct savings smart chargers can deliver for consumers by enabling off peak charging.

There will be some incentive on suppliers to use a standard label on their product as the demand flexibility market is developing and flexible devices are in their infancy, so it can be difficult to otherwise convey smart functionality in a meaningful way. Therefore, we expect some of the benefits of increased use of smart charging would be realised under this option (covered in detail below under option 4).

To support its efficacy, this option would likely include provision of a standardised label for suppliers to use.

Voluntary labelling would be less costly than mandatory labelling, but this option would still incur the following costs:

- EV charger suppliers and retailers – costs of applying and displaying labels.
- Regulator – cost of developing and maintaining a standardised label, and for delivery of education and awareness.

Costs and Benefits of Option 3 - Mandatory labelling

Mandatory labelling could support informed consumer choice, benefitting users and the wider electricity system

As with option two, mandatory labelling would better allow consumers to make informed decisions, although as with option 2 there is some uncertainty as to the extent to which it would increase uptake of smart EV chargers as effectiveness will also be dependent on consumers understanding and acting on the information contained in a label.

This option would likely be more effective than option 2 because mandatory labelling would create a level playing field across all EV chargers meaning that consumers can more easily compare everything available on the market. This makes them more likely to purchase more efficient chargers with a greater range of functionality – providing benefits to both consumers and the wider electricity system.

We expect that some of the benefits of increased use of smart charging would be realised under this option (covered in detail below under option 4).

Mandatory labelling is also likely to have higher compliance and regulator costs

Including a labelling requirement would add the following additional costs:

- EV charger suppliers and retailers – compliance costs of applying and displaying labels.
- Regulator – costs of education and awareness, and delivery, administration and enforcement of the scheme.

Costs and Benefits of Options 4 and 4A – requiring EV chargers to be smart and efficient (with possible mandatory labelling)

Increasing uptake of EVs will increase household electricity demand

As under the status quo, EV uptake is expected to grow. However, smart charging requirements could help ensure that this additional demand is managed in a way that does not contribute to the 'peakiness' of the system demand, meaning lower total system costs.

There is uncertainty about the exact impact of introducing smart charger requirements, since not all EV owners may install these chargers and those that do may not use their smart capabilities.

Widespread uptake of smart EV chargers can have system benefits that ultimately flow through to all consumers

Smart charging can shift when electricity is consumed or reduce demand at peak times. Shifting demand through flexibility can ultimately:

- reduce distribution network costs being charged to all consumers over time (through avoided network upgrades). For instance, EECA modelling shows widespread use of smart and energy efficient EV chargers could save the country $4 billion by 2050[13]
- reduce peak electricity demand, in turn reducing electricity costs for all consumers through lower wholesale market volatility, and potentially emissions if peak demand is being met by coal or gas generation. Transpower estimates smart EV charging can reduce peak demand by 1.9 GW (18 percent) by 2035.[14]

Research shows that EVs have a significant ability to influence network peaks (alongside water heating) compared to other controllable energy use, and that smarter control of EVs may be necessary to prevent secondary peaks or herding behaviour as a response to simple time-of use tariffs (e.g., large volumes of EVs automatically charging at 9pm when off-peak prices begin.[15])

As well as system benefits, consumers can directly benefit from using a smart charger

Smart charging allows consumers to take advantage of cheaper electricity or innovative plans offered by retailers. Many power companies offer time-of-use pricing (with work underway to improve this[16]), and some are starting to offer innovative EV charging focused plans.

[13] Residential smart EV chargers and demand flexibility | EECA
[14] TP Whakamana i Te Mauri Hiko.pdf - Transpower
[15] Modelling peak electricity demand to 2050 - Sapere (2023)
[16] Energy Competition Task Force | Our projects | Electricity Authority

These plans paired with a smart charger can save consumers money on their power bills, by allowing consumers (or other service providers) to charge dynamically in a 'set and forget' way. EV charging costs can typically be reduced by 40-50 percent by taking advantage of the cheaper rates available on these plans.[17]

Ultimately, the proposed requirements would not force customers to purchase and use smart charging. But if a consumer wants to purchase a charging unit, requiring it to be smart will give them the best chance at reducing their energy costs. It would ensure that smart functionality is available should they wish to use it.

Looking towards the future, it is expected that homes will become more electrified and have other 'smart' appliances or solar generation that can interact with the electricity system, or Home Energy Management Systems (HEMS) that can manage all of a consumer's energy use. Ensuring that consumers install smart chargers now will future-proof their energy management in this way, including for any future property owners if chargers are included in a property sale.

Requiring chargers to meet be smart can also help to develop the market and the ability for charging to be managed, as they will be able to respond in a minimum set of ways (e.g., turn off, turn on, turn up, turn down), and provide a minimum set of data to a controller and consumer (e.g., energy consumption).

With the addition of mandatory labelling (Option 4A) we expect to see greater benefits for consumers and the system

As outlined under above, mandatory labelling can be an effective tool at driving continuous improvement (and benefit) over time and better decision making by consumers at the point of purchase.

Under this option, labelling would occur alongside a requirement for smart functionality so the additional impact of mandatory labelling will be less significant. However, labelling could still support consumers to differentiate between chargers with different specific smart capabilities (beyond any minimum requirements) and levels of energy efficiency.

However, requiring EV chargers to have smart functionality may increase upfront costs for consumers

Requirements could ultimately reduce consumer choice. Smart chargers inherently have more functionality than portable charging or standard fixed charging units so may come at a higher upfront cost to consumers.

A (July 2024) cost comparison by EECA found that smart chargers are generally slightly more expensive than non-smart chargers, but there is an overlap in the price ranges. While most non-smart models were $800 - $1,000 and most smart models were $1,000 - $1,700, there were smart chargers available for as little as $680, and non-smart chargers available for as much as $1,300. Consumers also pay for installation, which is approximately $500 - $1000, depending on the suitability of the existing wiring and other factors.

As covered above, while smart chargers may have generally higher upfront costs their functionality will enable demand flexibility services which will lower EV owners' operating costs.

Regulatory proposals also generally incur cost, both to the government (e.g., resourcing and cost of policy and regulation development, enforcement and compliance) and industry (e.g., administrative and labelling costs or changes in processes for industry to comply with the regulations).

Costs faced by industry may be passed on to customers in the form of higher prices for EV chargers overall. Some of the potential costs faced by industry could include:

- *Changing processes (and manufacturing) to comply*: updates to software or hardware and product designs may be needed in order to comply with the regulations, this could increase both operating and capital costs.
- *Reporting and compliance requirements*: administrative costs required by the regulator to ensure compliance e.g., testing and reporting information to the regulator.

[17] The best power plans for charging your EV — Powerswitch NZ

A recent process evaluation of Great Britain's EV charger regulations with a similar objective to this regulatory proposal[18], outlined the regulatory costs faced by industry. It notes that while the overall trend has been a decrease in EV charger prices over time, a short-term price increase associated with implementation of the regulation (with other possible impacts such as COVID supply chain constraints) was observed in 2022.

Any regulation of EV chargers in New Zealand will be implemented sometime after Great Britain and other overseas jurisdictions that are currently investigating similar requirements. Accordingly, some of the cost effects may be somewhat mitigated because manufacturers may already be responding to existing regulation and the market shift towards smarter technology and demand flexibility enablement. Some uncertainty remains in terms of quantifying residual costs to industry.

Mandatory labelling is also likely to have higher compliance and regulator costs

Including a labelling requirement would add the following additional costs:

- EV charger suppliers and retailers – compliance costs of applying and displaying labels.
- Regulator – costs of education and awareness, and delivery, administration and enforcement of the scheme.

We are also looking to better understand any distributional impacts or unintended consequences of regulation

Regulating EV charger functionalities could affect the import market and New Zealand manufacturers, as well as the choices that consumers have when they are considering purchasing EV chargers.

We see these regulations as improving the market for EV chargers in New Zealand, meaning that consumers have access to the right kind of charging technology that will help reduce their bills and impact on the electricity grid – similar to how energy efficiency regulations ensure consumers are purchasing efficient appliances such as heat pumps, fridges and electronics.

As mentioned above, smart EV charging has already been implemented or is being considered in a number of overseas jurisdictions. With markets moving already towards smart functionality, we see the potential risks here as low; but are looking to better understand consequences we may not have yet considered, including on different types of businesses and households (such as renters versus homeowners).

Questions for consultation

18. Do you agree with our assessment of the costs and benefits of each option?
19. Are there any impacts you believe we should consider that are not covered?
20. Are there any unintended consequences on the market for EV chargers or wider EV market you think we haven't considered?
21. How do you see the proposal affecting different people and groups (e.g., business users, manufacturers, consumers)?

Please provide evidence or data where possible to inform our analysis

[18] Electric vehicles regulations 2021: Smart charging process evaluation - main report – Department for Energy Security and Net Zero (UK)

5 Next steps, implementation and monitoring

This consultation will inform advice on whether to require EV chargers to have smart functionality

Your submissions will be used to inform regulatory impact analysis and advice to Government on which option to progress.

Implementation of any new requirements would be planned and well signalled

In terms of implementation timing, there is a transitional period of at least six months before any new requirements can come into force, as per New Zealand's World Trade Organisation obligations. New regulations would not apply to products imported into New Zealand or manufactured in New Zealand before the new requirements come into force. Periods longer than six months can be used where appropriate.

EECA prepares and follows an implementation plan from the publication date of any new regulations and rules to assist regulated parties and ensure they are aware of their obligations.

Progressing regulations is dependent on changes to the EEC Act

We have determined that the most appropriate legislative vehicle to implement any smart charge regulation or mandatory labelling requirement would be through secondary legislation under an amended EEC Act.

- The EEC Act is considered the most appropriate legislative vehicle because the outcomes sought by this proposal most closely align with the purpose of that Act (other options considered were the Electricity Industry Participation Code 2010 and the Building Code).
- Progressing such secondary legislation relies on changes first being made to the EEC Act. The Government has decided to amend the EEC Act to enable making regulation for 'demand flexibility' products, and work to implement this change is underway. The Government's decisions also include streamlining the regulation making process so that once Cabinet has decided to regulate a certain product, EECA can draft technical requirements for approval by the Minister for Energy. This means the requirements can be drafted, agreed, and adopted more efficiently to keep up with product and technology changes.

Expected timing from here is set out below (with subsequent steps subject to Government decisions and progress with the Bill to amend the EEC Act):

Consultation closes	1 August 2025
Submissions analysis	August-September 2025
Provide advice to the Minister for Energy to enable a government policy decision on the preferred option	October 2025

EECA would undertake compliance, monitoring and review activities for any new requirements

EECA would undertake compliance, monitoring and review activities for any new requirements relating to EV chargers in line with its usual processes for appliance regulation. This includes:

- Creating dedicated website content for the product to clearly outline the requirements. For example, see EECA's webpage: How to comply with E3 product regulations.

- Sending out information on compliance to regulated parties and providing support such as answering enquiries.
- Conducting market scans to identify regulated parties and ensure they are complying with the regulations.
- Conducting check testing, where products are purchased and tested by qualified laboratories to ensure they comply with the legislation.
- Conducting investigations and taking compliance and enforcement action in line with EECA policies.
- Completing the annual sales data collection to understand how the market is developing, which can feed into compliance and regulation/rule review.

In addition, MBIE would monitor the effectiveness of any intervention as part of its role as steward of the energy regulatory system. This monitoring would include assessment of how the chosen option is working in practice and how well it delivers the policy objectives.

Questions for consultation

22. Do you have and feedback on the next steps for this proposal?

23. Do you have any comments on implementation or a transition period for potential regulations?

Please provide evidence or data where possible to inform our analysis

Annex – International approaches to regulating EV charging

Australia

The international energy efficiency arrangement[19] between the New Zealand and Australian governments means that New Zealand should endeavour to coordinate with the Australian government on EV charging regulation under the joint Equipment Energy Efficiency (E3)[20] programme.

In many cases, there are administrative, business and consumer benefits in regulating the same product consistently across the Tasman, including for the trade implications of compliance with the *Trans-Tasman Mutual Recognition Act 1997* (TTMRA).[21]

Australia has yet to introduce regulation for smart charging at the federal level, taking more of a policy focus on broader low emission energy initiatives such as widespread rollout of rooftop solar instead. However, South Australia has introduced mandatory standards to promote safety, enable demand flexibility capability, and encourage EV charging to be shifted away from peak demand periods.

Other markets

Great Britain

The UK Government has legislated that all new home and workplace EV chargers sold in Great Britain must be smart (from June 2022).[22] Prior to this, smart EV charger uptake was facilitated by a government EV Homecharge Scheme that ended in March 2022.

To avoid network issues, the regulations require smart chargers to be set to charge off-peak by default, but this can be overridden by the owner. Chargers also need to apply a random delay of up to 10 minutes at the start or end of a schedule, or after a power/communication interruption.

The regulations have led to an increase in off-peak charging. However, only a small proportion of EV drivers were using dynamic ToU tariffs. A lack of availability and usage of ToU tariffs is a key barrier to off-peak charging.

European Union

In September 2023, the EU passed legislation requiring that all new or newly renovated, publicly accessible EV recharging points in EU Member States should be capable of 'smart' charging within the near future. The EU has also set relatively more targeted rules for non-residential and residential building settings that EU Member States are obliged to transpose into domestic legislation in slower time.

[19] *Australia-New Zealand Policy Framework and Funding Arrangement for the Equipment Energy Efficiency Program* dated 19 December 2017 between the Commonwealth of Australia and the New Zealand Government/Kāwanatanga o Aotearoa.

[20] Equipment Energy Efficiency (E3) Programme | EECA

[21] Under the TTMRA, where both Australia and New Zealand regulate the same product differently, each jurisdiction must treat imports of the regulated product from the other jurisdiction as compliant with their domestic laws. However, when only Australia or NZ chooses to regulate a particular product, imports of that product must meet that jurisdiction's regulations. New Zealand, like South Australia, could therefore regulate the sale of EV chargers unilaterally and enforce its regulations on imports from Australia.

[22] *Electric Vehicles (Smart Charge Points) Regulations 2021* (UK).

The Netherlands is currently only recommending that EV charging units (public and private) have smart charging by default and interoperability capability. It has set a target of at least 60 percent of charging sessions to be smart by 2026 and an action plan[23] to achieve this goal.

Germany has no plans to regulate smart chargers further than the general EU regulation outlined above. Its current policy is that EV owners should be able to decide if there is sufficient financial incentive to install a smart EV charger. Germany allows grid operators to reduce output of controllable energy consuming assets including EV chargers to a minimum of 2kW in emergency peak situations. In return for registering their assets, consumers receive reduced grid fees/electricity charges.

China

China is the world's largest market for EVs and EV charging infrastructure development, with 9.92 million EV chargers (public and private) servicing the world's largest EV fleet (24.42 million). China has uneven development of public charging in urban and rural areas, so it is focusing its EV charging infrastructure plan on smart charging in rural areas. It has not required smart functionality.

China has a target of 60 percent of EV charging to occur off-peak by 2025. China's most recent policy guidelines include implementing a differential 'peak and valley' ToU pricing mechanism with innovative tariff options tailored to local conditions of different regions. China's peak times are similar to New Zealand (between 6pm and 11pm) and overlap with residential electricity usage. One of the innovative tariff options has a seasonal dimension of wet and dry for regions with large amount of hydroelectric generation.

Cybersecurity standards

Cybersecurity is a priority issue for all five economies, however only Great Britain has legislative cybersecurity requirement for EV chargers (since December 2022).[24]

In China, consumer demand for more protection is driving private companies to take the lead in ensuring their operations meet industry or international information security standards – albeit while also complying with Chinese government data regulations.

[23] 'Smart Charging for Everyone' action program.
[24] *Electric Vehicles (Smart Charge Points) Regulations 2021* (UK).