MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

COVERSHEET

Minister	Hon Simeon Brown	Portfolio	Energy
Title of Cabinet paper	Regulating smart electric vehicle chargers	Date to be published	5 May 2026

List of documents that have been proactively released		
Date	**Title**	**Author**
April 2026	Regulating Smart Electric Vehicle Chargers	Office of Minister of Energy
1 April 2026	Regulating Smart Electric Vehicle Chargers ECO-26-MIN-0044 Minute of Decision	Cabinet Office
2 February 2026	Regulatory Impact Statement: Smart EV Chargers	MBIE

Information redacted **YES** *(please select)*

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Some information has been withheld for the reason of confidential advice entrusted to the government.

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

Regulatory Impact Statement: Regulating smart EV chargers

Decision sought	*Cabinet decisions to regulate EV chargers*
Agency responsible	*Ministry of Business, Innovation and Employment*
Proposing Ministers	*Minister for Energy*
Date finalised	*2 February 2026*

Description of the Minister's regulatory proposal

It is proposed that all new electric vehicle (EV) chargers with charging capacity over 2.4 kilowatts (kW) supplied in New Zealand are required to have minimum smart functionality and be labelled to show additional smart functions and energy efficiency performance. This proposal would prevent new non-smart chargers with maximum charge capacity over 2.4kW from entering the New Zealand market. Better labelling would also enhance consumers' ability to make informed decisions.

The proposed regulations would not require consumers to purchase smart chargers. Non-smart portable 3-pin (or 'trickle') lower capacity chargers (often supplied with the vehicle) will still be available for consumers to purchase and use. Consumers will be able to use smart charging functions with standard trickle chargers for vehicles that have smart charging functions. The regulations will not apply retrospectively to chargers already installed and will include a transitional period.

Summary: Problem definition and options

What is the policy problem?

Key definitions:

- **Portable 3-pin (or trickle) chargers** have a typical charge capacity of around 1.5-2-3 kW and are supplied with the EV or can be purchased separately. These chargers plug into a standard power point for slow charging.
- **Standard (or non-smart) fixed chargers** have higher charge rates, provide faster and safer charging (compared to 3-pin) and are often programmable for scheduled charging. They are required to be installed by an electrician.
- **Smart fixed chargers** are like fixed chargers above, but also capable of two-way communication that allow the charger to interact easily with the electricity distribution system and charge dynamically (e.g. in response to a price signal).
- **Energy flexibility** is the concept of actively managing consumer electricity use and injection, such as in response to price signals (e.g. an electricity retailer could send price signals to increase EV charging when electricity prices are low).

New Zealand's electricity system is facing challenges around security and affordability of supply. The growing uptake of electric vehicles (EVs) risks lifting morning and evening peak electricity demand further, driving costly network upgrades that flow through to all consumers.

The cost of these upgrades is expected to be significant and would be passed onto all consumers. Modelling indicates that unmanaged EV charging could increase average household peak energy demand by 40 per cent. Such an increase in peak demand could increase the average cost of supplying a household by approximately $220 per year (or $1.7 billion across all households out to 2050).

Smart EV charging can significantly reduce the impact on electricity infrastructure by enabling shifting demand away from peak periods, in turn deferring or reducing the need for infrastructure upgrades.

Based on overseas trends, electricity retailers and networks are expected to move to more dynamic pricing (i.e. varying electricity prices throughout the day and night, based on real-time factors such as the amount and type of supply, and network constraints). Smart EV chargers can automatically respond to these price signals – and shift consumer electricity use to times of lower demand.

However, the availability of dynamic pricing options relies on a good penetration of devices being ‘smart’ and interoperable (i.e. being able to talk to each other). Insufficient consumer awareness, higher costs and inconsistent functionality or lack of interoperable devices, are some key barriers to the effective take up of ‘smart’ EV chargers and dynamic pricing.

While consumers are increasingly investing in higher capacity ‘fixed’ chargers at home – many consumers are not purchasing devices that have ‘smart’ functionality[1]. Government intervention is required because there is a significant risk that greater use of non-smart faster chargers will put avoidable strain on the grid. There is also a risk that the chargers on the market that may be considered “smart” may not be interoperable. This limits when and how the devices can be used and could lock consumers out of services and choice. Because fixed chargers have high upfront and installation costs and operate for 10-15 years, it is important that such purchases accommodate a changing electricity system.

Given current consumer trends (i.e. purchasing non-smart fixed chargers) and insufficient availability of dynamic pricing, without intervention there is a significant risk that NZ will not achieve a sufficient scale of smart charging in time to avoid large costs on the energy system. The scale of this problem is significant as the energy sector supports all aspects of New Zealand’s economy.

A range of options, including non-regulatory, have been explored. The Energy Efficiency and Conservation Authority (EECA) provides education and promotes smart charging for consumers, including through an ‘approved smart charger list’. However, our view is that regulation is needed in addition to consumer education to prevent poor performing (non-smart) fixed chargers from entering the New Zealand market, therefore ensuring interoperability between the charger and electricity networks, avoiding increases in network costs, and creating benefits for the electricity system.

What is the policy objective?

The overarching policy objective is to support greater uptake of smart EV charging to reduce demand and costs to the electricity system.

The intended outcomes are:

[1] EECA (2025) EV Charging Research https://www.eeca.govt.nz/assets/EECA-Resources/EECA-EV-Charging-Research-2025.pdf

- All new EV fixed chargers with a maximum charge capacity over 2.4kW (excluding trickle chargers) supplied in New Zealand have smart functionality
- Greater active (or controlled) management of EV charging by consumers (or retailers and third parties on consumers' behalf)
- Reduced impact on peak demand and network congestion from EV charging.

Indicators to measure this will be:

- Proportion of EV owners with smart chargers charging dynamically in response to price signals
- Proportion of EV owners using managed charging or flexibility plan (using EECA surveys related to charging behaviours)
- Electricity peak demand reduces (the ratio between peak and average demand in any given year).

What policy options have been considered, including any alternatives to regulation?

1. Do nothing (i.e. continue current education and promotion activities by EECA and wider Government work on enabling smart electricity use).
2. Voluntary labelling requirements for chargers that indicate smart functionality and energy efficiency.
3. Mandatory labelling requirements for chargers that indicate smart functionality and energy efficiency.
4. Requiring all EV chargers with a maximum charge capacity of more than 2.4 kW supplied in New Zealand to have smart functionality; and

4A. Requiring smart functionality and mandatory labelling **(preferred option)**.

What external consultation has been undertaken?

Multiple external consultations have been taken on this proposal, including a 2022 green paper on smart charging, targeted engagement in 2024, a discussion document and World Trade Organisation (WTO) trade notification in 2025.

Stakeholders generally supported the preferred option of regulation and agreed with the problem definition. Some stakeholders disagreed with the preferred option due to perceptions around increased cost for consumers, limiting consumer choice, and the already widespread use of scheduling. We have addressed these concerns in our analysis.

Further external consultation is required on the specific rules that determine how to comply with the regulations. These will be made by the Minister of Energy and drafted by EECA and consulted on after policy decisions are made on these proposals.

Is the preferred option in the Cabinet paper the same as preferred option in the RIS?

Yes.

Costs

Description of costs and where they fall

The proposal may result in increased costs, relative to the counterfactual, on both consumers that purchase EV chargers, as well as suppliers and manufacturers of EV chargers. Information from the equivalent United Kingdom (UK) regulations implemented in 2022 shows an initial increase in the costs of smart chargers, followed by a decrease after a year due to manufacturers becoming familiar with the regulations. The increase in price could be because:

- Fixed EV chargers with smart functionality currently on average cost more than non-smart fixed chargers for consumers. However, there is significant overlap in the price of chargers. A 2024 comparison by EECA showed 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.
- Suppliers and manufacturers may have had additional costs associated with compliance – these could have been passed on to consumers.

Benefits

Description of benefits and where they fall

There are three key benefits from the proposed regulations:

- Reduced impact of EV charging on peak demand on networks, requiring lower capital expenditure on networks. Some of these benefits will be passed through to consumers in the form of avoided higher electricity lines charges.
- Positive impacts of lower peak demand for electricity generation, including lower wholesale market price volatility and less need for expensive fossil fuel peaking generation. This could lead to lower emissions. Some of these benefits will be passed through to the consumers in the form of lower electricity costs.
- Consumer savings from managed EV charging, such cheaper off-peak power or being paid to have charging controlled by a third party. The proposal will also ensure consumer purchases of fixed chargers are fit for a future energy system and consumers are not locked into proprietary systems.

The benefits of smart charging have been monetised by various modelling and research:

- Concept Consulting estimates that managed EV charging could avoid increases in average household peak demand by 40 per cent, avoiding $220 per household per year, with a present value across all households out to 2050 of $1.7 billion.
- Transpower estimate smart EV charging could reduce peak demand by 1.9 GW (18 per cent) by 2035.
- Sapere, in the Electricity Networks Aotearoa (ENA)-commissioned modelling, found that smart charging could reduce new EV-related peak demand by over 1.5 GW and avoid up to $1.1 billion in network upgrade costs by 2050.
- EECA modelling shows smart EV charging could deliver $4 billion in system savings by 2050.
- Boston Consulting Group estimates that ‘smart system evolution’ could yield $1.9 billion in savings and reduce household energy bills by around $70 per year.

Distributional impacts:

- In the long run, network and wholesale market benefits will be passed through to all consumers. This also avoids cross-subsidisation where non-EV owners pay for upgrades caused by EV charging.
- Lower income households may be disincentivised from purchasing EVs if they face (perceived or actual) higher costs – however if this barrier is overcome, they stand to gain from lower transport costs from cheaper EV charging.
- Regulated parties may face compliance costs but they are expected to reduce over time with familiarity. Some of these costs will be passed on to consumers.

Balance of benefits and costs

Does the RIS indicate that the benefits of the Minister’s preferred option are likely to outweigh the costs?

The analysis presented in this RIS indicates that, overall, the benefits outweigh the costs of the preferred option. Any likely increase in costs for individual consumers are likely to be small, given the overlap between the price of smart and non-smart charging units. UK experience shows an eventual decline in smart charger costs once manufacturers were familiar with the requirements. The preferred option does not require consumers to purchase smart chargers, they can continue to use portable 3-pin chargers usually supplied with the vehicle. The additional cost for regulated parties is also likely to be small, given that other jurisdictions have moved to introduce smart charging regulations. Manufacturers were in New Zealand were generally supportive of the regulations.

Compared to these relatively small costs the benefits are expected to be significant over the long-term. In contrast, under the status quo the increase in EV charging using non-smart meters may lock in increased network costs.

Implementation

How will the proposal be implemented, who will implement it, and what are the risks?
EECA will be responsible for operationalising the new rules. EECA regulates the energy efficiency of energy using appliances (such as whiteware and electronics) under the Energy Efficiency and Conservation Act 2000 (the Act). The new EV charger requirements will sit under the same Act and changes are being made to the Act to enable this (under the Energy Efficiency and Conservation (Energy Flexibility and Regulatory Improvements) Amendment Bill). Regulating for smart functionality will be a new area for EECA and may require new administration expertise.

The main risks from the proposal are the potential reduction of consumer choice in the types of chargers available and negative impacts on charger innovation. These risks will be mitigated by drafting rules broadly that allow for multiple compliance pathways. Once policy decisions to regulate EV chargers for smart functionality have been made, EECA will consult on the technical rules to be made under the regulations.

Limitations and constraints on analysis

The analysis relies on several key assumptions about consumer and market behaviour, namely:

- *Consumers will buy fixed chargers (as opposed to using their standard trickle chargers)*. While the extent to which consumers will choose to invest in dedicated fixed chargers is uncertain, we assume that current trends towards greater take-up will continue (as shown in EECA research[2]).
- *Greater adoption of smart chargers is necessary for the electricity sector to invest in smarter 'dynamic' pricing options*. While it is not possible to know the point at which retailers will start to offer 'dynamic pricing' at scale we know that sufficiently capable (and interoperable) smart chargers are a necessary precursor for take up of these options. Overseas experience shows that penetration of devices with smart functionality correlates with the availability of smart pricing options[3]. The Electricity Authority, following adoption of the recommendations by the Energy Competition Taskforce, is implementing a range of changes to the Electricity Participation Code requiring retailers and distribution networks

[2] EECA (2025) EV Charging Research https://www.eeca.govt.nz/assets/EECA-Resources/EECA-EV-Charging-Research-2025.pdf
[3] Burger, J. & Rosenow, J. 2025. Flexibility forward: A survey of smart tariffs optimising electric vehicles and heat pumps in Europe. The Electricity Journal: Volume 38, Issue 4.

to offer better rewards for consumers that manage their energy use. This includes requiring negative distribution charges for injection at peak times, and for retailers to offer time-varying consumption and injection plans.

- *Smart charging is necessary to shift consumers from unmanaged or manually scheduled charging to charging in response to dynamic pricing"*. Currently around a third of consumers make the effort to manually schedule their charging to off-peak times. We expect fewer consumers will charge off-peak as EV take up becomes more mainstream. A US study found that less than a quarter of charging sessions were actively scheduled.[4] Also, more than 50 per cent of UK consumers charge their vehicles at peak times[5]. Smart charging will make it easier for consumers to shift their charging behaviour by making it automatic.
- Another limitation of this analysis is that the expected benefits have not been monetised and compared with the expected costs. However, we believe our qualitative analysis of the potential costs, weighed up against the potential benefits (as experienced overseas) is sufficient to show a significant overall expected benefit. Consultation shows that stakeholders support this expectation.

I am satisfied that, given the available evidence, this RIS represents a reasonable view of the likely costs, benefits and impact of the preferred option.

Responsible Manager signature:

Scott Russell
Manager, Energy Use Policy
2 February 2026

Quality Assurance Statement	
Reviewing Agency: MBIE	**QA rating:** Meets
Panel Comment: *A Quality Assurance Panel from MBIE reviewed the Regulatory Impact Statement (RIS) titled Regulating smart EV chargers, prepared by the Ministry of Business, Innovation and Employment, on 8 December 2025 and 22 January 2026.* *The Panel considers that the information and analysis set out in the RIS meets the Quality Assurance criteria. The Panel notes that intervention is assessed as necessary to reduce the risk that, under the counterfactual, the market may not deliver inter-operable smart charging at sufficient scale or pace to support system wide benefits. This is based on assumptions about consumer knowledge and behaviour, which makes ongoing monitoring and evaluation of the intervention particularly important.*	

[4] Ipsos UK (for the Department for Transport). 2025. EV Driver Tracker Year 1 findings Final report https://assets.publishing.service.gov.uk/media/68aee8ae960e2d135b4c8e83/ev-driver-tracker.pdf
[5] Gupta et al (2023) The Untapped Potential of Smart Charging: How EV Owners Can Save Money and Reduce Emissions Without Behavioral Change https://arxiv.org/pdf/2503.03167

Section 1: Diagnosing the policy problem

What is the context behind the policy problem and how is the status quo expected to develop?

There are many different charging options available for EVs

1. The box below provides an overview of the different types of chargers in the New Zealand market. This proposal will primarily affect standard fixed chargers with maximum charging capacity greater than 2.4kW (kilowatts) for both public and private use. Portable (trickle) chargers typically supplied with vehicles have a charging capacity of 2.4kW and would not be in scope.

Type of charger

- The **portable 3-pin (trickle) charger** supplied with an EV that plugs into a **standard power point.** Provides a slow (usually overnight, depending on battery size) charge. There are versions that offer faster charging (e.g. caravan plugs) or scheduling, but are slower than fixed chargers.
- A **standard fixed charger —** provides faster, more convenient, and safer[1] charging (compared to a portable 3-pin charger), and often programmable by the user. Requires installation by an electrician.
- A **'smart' fixed charger—** as above but capable of two-way communication the electricity system and charging dynamically. Requires installation by an electrician.

Output of charger

- **Direct current (DC) fast chargers —** the fastest charging option, with a 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 are installed and operated by Charge Point Operators (CPOs). Public charging stations come in a range of charging capacities (e.g. slow 22kW AC or fast 25kW+ DC), can be smart or non-smart. Public stations 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, where the car can be parked for longer.

Private – can be portable or fixed charging units (both smart and standard), typically AC, but DC can be used for specific business needs. Can be used for both EVs and plug in hybrid cars.

Vehicle to grid

Some EV chargers also provide for two-way (bidirectional) charging, enabling the EV battery to power a household or supply to the grid. This is referred to as Vehicle to Home (V2H) and Vehicle to Grid (V2G) respectively. The term Vehicle to X (V2X) is used to refer to power feeding from a vehicle to any other use and is likely to become more prevalent in future. These are captured by the definition of a smart EV charger but come with additional features to allow two-way electricity flow.

2. For fixed chargers, common EV charging capacities are 7.4 kW AC (for home use), 22 kW AC (for business/public use), 50kW DC for business/public use, and up to 350kW DC for large very fast public charging.

What do we mean by ‘smart’ charger

3. Smart in the context of this paper means chargers that have two-way communication that allow the charger to easily interact with the electricity system or service providers[6] .

4. Smart functionality enables **energy flexibility** where electricity use (or injection) is actively managed in response to signals such as price using a smart charger. For example, an electricity retailer could send price signals to a customer’s energy management system, which turns down hot water heating when prices are high, or increases EV charging when prices are low, as agreed by the customer.

5. EV chargers can also be integrated with other products/systems such as solar generation, battery systems or energy management systems.

Onboard charging management

6. Some EVs have functionality to manage charging (including ‘smart charging’) directly through onboard features in the car (as opposed to via the charging unit). For example, a consumer could:

   a. Use a portable 3-pin charger, and schedule charging at certain times via the onboard scheduling functionality in the car. This is not the same as smart charging (i.e. it is unable to respond to price signals to manage charging dynamically).

   b. Have a fixed charger (either smart or non-smart) and allow their electricity retailer to manage charging behaviours via the car (rather than using smart functionality in the charger). Smart charging via the car is emerging in New Zealand – some electricity retailers are now able to (or developing the means to) connect directly to some EV models remotely and manage charging this way.

EV uptake is on the rise

7. The uptake of EVs is expected to gradually increase as the economics improve and people and businesses replace their vehicles. At the end of September 2025, there were around 121,000 light EVs in New Zealand, including plug-in hybrids, which is around 12 per cent higher than the previous year. This makes up around three per cent of the light passenger vehicle fleet.

New Zealand’s energy system is facing challenges to the supply and affordability of energy

8. Electricity demand is rising in New Zealand. New Zealand’s reliance on intermittent weather-dependent electricity sources, as well as declining gas reserves, are placing pressure on electricity supply. At peak times as the number of households and businesses using electricity increases we need more generation to meet demand. This has resulted in increased wholesale prices for households and businesses.

9. EECA estimates that if all consumers were to use EVs then demand on the electricity system would rise by 20 per cent[7]. Being able to accommodate this demand relies on owners charging their vehicles at off-peak periods.

Most consumers use trickle chargers at home, but the use of fixed chargers is growing

[6] **Note** the term ‘smart’ is used widely when talking about different levels of functionality for EV chargers. EV chargers that can connect to the internet or be controlled through an app are often described as ‘smart’ in marketing material. However, the proposal in this paper only addresses chargers with the ability for ‘two way communication’.

[7] https://www.eeca.govt.nz/insights/eeca-insights/electric-vehicles-and-aotearoa/

10. EECA's research on current EV owners shows[8]

    a. Around 90 per cent of EV owners charge their vehicles privately (at home or business), and this meets 80 per cent of their charging needs
    b. 3-pin trickle chargers are used by almost three quarters of EV owners.
    c. Around half of EV owners charge with a dedicated fixed charger at home (so there is an overlap with owners using both types of chargers).
    d. 25 per cent of owners start charging during off-peak - between 9pm– midnight. A third (34 per cent) stop charging before peak electricity time starts – between midnight and 7am.
    e. EV owners widely use public charging with around three in four considering buying an EV plan to use it for top ups while undertaking longer trips.

11. The research also found use of fixed chargers is growing over time. It increased from 42 per cent to 47 per cent from 2024 to 2025, with the use of trickle chargers reducing. The research suggests more consumers are investing in higher capacity fixed chargers (or considering so)[9].
12. Around half of those with dedicated 'fixed' chargers at home also indicated their charger is smart. However, based on a scan of smart chargers advertised we expect this is an over-estimate. For example, due to inconsistent standards and approaches not all chargers currently advertised as 'smart' meet the definition of having two-way communication.

Mainstream awareness of the benefits of smart charging or charging off-peak is low

13. Along the technology adoption curve, EV uptake is still relatively early. Current EV owners are more aligned with values attributable to early movers i.e. they are strongly engaged with the benefits that newer technology can offer and are more likely to consciously manage their electricity use and change charging behaviours.
14. While some early EV adopters are utilising off-peak pricing (see 10.d), they are doing so predominantly via manual scheduling (i.e. setting their charger to turn on at a specific time)[10].
15. Over time we expect that as EVs become more mainstream, mass-market consumers will be less likely to want to (or know how to) manually manage their charging or purchase a smart charger (as they do not understand the difference and benefits).
16. For example, EECA's charging research found that there is low awareness about the benefits of smart chargers. Further, in a recent survey of UK users of EVs - the most common answer was that the EV driver did not know the advertised cost per kWh of the charge point they used (37 per cent). Further 51 per cent of charges were still made using peak rates (despite more smart chargers being used in UK)[11].

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[8] EECA (2025) EV Charging Research https://www.eeca.govt.nz/assets/EECA-Resources/EECA-EV-Charging-Research-2025.pdf

[9] Around 40 per cent of EV owners (and 55 per cent PHEV owners) that do not have a dedicated home charger are considering one https://www.eeca.govt.nz/assets/EECA-Resources/EECA-EV-Charging-Research-2025.pdf

[10] Some trickle chargers come with basic scheduling ability, faster charging and safety protections,but usually need to be purchased separately for around $300.

[11] Ipsos UK (for the Department for Transport). 2025. EV Driver Tracker Year 1 findings Final report https://assets.publishing.service.gov.uk/media/68aee8ae960e2d135b4c8e83/ev-driver-tracker.pdf

17. A US study also found that 72 per cent of home charging commenced after the customer plugged in, regardless of pricing, and that less than a quarter of charging sessions were actively scheduled.[12]

We expect electricity pricing to become more sophisticated and dynamic, with innovative plans from retailers and flexibility aggregators

18. Currently, time-of-use pricing offerings for electricity retailers are relatively blunt i.e. off-peak pricing after 9 pm, or free hours of power. However, we expect this to become more sophisticated as the whole electricity system becomes ‘smarter’ and supports greater demand flexibility as well as a greater penetration of intermittent renewable energy.

19. A recently published news article[13] shows the downsides of blunt time-of-use pricing – the creation of new peaks (e.g. from lots of EV owners scheduling charging from 9 pm). The graph below from Transpower[14] shows the effect of this on peak demand.

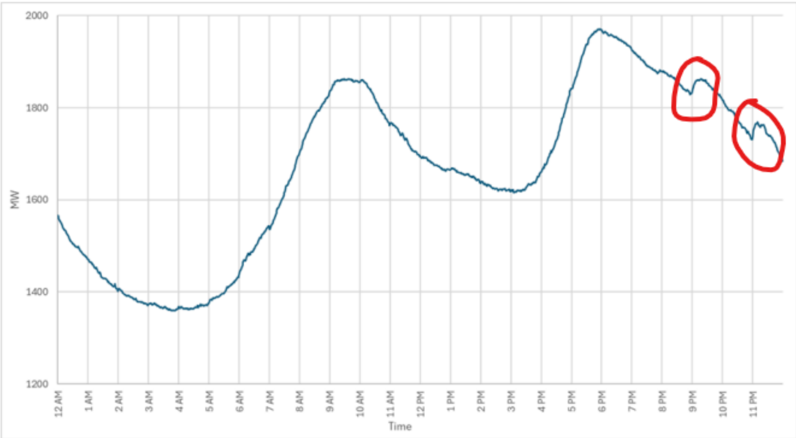

Figure 1: An example of a South Island load profile with a large load surge at 9pm and 11pm.

20. Soon, when there are more smart devices and electricity retailers and networks have more sophisticated systems, we expect greater use of dynamic pricing, with trials already being successfully demonstrated. Dynamic pricing is where the cost per unit of electricity (kilowatt hour, kWh) fluctuates often or in real-time. This will also encourage other parties such as flexibility aggregators[15] to offer flexibility services (which in turn can help to de-risk investment in renewable energy).

21. Instead of manually scheduling EV charging for off-peak hours, retailers with dynamic pricing could signal chargers to optimize for cheaper prices, renewables, or other factors. This ‘set and forget’ approach ensures the car is charged without consumer intervention. Some retailers already offer or are trialling this service.

Use of smart charging policy and dynamic pricing is increasing overseas

22. Other countries including the United Kingdom (UK), part of the European Union (EU) and China are progressing smart charging mandates to influence charging behaviour.

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[12] Gupta et al (2023) The Untapped Potential of Smart Charging: How EV Owners Can Save Money and Reduce Emissions Without Behavioral Change https://arxiv.org/pdf/2503.03167

[13] The Post (2025) Why turning on the dishwasher at 9pm isn’t helping the national grid https://www.thepost.co.nz/business/360825632/kiwis-are-shifting-their-electricity-use-not-always-ways-are-helpful

[14] Transpower (2025) Market Operations Weekly Report Market Operations - Weekly Report - 31 August 2025.pdf

[15] A flexibility aggregator is where a third-party service provider pays a group of consumers to shift or reduce demand (e.g. EV owners in a certain region signed up to a smart charging plan) and on sells that service to a party that benefits (e.g. electricity network facing congestion issues).

23. Prior to the UK adopting smart charging regulations in 2022, only 52 per cent of EV owners with home charging capabilities had one.[16] Now 76 per cent of EV owners have dedicated home chargers installed – with 70 per cent of these smart chargers[17].

24. A recent survey of 'smart tariffs' across Europe has found that countries with more smart metres, EVs, and heat pumps tend to also have more dynamic pricing (eg. 'smart tariffs) and flexibility services available[18]. This research concluded that the continued growth of smart tariffs will depend on the creation of supportive regulatory environments, recommending "policymakers should prioritise regulatory frameworks that promote local flexibility, standardise interoperability, and extend dynamic pricing to public charging infrastructure."

25. Australia is also progressing requirements around the interoperability of devices, which will include smart EV chargers. In the 2025 2+2 Australia and New Zealand Climate and Finance dialogue, both countries agreed to further align regulatory settings for consumer energy technologies, by working towards developing a joint approach on enabling electric vehicle (EV) chargers to have smart functionality.

There is existing non-regulatory work to promote smart charging

26. There is significant work underway across Government to support energy flexibility and a smarter electricity system. In July, the Electricity Authority decided to require retailers to offer time-of-use plans to consumers, changes to safety regulations to allow greater two-way flows of electricity, and various pilots and trials to test functionality such as communication protocols and show the benefits of demand flexibility. For example:
    a. Residential EV charging Publicly Available Specification (PAS) – provides guidance for consumers on good practice for charging their EV at home.
    b. EV chargers for commercial use PAS – provides guidance on good practice for commercial EV charging stations, including WorkSafe requirements and New Zealand Transport Agency guidance.
    c. EV Smart Charger Approved List – a list of approved residential and commercial electric vehicle chargers that meet efficiency and smart charging requirements.
    d. FlexTalk 1.0 installed smart EV charging functionality on three electricity networks to test real-time two-way connectivity with EV chargers in homes and businesses.
    e. FlexTalk 2.0 is underway to add other smart consumer technologies, creating exemplars of 'smart homes' of which smart EV chargers are a key component.

What is the policy problem or opportunity?

Increasing peak demand from EV charging could affect New Zealand's energy security and result in additional costs for all consumers

[16] International Energy Agency (2025) IEA Global EV Outlook 2025
https://iea.blob.core.windows.net/assets/c3f7fb7b-4205-4fd6-a20e-afe14a9aa252/GlobalEVOutlook2025.pdf
[17] Ipsos UK (for the Department for Transport UK) 2025 EV Driver Tracker: Year 1 findings:
https://assets.publishing.service.gov.uk/media/68aee8ae960e2d135b4c8e83/ev-driver-tracker.pdf
[18] Burger, J. & Rosenow, J. 2025. Flexibility forward: A survey of smart tariffs optimising electric vehicles and heat pumps in Europe. The Electricity Journal: Volume 38, Issue 4.
https://www.sciencedirect.com/science/article/pii/S104061902500065X

27. Due to their large energy requirements, increasing use of electric vehicles has the potential to cause significant strain on electricity networks, particularly at times of peak use (if unmanaged).

28. In a scenario where a large portion of EV owners drive home from work and plug in their vehicles, coinciding with the existing evening peak, Concept Consulting modelled this could increase average household peak demand by 40 per cent. Depending on consumer behaviour, a 40 per cent increase in household peak demand could increase average cost of supplying a household by as much as $220 per year, with a present value across all households out to 2050 of $1.7 billion.[19]

29. Such an increase in peak demand could result in three interrelated sets of costs to:

    a. **Electricity generation:** as more non-renewable (thermal) generation would be needed to meet peaks, which is more expensive to produce and results in more fossil fuels. As New Zealand electrifies and builds more intermittent renewable energy (wind and solar) this issue could be exacerbated.

    b. **The distribution network**: from investment needed in the network to cope with increasing generation and demand. We are already seeing the effects of increased investment needed in distribution networks, with the Commerce Commission noting bills would rise by about $10 per month from April 2025, partly due to higher levels of investment needed.[20]

    c. **Consumers:** as costs from the increased generation and upgrades to the distribution network needed will be passed onto consumers through their energy bills.

Smart EV charging provides an opportunity to avoid significant costs to upgrade the electricity system and reduce costs for consumers

30. EVs have a significant ability to influence network peaks (alongside water heating) compared to other controllable energy use. By nudging consumers to charge their EVs at off-peak periods - the value of smart EV has been estimated through a range of research summarised below[21]:

    - Transpower estimate smart EV charging could reduce peak demand by 1.9 GW (18 per cent) by 2035.[22]
    - Sapere, in modelling commissioned by the Electricity Networks Association (ENA), found that smart charging could reduce new EV-related peak demand by over 1.5 GW and avoid up to $1.1 billion in network upgrade costs by 2050.[23]

[19] Concept Consulting (2021) Shifting gear How New Zealand can accelerate the uptake of low emission vehicles Report 2: Consumer electricity supply arrangements.
https://www.concept.co.nz/uploads/1/2/8/3/128396759/ev_study_rept_2_v2.0.pdf
[20] https://comcom.govt.nz/regulated-industries/electricity-lines/projects/2025-reset-of-the-electricity-default-price-quality-path
[21] The range of figures from different parties shows that the value depends on assumptions around consumer behaviours (i.e. using the smart features or signing up for a dynamic power plan) -but all point to significant savings
[22] Transpower (2020) Whakamana I Te Mauri Hiko Empowering our Energy Future
https://static.transpower.co.nz/public/publications/resources/TP%20Whakamana%20i%20Te%20Mauri%20Hiko.pdf
[23] Sapere Research Group (2023) Modelling peak electricity demand to 2050, commissioned by ENA
https://www.ena.org.nz/our-work/news/peak-demand-in-2050-and-avoiding-an-energy-gridlock/document/1539

- EECA modelling shows smart EV charging could deliver $4 billion in system savings by 2050.[24]
- Boston Consulting Group estimates that "smart system evolution" could yield $1.9 billion in savings and reduce household energy bills by around $70 per year.[25]

31. Consumers also benefit from smart chargers that respond directly to price signals from their electricity retailer and charge using cheaper power. While some consumers already do this with scheduling, greater power bill savings are available from smart charging, and these savings are expected to increase further with innovative and dynamic pricing structures.

32. Adopting smart EV chargers can further enable consumers to use and adopt similar smart systems for other consumer devices. For example, when EV charging, hot water and battery storage demand can be supplied by additional excess solar generation, network expenditure can be reduced by around 60 per cent.[26]

To realise the benefits, consumers need to own smart chargers and be offered more dynamic pricing plans

33. A critical part of a smart electricity system is the functionality, uptake and use of smart devices by consumers. While EECA research also shows that the use of dedicated fixed chargers at home is growing overtime - many of these chargers are not smart.

34. Insufficient consumer awareness or incentives, inconsistent functionality of devices, and higher costs are some key barriers to the effective uptake of 'smart' EV chargers. In turn, low uptake by consumers does not provide a sufficient incentive for electricity retailers and other service providers from designing and offering energy flexibility services (or the effective functioning of those services)[27] and dynamic pricing. As shown overseas, the greater the availability of smart devices, the greater the number of Time of Use or dynamic pricing plans are available to consumers[28].

35. In New Zealand there is **little availability of dynamic pricing** - with only one supplier offering dynamic pricing. Consequently, there is limited incentive for consumers to purchase smart chargers given they are often not able to take advantage of the full benefits.

36. Under current market conditions, we expect that as EV uptake rises more consumers will continue to purchase non-smart fixed chargers, particularly as they are being sold on average at lower prices (see costs section). EV chargers can last up to 15 years (depending on a number of factors including type, size, and usage), so each non-smart EV charger installed today will lock in non-dynamic EV charging for this time – reducing the potential benefits to consumers.

Not all fixed chargers are interoperable, limiting the ability to scale dynamic pricing

37. Interoperability promotes competition with flow-on benefits for consumers. Electricity operators (networks, third party flexibility aggregators, retailers) need to be able to able to communicate with a critical mass of devices to offer dynamic pricing plans.

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[24] EECA (2024) Residential smart EV chargers and demand flexibility https://www.eeca.govt.nz/insights/eeca-insights/residential-smart-ev-charging-and-demand-flexibility/
[25] Boston Consulting Group (2022) The Future is Electric https://web-assets.bcg.com/b3/79/19665b7f40c8ba52d5b372cf7e6c/the-future-is-electric-full-report-october-2022.pdf
[26] ANSA (2025) Low voltage distribution network investment requirements from electrification
[27] https://www.eeca.govt.nz/assets/EECA-Resources/Consultation-Papers/Demand-Flex-Green-Paper.pdf
[28] Burger, J. & Rosenow, J. 2025. Flexibility forward: A survey of smart tariffs optimising electric vehicles and heat pumps in Europe. The Electricity Journal: Volume 38, Issue 4. https://www.sciencedirect.com/science/article/pii/S104061902500065X

38. **Inconsistent approaches and standards** to smart charging means that not all smart chargers are interoperable (i.e. able to communicate or talk to other smart devices or systems). Devices that aren't interoperable can lock consumers into using particular services. Consumers may also be misled to think they are purchasing a smart charger when it does not have full smart functionality.

39. A recent survey of Electricity Distribution Businesses suggests the absence of common standards makes it difficult and costly for energy service providers to integrate various devices and systems[29]. Further, this inconsistency and lack of interoperability is hindering the ability of providers to bring demand flexibility or dynamic pricing to scale.

Opportunity to provide greater certainty to the market and ensure alignment with international standards and Australia

40. The absence of regulatory standards for smart functionality is seen as a barrier to suppliers in being able to assess the benefits or risks of providing more flexible energy services[30]. Government intervention would signal to the market and suppliers to invest in making smart chargers and dynamic pricing tariffs available.

41. There is significant electricity sector support[31] for regulating smart chargers' as well as alignment with other work from regulators. For example, submitters responding to the Electricity Authority's (EA) recent consultation on a decentralised electricity system suggested that "*[s]tandardisation and secure data-sharing protocols for DER technologies (e.g. EVs, batteries) are vital to scale flexibility services and ensure efficient system integration*". [32]

42. The EA is also moving forward with rule changes to require negative distribution charges for injection at peak, and for retailers to offer time-varying consumption and injection plans.

43. There are trade advantages from developing a joint approach with Australia and adopting international standards to provide greater certainty to the market. NZ and Australia have recently committed to developing a joint approach on enabling electric vehicle (EV) chargers to have smart functionality.[33]

Public chargers will also benefit from having smart functionality

44. In addition to challenges caused by home charging, smart functionality for public chargers can also help manage network constraints and can also help avoid the risk of assets being stranded in future. For example:

    a. EECA piloted a smart public charger installation that specifically avoided a $20m grid upgrade in Turangi due to the large charging load in that location (i.e. by integrating smart public chargers with lines company's local load management system to control the load.

    b. EECA has specific experience of a project failing because commercial participants were unable to agree on interoperable technology, which would be prevented by standardisation in regulations.

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[29] Jacobs., 2026. Quantifying Demand-Side Flex: Summary and Insights. [The full potential of flexible electricity use in New Zealand | EECA]
[30] *Ibid*
[31] As evidenced by work underway by the Flex Forum such as the Flexibility Plan https://flexforum.nz/flexibility-plan/
[32] Electricity Authority (2025) Green paper – A decentralised electricity system https://www.ea.govt.nz/documents/7187/Green_paper_-_decentralised_electricity_system.pdf and Summary of Submissions: Summary_of_submissions_-_Decentralisation_Green_Paper.pdf
[33] Australia-New Zealand 2+2 Climate and Finance Ministers' Dialogue Joint Statement | Beehive.govt.nz

45. Having public chargers all using interoperable and open communication protocols lessens the risk of them becoming stranded assets, if the original charging company collapses.[34] The functionality proposed ensures a new provider can take over the chargers rather than them becoming unusable.

There is also an opportunity to improve consumer awareness of the energy efficiency of smart chargers

46. The different energy efficiency of EV chargers are also not well understood. AC EV chargers are highly efficient, however at low loads they can be inefficient (70 per cent or less) and, cumulatively, small efficiency gains can lead to large energy savings.

47. In addition, whenever there is power conversion (e.g. AC to DC for a DC charger) there will be electricity losses. Accordingly, EECA's Approved EV Charger list specifies a minimum efficiency requirement for DC chargers (which tend to have a larger output than AC chargers) to be at least 90 per cent efficient between 25 per cent and 100 per cent load.

48. Greater consumer awareness around efficiency of EV chargers, for example through labelling or better consumer information, can help to:

    a. encourage EV charger manufacturers to consider energy efficiency and improve it, and

    b. enable third party controllers of EV chargers to consider how the energy efficiency of the charger could impact the flexibility benefits to the end consumer. For instance, the flexibility aggregator would be able to calculate the financial impact to the consumer on reducing the charger's power draw at times of high pricing against the higher impact on consumer costs of incurring more losses from running that charger at a lower – but more inefficient load.

Government intervention is required because if we are not able to achieve a smarter electricity system, challenges to New Zealand's supply and affordability of energy would be exacerbated

49. Given current consumer trends (i.e. purchasing non-smart fixed chargers) and insufficient availability of dynamic pricing, there is a significant risk that NZ will not achieve a sufficient scale of smart charging in time to avoid large costs on the energy system. The scale of this problem is significant as the energy sector supports all aspects of New Zealand's economy.

What objectives are sought in relation to the policy problem?

50. The purpose of the proposal is to support the uptake of smart EV charging in New Zealand. The objectives sought are:

    51. **EV owners and electricity suppliers have tools to manage peak electricity demand** – technology supports shifting demand in response to price and network signals.
    - **All electricity consumers benefit from managed EV demand** – EV owners benefit from dynamic pricing, network infrastructure is optimised, and system benefits flow through to all end consumers in reduced costs.

[34] As has happened recently to Etrel in Europe and JuiceBox in the US.

- **Consumer experience, control and ease of charging is maintained or enhanced** – consumers are able to charge easily and effectively.

What consultation has been undertaken?

52. Significant consultation has been undertaken on 'smart charging' related considerations and proposals over a number of years. This includes the following external consultations:
    a. 2022 EECA green paper: improving the performance of EV chargers (1 month):
        i. 86 submissions from all types of parties including individuals, networks, industry bodies, power companies and charger manufacturers.
    b. 2024 targeted consultation on initial smart EV charging proposals (meetings over 2 months):
        i. Meetings with under 10 parties including networks, power companies and charger manufacturers.
    c. 2025 Discussion document: proposals to support the uptake of smart EV charging (1 month public consultation):
        i. 46 submissions from all types of parties including individuals, networks, industry bodies, power companies and charger manufacturers.
    d. 2025 WTO 60-day trade notification, to consult with international partners in line with our international trade obligations.
53. Submitters or stakeholders engaged with throughout these consultations were:
    a. Generally, in agreement with the context, policy problem and opportunity as well as objectives.
    b. In the majority, in favour of regulating for smart functionality, in order to achieve the above objectives.
    c. In favour of the proposed functionalities to regulate for.
    d. Generally, of the view that a voluntary scheme would be ineffective and costly. EECA's view is also that voluntary labelling is also more difficult to administer than mandatory labelling due to lack of enforceability.
54. A common concern held by submitters that regulation alone is not enough to incentivise smart charging behaviours and needs to be combined with better pricing mechanisms to reward consumers.
55. Some of the key feedback we received, resulting in changes to our approach or further analysis included:
    a. Specific consideration on the development of onboard charging, how this would interact with any regulations and what would be the ultimate impact on consumers.
    b. Some suggestions to alter the objectives, including consideration of technology-neutrality, a least cost transition and expansion of impacts beyond just electricity networks.
    c. Some submitters (particularly consumers) thought that smart charging was not needed when schedule charging meets their needs, and therefore no intervention required to support uptake of smart chargers. We have included significantly

further detail about evolving dynamic pricing, future-proofing and risks related to secondary peaks in response.

Section 2: Assessing options to address the policy problem

What criteria will be used to compare options to the status quo?

56. The criteria used to compare options to the status quo, how they relate to the objectives and key considerations are as follows.

1. Greater management of charging and resulting in lower overall costs:
    - This relates to all three objectives – higher uptake of smart chargers is likely to result in greater management of EV charging which in turn, results in reducing peak demand and costs for all electricity consumers. Even with higher numbers of smart chargers in consumer hands, this is highly dependent on consumer behaviour.
2. Technology neutrality and consumer experience:
    - This relates to objectives 1 and 3 – smart charging can be done in more than one way (see onboard charging section above) and maintaining consumer choice is important to enhancing the charging experience.
    - There is a trade-off between regulating now for a particular type of technology (i.e. smart chargers) to avoid adverse effects versus leaving open choices for consumers.
    - Regulation is inherently likely to 'pick winners' and limit consumer choice. The scope and design of any regulations are key to ensuring a balanced approach to meeting this criterion.
3. Unlocking a smarter electricity system:
    - This relates to objectives 1 and 3. Achieving widespread adoption of smart chargers helps futureproof New Zealand for a smarter electricity system across a range of different uses in the long-term. Deploying smart chargers supports the development of a wider flexibility market by installing devices that are inter-operable with the grid and other types of smart devices can also contribute to managing demand in the future. Preventing non-smart technology from being purchased avoids the risk of consumers being locked into non-smart charging for a long period of time or with stranded public assets.
4. Equitable allocation of costs:
    - Imposing regulations incurs costs for regulated parties as some pass on costs to purchasers of EV chargers. However, there also costs incurred under the counterfactual and non-regulatory options so this criterion assesses the balancing of the party to bear these different costs.

What scope will the options be considered within?

57. The scope of options covers both regulatory and non-regulatory options related to smart EV chargers, from doing nothing, providing better labelling for consumers to requiring all chargers to have smart functionality.

58. The scope of options requiring smart functionality:

    a. **Only includes chargers at a maximum charging capacity above 2.4kW**. Low-capacity EV chargers (i.e. 2.4kW or less) draw a similar amount of power as any other household appliance and are not likely to have a significant impact on the grid (generally, these are 3-pin trickle chargers, or low-capacity fixed chargers). This addresses feedback received through the submissions process.

b. **Applies to all types of use** (i.e. private home, private workplace charging, commercial fleet charging, public charging), since the same EV chargers can be sold and used for different purposes and there are benefits to smart charging across all types of uses. However, the initial focus is on AC chargers with capacity of approximately ~7 kW which are primarily used in household settings.

Excluded options

59. Some other options were considered during previous consultations and the development of this analysis, but they have been ruled out or excluded to reduce complexity. These included:

a. Exploring additional information and behaviour change activities: EECA's research and information provision are ongoing and will continue to be improved alongside any regulations.

b. Price-based market incentives: there is a significant programme of work across the EA and Commerce Commission. Pricing is complex across distribution networks and retailers. While itis being progressed for the wider electricity market, it is out of scope for this analysis, but the work is complementary to the device-level technology requirements of this proposal.

c. Subsidies or direct incentives: A number of stakeholders in earlier consultations (less so in 2025) supported the provision of subsidies or rebates to support the installation of smart chargers. Some noted that this would only be a short-term solution and others were not supportive due to equity grounds. Subsidies are not proposed as an option because of the current fiscally constrained environment and equity concerns raised during consultation.

d. Minimum energy efficiency standards for smart chargers: While we have some information about how energy efficiency and losses can affect charging, it is not entirely clear that there is a case to require minimum energy efficiency standards at this time. Labelling can be an effective way to support consumers to make decisions and understand the energy efficiency of different chargers, while gathering data on the performance of chargers to inform any further decisions about minimum performance standards in future.

e. Regulation of onboard smart charging: While onboard smart charging is emerging, there are drawbacks to this technology that would make it difficult or complex to regulate or control, including:

i. not all EV models have this capability,

ii. EV manufacturers may specifically disable this feature,

iii. EV manufacturers may lock consumers into using a certain proprietary system or electricity provider, and creating this integration for each car brand, can add cost and complexity to smart charging, and

iv. onboard smart functionality may not allow integration with other household flexibility devices, such as the use of solar or home energy management systems.

60. The options considered won't prevent onboard smart charging. Onboard smart charging will still be able to be accessed through existing trickle or fixed chargers.

We are not currently proposing to include cybersecurity considerations for smart chargers

61. Consumers need to be confident that using an EV charger will not compromise their security or ability to charge. The security and resilience of the wider electricity system must be protected from cyber-attacks.

62. While submissions on our discussion document supported cybersecurity requirements, we are not proposing to include cybersecurity requirements for EV chargers. Cybersecurity is managed across the electricity system. 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.

63. Cybersecurity of all devices connected to our electricity system is a wider issue than just EV chargers. Further policy work is required to consider cybersecurity requirements for devices more broadly, and to assess appropriate functions and responsibility for regulation. The Department of Prime Minister and Cabinet (DPMC) is developing options to enhance the cybersecurity of critical infrastructure in New Zealand, including electricity distribution.

64. Smart EV chargers are already freely sold and used in New Zealand, many of which meet existing cybersecurity industry standards. We expect smart chargers that meet our proposed requirements (covered below) will mostly comply with internationally accepted communication standards, which already incorporate security mechanisms. We will continue to monitor cybersecurity risks to inform future policy work on cybersecurity.

What options are being considered?

Option One – *Do nothing*

65. Option one is the counterfactual that there are no regulations on the supply of EV chargers in New Zealand. Existing non-regulatory options are included in the counterfactual as described in the context section above.

Option 2 – *Voluntary labelling for smart functionality and energy efficiency*

66. Option two is voluntary product labelling of smart functionality and energy efficiency. EV charger suppliers could be given the option of a standardised label that includes information about energy efficiency (similar to those seen on whiteware products) and smart functionality. This could include a checklist indicating whether the charger does or does not perform certain functions, enabling consumers to more easily compare chargers that bear those labels.

Option 3 – *Mandatory labelling for smart functionality and energy efficiency*

67. Option 3 is to introduce mandatory labelling of smart functionality and energy efficiency. Labels would be similar to other mandatory Energy Rating Labels e.g. on whiteware and electronics (known as Mandatory Energy Performance labelling).

68. 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 are smart*

69. Option 4 is to require all EV chargers supplied in New Zealand with charging capacity above 2.4KW (excluding trickle chargers) to be smart. Regulations and rules would set out the scope of EV chargers covered and requirements to those chargers would have to meet.

70. In practice this would mean that only smart EV chargers would be available for supply in New Zealand from the date the new regulation applied (excluding stock imported before

the commencement date). It would not, however, require consumers to install a smart charger – the option of 3-pin trickle charging (with or without onboard scheduling) would still be available (and able to be supplied with the car). Regulatory requirements would not affect consumers using existing EV chargers.

71. The requirements would include a range of functionalities needed to ensure a charger is smart. We have considered and consulted on some aspects of what smart functionality might reasonably cover, but the specifications for these would be set in rules (under the enabling regulations) and EECA would consult on this in detail.

72. Indicative smart requirements that could be included in rules are as follows:

Functionality	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).	Promotes uptake of demand flexibility generally in that consumers have confidence that additional products they acquire will integrate their energy use efficiently. Promotes competition where service users can confidently switch service provider. Enables emergence of demand flexibility service providers who know that systems and services they develop will integrate with customer devices.
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 to better manage demand.
Consumer override While smart chargers can be controlled by a third-party under delegation from the user, EV charger owners must retain ultimate control 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.	Demand flexibility providers or retailers can personalise electricity delivery to each customer based on the precise charge of the customer's EV.
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.

Option 4A – *Require that all EV chargers are smart and mandatory labelling for energy efficiency and additional smart functions*

73. Option 4A is option 4 with the addition of labelling for the efficiency and any additional smart functions of EV chargers (beyond the minimum requirements outlined in Option 4).

74. Additional smart functionality information could:

a. Identify the manufacturer's implementation choice, where there is freedom to comply with the requirements in different ways, for example, if chargers are required to have open communication protocols, they could show whether the charger uses an open-source communications protocol versus a proprietary (but disclosed) protocol.

b. Provide display of additional features over and above the minimum requirements, such as incorporating emerging capabilities relevant to consumer control of energy use or sources like "V2X" (power flow from the car battery to load home, or the grid).

75. There may be varying degrees of energy efficiency, as covered above, and this could also be shown via labelling.

Key: more symbols equals more impact (positive or negative)	
0	No change from counterfactual
+	Improves achievement of criteria
-	Reduces achievement of criteria

How do the options compare to the status quo/counterfactual?	**Option 1 – *Counterfactual***	**Option 2 – *Voluntary labelling***	**Option 3 – *Mandatory labelling***	**Option 4 – *Require that all EV chargers are smart***	**Option 4A – *Option 4 requirements combined with labelling***
Greater management of EV charging demand resulting in lower overall costs	0	+ *Some consumers make informed decisions based on label to purchase smart chargers resulting in greater demand management*	+ *Consumers make informed decisions based on label to smart chargers resulting in greater demand management*	++ *All fixed charger purchases to have smart functionality so more likely to result in greater demand management*	+++ Labelling combined with smart requirements has greatest potential to reduce demand
Technology neutrality and consumer experience	0	+ *Does not limit consumer choice, but provides some preference towards smart charging units*	+ *Does not limit consumer choice, but provides some preference towards smart charging units*	0 *Some limits to consumer choice, but open design to mitigate this (see commentary below)*	+ *Some limits to consumer choice, but open design to mitigate this (see commentary below) and labelling enhances informed decision making*
Unlocking a smarter electricity system (e.g. dynamic pricing)	0	+ *Labelling may promote smart chargers and help educate consumers who want to make a decision on longer-term benefits*	+ *Labelling may promote smart chargers and help educate consumers who want to make a decision on longer-term benefits*	++ *Widespread purchasing will give consumers the option to interact with a smarter electricity system*	++ Labelling has further future proofing benefits, in allowing for easily identification of additional features
Equitable allocation of costs	0	- Voluntary labelling likely to be ineffective, with costs borne by only those who participate. Costs for all consumers is not reduced due to ineffective take up.	+ *Some reduction in costs for all consumers, and extra costs borne by charger suppliers and purchasers.*	++ *Greater reduction in costs for all consumers, and greater costs related to compliance and chargers borne by suppliers and purchasers*	++ *Greater reduction in costs for all consumers, and greater costs related to compliance and chargers borne by suppliers and purchasers*
Overall assessment	0	0	+	++	+++

What option is likely to best address the problem, meet the policy objectives, and deliver the highest net benefits?

76. The preferred option is **Option 4A – *Mandatory smart requirements combined with labelling for smart functionality and efficiency*.**

77. This option is most likely to encourage consumers to use smart charging and overcome key barriers for take up by ensuring they are the only options on the market for higher capacity chargers. Importantly, this option also prevents uptake of non-smart chargers with maximum charging capacity above 2.4 kW that would lock consumers into non-smart pricing options – costing more and making it harder to charge off-peak.

78. Option 4A best meets the policy objectives because:

    a. **EV owners and electricity suppliers would have tools to manage peak electricity demand**. As EV uptake increases, only fixed chargers that can easily manage charging dynamically through communicating with the wider electricity system (such as retailers or other flexibility service provides), would be purchased. Evidence from overseas suggests that greater uptake of chargers with smart functions would give the electricity industry confidence to develop their own tools (such as software platforms) or innovative incentives (such as dynamic pricing) as they know end users have the correct devices to connect with.

    b. **Consumer experience and ease of charging is maintained or enhanced**. Only applying the requirements to chargers above 2.4kW means that consumers are still able to choose low capacity (non-smart) fixed chargers as well use smart onboard charging. The interoperability requirements that will be designed in the rules will ensure the smart devices available will work with all service provides (i.e. avoid technology-lock out) and communicate with different smart devices to take advantage of wider benefits of smart charging. This specific design of the proposal will also seek to encourage innovation and other ways of managing charging where it provides consumer benefits. Consumers will retain the ability to override smart charging if they need or want to.

    c. By ensuring a greater uptake of smart chargers, the preferred option is most likely to ensure that purchased devices **are future proofed for a changing electricity system** so consumers will be able to take advantage of cheaper prices.

    d. **All electricity consumers benefit from managed EV demand.** The preferred option is most likely to reduce the risk of EVs overwhelming the electricity system at times of peak demand. Therefore, this option will most likely result in the quantified benefits of deferred network investments costs which would otherwise be passed onto all electricity consumers.

79. Most submitters believe that regulation is necessary to ensure a timely and consistent transition to smart charging, and that the market's forces alone are insufficient due to cost barriers, lack of consumer awareness, inconsistent approaches and the continued availability of cheaper non-smart options.

80. There were some concerns about rising costs and reduced accessibility, particularly for lower-income groups. The need to ensure low-cost charging options to remain available was also highlighted. These concerns can be addressed through the design and implementation of the requirements and 3-pin charging which will continue to be an

option. Like it occurred in the UK, we also anticipate costs for smart EV fixed charging will reduce overtime.

81. The preferred option impacts regulated parties by imposing additional compliance requirements on the supply of EV chargers in New Zealand. However, EV charger-specific regulated parties may face similar regulations in overseas jurisdictions that we are seeking to align with. Further, the broader electronic appliance supply chain has some experience in understanding and complying with energy efficiency regulations where they supply appliances in scope.

Discussion on multi-criteria analysis

82. The counterfactual is taken as being the baseline, therefore for each criterion, the assessment is considered to have no impact. Discussion of how other options achieves each criterion is covered below in more detail.

Greater management of EV charging demand resulting in lower overall costs

83. The level of managed EV charging that will occur is highly dependent on the uptake of fixed chargers at home. As current evidence suggests consumers purchasing fixed chargers at home is increasing, and 2 in 5 trickle charger users are considering buying a dedicated fixed charger[35].We expect consumer uptake will continue to increase.

84. EECA's experience shows that labelling can influence consumer purchasing decisions – therefore options 2 and 3 will have some impact resulting in greater management of EV charging if more consumers are influenced to purchase a smart charger (resulting in a better smoothing of peak demand and lower associated costs). With options 2 and 3, there is a risk of increased non-smart high capacity chargers entering the market resulting in expanded system costs from peak demand increases.

85. Options 4 and 4a both require all available fixed chargers (with charging capacity above 2.4kW) on the market to be smart, resulting in more consumers purchasing smart chargers. As it has been shown overseas, greater availability and the use of smart chargers would encourage smarter (dynamic) pricing and incentivise charging at off-peak times – putting less strain on the electricity system. Option 4A shows the highest level of impact due to the additional support of labelling in influencing consumer behaviour with some additional cost reductions from more energy efficient chargers being supplied.

Technology neutrality and consumer experience

86. There are two key aspects to this criterion:

    a. what is available to buy and the decision-making choices

    b. choice of how to charge.

87. Labelling of chargers does not limit what is available to buy, but also allows for greater consumer choice in deciding between products. This supports the positive impact of options 2, 3 and 4A on this criterion.

88. 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

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[35] EECA (2025) EV Charging Research https://www.eeca.govt.nz/assets/EECA-Resources/EECA-EV-Charging-Research-2025.pdf

indicates smart functionality could be more influential as it may provide more material energy costs savings for consumers.

89. Mandatory smart requirements will limit what is available to buy – i.e. non-smart chargers will no longer be available (except for trickle chargers). Negative impacts on these criteria are the key risk of options 4/4A compared to options 2/3. However, our proposed approach to regulation and subsequent rules is to set minimum smartness functionalities, while ensuring there are multiple pathways to comply. For example, a charger could comply with a communication requirement by meeting the relevant international standard, or alternatively by demonstrating that it meets the required outcome in another way (i.e. can connect with other systems via its own protocol). This will allow innovation and multiple pathways for compliance. This mitigates some of the negative impact related to what is available to buy under 4 and 4A.

90. Some submitters saw options 4/4A as negatively affecting choice of how to charge (i.e. picking smart chargers over non-smart or onboard charging) compared to 2/3. However, the design of any regulations would mitigate this in two ways – regulations would not prevent trickle charging via 3-pin plugs nor would it prevent an EV owner using their car's functionality to manage their charging. This gives consumers the choice on how to charge, while enabling them to manage their charging via the car if they wish to do so. If this delivers more benefit, then over time the market can also provide this solution concurrently. This mitigates negative impact in the assessment of options 4 and 4A.

91. Further, if charger providers want to innovate or provide additional functionality on top of the minimum (such as for Vehicle to Grid functionality), the regulations would not prevent this and the benefits of these could be further communicated to consumers via labelling, supporting a low positive impact for option 4A.

92. Regarding public charging, we do not expect that requiring chargers to be smart will reduce consumer ability or experience with public charging. Charge point operators (CPOs) already manage the electricity load at a site between multiple chargers to some extent and are incentivised by their customer base to not impact the charging experience, particularly at fast charge sites. Instead, the benefits (related to network upgrades and stranded assets) can be realised alongside managing consumer needs, as is already done with chargers co-funded by Government and the Supercharging EV programme. This mitigates any negative impact in the assessment of options 4 and 4A.

Unlocking a smarter electricity system (e.g. dynamic pricing)

93. Under "do nothing", there is a risk of locking people into non-smart devices and slowing the development of flexibility services/dynamic pricing.

94. Labelling and smart requirements (options 2 and 3), to the extent where they encourage smart charger purchases, may support the development of a smarter electricity system and more dynamic pricing. However, the certainty to the market that all new fixed chargers would be smart (options 4 and 4a), could provide greater confidence to the electricity sector to develop the systems and price mechanisms needed to encourage dynamic pricing.

95. Therefore, there is low positive impact for options 2 and 3 (likely to get some additional devices in the market), with some risks that non-smart chargers continue to enter the market and are unable to participate in a smart electricity system for 10-15 years; and a higher positive impact for options 4 and 4A (likely to get more additional devices in the market).

96. Greater uptake of smart charging and dynamic pricing will also be supported on the wider work underway across Government.[36] Smart EV charging and a smarter electricity system are complementary – more smart devices will support the development of innovative pricing and innovative pricing will encourage the greater use of those smart chargers.

Equitable allocation of costs

97. Under the status quo, there would be an inequitable allocation of costs, where EV owners cause higher costs for all consumers who will need to pay for infrastructure upgrades to support greater demand on the electricity system.

98. Voluntary labelling is expected to be ineffective in addressing this problem due to inconsistent uptake of labels and costs will be borne only by some suppliers. This is consistent with submitter feedback and EECA's view of voluntary labels, resulting in a low negative assessment for option 2.

99. The key trade-off for this criterion between non-regulatory (Options 1 and 2) versus regulatory options (3, 4 and 4A) is the imposition of compliance costs on regulated parties. We expect these costs to be borne by charger manufacturers and suppliers, and some passed through to purchasers plus users of EV chargers. This is consistent with the existing minimum energy efficiency requirements and labelling administered by EECA. As our requirements will look to incorporate international standards and seek to harmonise with comparable jurisdictions (rather than creating bespoke NZ requirements), the additional compliance costs for charger manufacturers will be mitigated.

100. The proposal may result in slightly higher upfront costs for purchasing a smart EV charger, given smart chargers tend to be slightly more expensive than non-smart fixed chargers (see '*Discussion of costs*' below). Some compliance costs may also be passed onto the consumer. Evidence from the UK suggests initial higher costs when the regulations come into force tend to decline overtime (see section 'costs' below).

101. Equitable allocation is considered here for costs of regulation against costs under the counterfactual. If EV owners contribute to peak demand, but all electricity consumers pay for upgrades through higher electricity bills, they are effectively subsidising EV owners. It is appropriate for EV owners to pay higher costs of smart chargers to mitigate this.

102. A less positive assessment is given for Option 3, due to there being a lesser equitable allocation of costs and to a lesser smart charger uptake (and, hence higher network costs). Whereas Options 4 and 4A result in a medium positive assessment due to higher smart charger uptake.

Is the Minister's preferred option in the Cabinet paper the same as the agency's preferred option in the RIS?

103. Yes.

What are the marginal costs and benefits of the preferred option in the Cabinet paper?

Affected groups	Comments	Impact	Evidence Certainty

[36] Various pieces of work such as consumer information from EECA and time-of-use plan requirements and network visibility projects from the EA.

Additional costs of the preferred option compared to taking no action			
Regulated groups / Government	Initially higher 'set up' costs for these parties to comply with the regulations, decreasing over time.	Medium	Medium
Regulators / Government	Some additional costs of setting up new 'smart' regulatory function but low given current delivery of energy efficiency regulations.	Low	High
EV owners	Smart and non-smart chargers have a price overlap, possibly some higher upfront costs but limited.	Low	High
Total monetised costs		-	-
Non-monetised costs	*Overall, we expect low additional costs in the long run as charger costs come down and suppliers become familiar with the regulations (or already comply with similar overseas regulations).*	*Low*	*High*
Additional benefits of the preferred option compared to taking no action			
EV owners	In the long run, we expect smart charging to enable consumers to save more on charging by responding to dynamic pricing.	Medium	Medium
All electricity consumers	Lower investment in network upgrades is passed on to all consumers and lower prices due to less expensive thermal peak generation.	High	Medium
Total monetised benefits		-	-
Non-monetised benefits		*High*	*High*

104. Overall, we expect the long-run benefits of the proposal to significantly outweigh the costs.

105. There is some uncertainty about the impact of the preferred option 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 charging behaviour include:

    a. Technological progress (in chargers, the EVs themselves, and potentially smart home management systems) and its impact on the upfront cost of purchasing a fixed charger.

    b. Market forces – competition and innovation in pricing tariffs incentivising demand flexible enabled charging.

    c. Other policy work and regulatory system changes mentioned earlier.

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

   a. The regulation of electricity distribution network asset management and investment by the Commerce Commission.

   b. Rates of household electrification (including EV uptake) and therefore, an increase in demand on networks.

107. Given the various pieces of research with a range of estimates that all show significant benefits, our view is that despite the uncertainties above, we can confidently assess the benefits of the preferred option as high.

Discussion of costs

108. Costs for EV owners may have some limited increases. However, a (July 2024) cost comparison by EECA found that smart chargers are generally more expensive than non-smart chargers, with 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. More recently, we have seen manufacturers seeking to provide lower cost EV smart chargers, for example Evnex has recently launched a budget smart charger for $799.[37] Consumers also pay for installation, which is approximately $500 - $1000, depending on the suitability of the existing wiring and other factors.

109. 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:

   a. *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.

   b. *Reporting and compliance requirements*: costs of meeting administrative regulatory requirements, e.g. product testing and reporting information to the regulator.

110. A recent process evaluation of Great Britain's EV charger regulations with a similar objective to this regulatory proposal[38], 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.

111. Some of the cost effects may be mitigated because manufacturers are responding to existing overseas regulation similar to what would be imposed in New Zealand. However, some uncertainty remains in terms of quantifying residual costs to industry.

112. Regulatory proposals 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).

[37] Evnex launches NZD $799 smart charger for budget EVs

[38] Department for Energy Security & Net Zero (2023) Process Evaluation of the Electric Vehicles (Smart Charge Points) Regulations 2021 Research and Evaluation Findings Report https://assets.publishing.service.gov.uk/media/673dd6a5b3f0df6d2ebaeefe/smart-charging-process-evaluation-findings-report.pdf

113. Overall, we expect costs for the regulator to be low, given its current delivery of energy efficiency regulations for energy-using appliances. Some additional costs will be incurred to expand this to regulating smart functionality.

Discussion of benefits

114. For EV owners, smart charging allows them to take advantage of cheaper electricity or innovative plans offered by retailers.

115. There are also significant benefits available for all electricity consumers. A 2021 Concept Consulting report[39] quantifies the additional potential cost of unmanaged EV charging due to peak demand growth causing the need for network investment (i.e. costs of the status quo, or additional benefits of regulation). This states that poorly managed growth could lead to the average household paying $220 more per year by 2050, a present value cost of $1.7 billion. As the report discusses a range of measures to avoid this additional status quo cost, we view this as a 'medium' certainty quantification. and complementary changes.

116. Several of the reports noted above have quantified significant benefits from smart EV charging (Transpower, EECA, Sapere and ANSA).

[39] Above, n 3

Section 3: Delivering an option

How will the proposal be implemented?

117. The *Energy Efficiency and Conservation Act 2000* (the EEC Act), enables regulations of products and services for energy efficiency.

118. The Government has determined that the EEC Act is the appropriate legislative vehicle to implement any smart EV charging regulation. In August 2024, the Government agreed to deliver a more effective regime that can respond to the latest market developments and support a smarter electricity system.[40] Work is underway on an amendment bill to enable energy flexibility functionality ('smart') requirements to be set for products, such as for EV chargers.

119. Smart EV charger requirements can be made once the amendment bill has been enacted. EECA is progressing work on initial drafting of Smart EV charging rules to ensure it is ready to progress this work quickly if Cabinet confirms policy decisions.

120. The Government's decisions also include streamlining the regulation making process so that once Cabinet has decided to regulate a product, EECA can draft technical requirements in rules to be made by the Minister for Energy to … that product. This means the requirements can be drafted, agreed, and adopted more efficiently to keep up with product and technology changes.

121. EECA regulates energy using appliances for energy efficiency, and we expect smart requirements to be administered in a similar way to existing regulations. EECA has adequate resourcing to perform functions to administer and to enforce the regulations and rules and has developed relevant expertise in this area. EECA's role in the provision of consumer information will also support uptake and effective use of new smart EV chargers.

122. A transitional period of at least six months is required before the regulations can come into force, as required by New Zealand's World Trade Organisation obligations. New requirements would not apply to products imported into New Zealand or manufactured in New Zealand before the new requirements come into force.

123. 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.

How will the proposal be monitored, evaluated, and reviewed?

124. EECA, as regulator of energy efficiency (and in future, demand flexibility) regulatory system would undertake compliance, monitoring and review activities for any new requirements relating to EV chargers. This includes:

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

    b. Sending information on compliance to regulated parties and providing support such as answering enquiries.

    c. Conducting market scans to identify regulated parties and ensure they are complying with the regulations.

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[40] ECO-24-MIN-0162 refers.

d. Conducting check testing, where products are tested to ensure they comply with the legislation.

e. Conducting investigations into suspected non-compliant product and taking enforcement action in line with EECA policies.

f. Collecting annual sales data to understand how the market is developing, which can feed into compliance and regulation/rule review.

125. In addition, MBIE would monitor the effectiveness of the intervention as part of its role as steward of the Energy Efficiency and Conservation Act and the energy regulatory system . This monitoring would include assessment of how the policy is working in practice and how well it delivers objectives. MBIE will provide feedback to EECA on draft rules and advice to the Minister for Energy on rules drafted by EECA.

126. For existing energy performance regulations, EECA calculates energy savings effected by regulation and makes that data available to MBIE to track the impacts of product regulation. Where the effect is minimal, EECA and MBIE may progress deregulation. EECA is developing an approach to determine the benefit of demand flexibility regulations, based on sales information that will be collected.