

1 November 2022

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Submission on the 2022/23 and 2023/24 Levy-Funded Appropriations

Introduction

1. This is Vector Limited's (Vector) submission on the Electricity Authority's (the Authority) consultation paper on the *2022/23 and 2023/24 Levy-funded Appropriations*, published on 4 October 2022 (the Consultation Paper).
2. In Vector's view, the Authority's five interrelated strategic ambitions for the electricity sector are becoming even more relevant, as the transition to a more decentralised, digitalised, and decarbonised energy future (the energy transition) accelerates. These strategic ambitions – which the levy-funded appropriations are intended to support – include consumer centricity, trust and confidence, low-emissions energy, thriving competition, and innovation flourishing.
3. As options that support the energy transition start to take shape, it becomes more important that the regulatory settings being developed for a low-emissions future ensure an "orderly transition". This means that the generation and use of more renewable energy is incentivised, and barriers to decarbonisation – some of which are identified in this submission – are removed.
4. An orderly transition cannot be achieved if electricity prices increasingly become unaffordable for consumers, whose long-term benefit the regulatory framework is designed to deliver. It is therefore important that the regulatory framework provides the right incentives and signals so that market competition and innovation can thrive to ensure energy affordability, particularly for end consumers.
5. We set out below our responses to selected questions in the Consultation Paper and make suggestions we believe would enable industry participants and consumers to make more informed decisions as they navigate the energy transition. We also propose pathways to enable low-voltage network visibility of electric vehicle (EV) chargers, a critical aspect of the transition, in the **Appendix**.

Responses to selected consultation questions

Q1. What kinds of engagement have you or your organisation had with the Authority over the past 12 months?

6. Vector has had various kinds of engagement with the Authority over the past 12 months. These include:
 - a. written submissions on the Authority's consultation papers;

- b. responses to the Authority's requests for information as part of its *Updating the regulatory settings for distribution networks* workstream – as an electricity distributor and a metering service provider;
 - c. participation in online briefings and workshops hosted by the Authority;
 - d. discussions on specific topics with Authority managers and staff via Teams or Zoom calls or emails, e.g. to clarify our views or proposals;
 - e. meetings with the Authority Board and executive;
 - f. meetings with the Authority alongside cross-sector partners (e.g. FlexForum);
 - g. disclosure of wholesale market information as an ancillary agent and market participant;
 - h. discussions on compliance issues; and
 - i. informal discussions with Authority managers and staff on a range of policy, regulatory and industry issues during forums or events hosted by the Authority or industry groups.
7. We encourage the Authority to continue focusing on improved stakeholder engagements which would support its strategic ambition of creating trust and confidence in the electricity market and industry.
 8. We offer two suggestions we believe would significantly improve engagement between the Authority and the sector:
 - a. Reinstate the Authority's regular meetings with industry regulatory managers and consumer representatives. We discuss this further in our response to Q8.
 - b. Initiate workshops following submission processes to increase the level of shared understanding of industry perspectives and positions.

Q3. The Authority is proposing a permanent baseline increase of \$7.308 million to the Electricity Industry Governance and Market Operations appropriation in 2023/24 bringing the total appropriation in 2023/24 to \$104.021 million. Do you support the Authority's proposal for funding of \$104.021 million?

Note: The Authority is not seeking feedback on the funding received for real-time pricing or market-making in this process.

9. Vector recognises that significant additional resources for FY2023/24 are required to progress and implement important reforms to ensure an orderly, efficient energy transition.
10. We provide comments below on the workstreams that are most relevant to our businesses and which we believe are critical to the development of regulatory settings in the context of a decentralised, digitalised, and decarbonised energy future.

Regulating for a new energy future

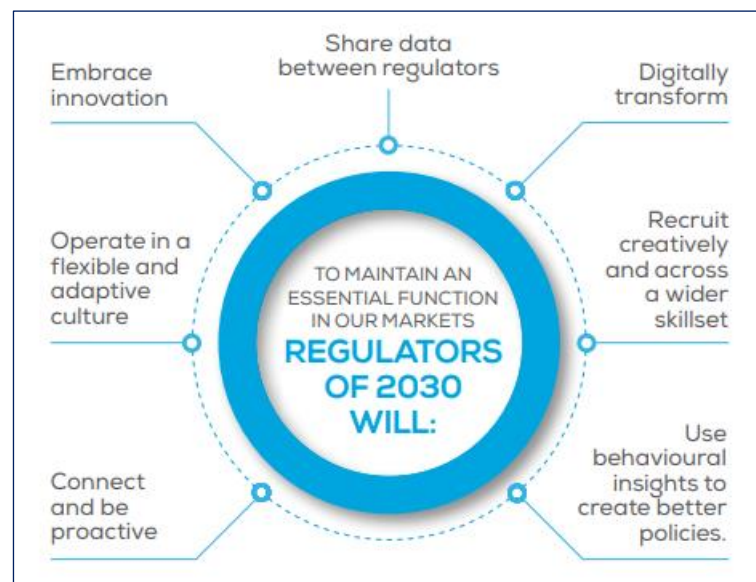
It has to become the DNA in the regulator's mind that new technology and new ways of thinking actually de-risk the system.

- Jost Stollman
Former CEO, Tyro Payments

11. The electricity sector is rapidly evolving and becoming more complex, as the number of customer energy resources (CER) connected to the grid, such as EVs, continues to grow. Regulators need to develop smarter regulation and offer new solutions that can 'cut through' this complexity and support an orderly transition.
12. In a dynamic environment, regulators need to transform themselves, just as the entities they are regulating are transforming or being transformed. To ensure that regulatory outcomes are optimal and able to support an orderly transition, regulators need to adapt and be "agile,

innovative, collaborative and digitally transformed”.¹ A digitally transformed regulator will no longer be playing catch-up as electricity markets, and the energy sector generally, continue to face disruptive innovation.

13. The transition to new technologies is not costless, but efficiencies and greater market monitoring sophistication – enabled by digitalisation and new technology – will cut costs and increase transparency. For example, the application of analytics, machine learning, and artificial intelligence to the increasing volumes of data being collected by regulators would make detection of existing and potential harm to consumers, systemic risks, emergencies, and non-compliance timelier and more accurate, i.e. oversight and auditing shifts to being ongoing, in near real-time.
14. The use of advanced analytics can provide real-time insights into market movements. This enables regulators to identify emerging trends that could benefit consumers or respond in a timely manner where there is harm or potential harm to market participants or consumers.
15. Increasing digitalisation could transform not only the regulatory infrastructure but also the boundaries between sectors which are already becoming less defined or blurred. For example, EVs – which are, first and foremost, a means of transport – can also become distributed generators that can store and inject power back to the grid when and where there is value for EV owners in doing so.
16. Digitally transformed regulators can rethink their approach to the creation and enforcement of regulatory frameworks nimbly, where necessary or warranted. Technology could simplify regulatory processes, capture feedback more quickly, and help ensure that the appropriate privacy and security settings are in place to protect consumers and uphold market integrity.
17. Chartered Accountants Australia and New Zealand identified in its paper, *The Regulator of 2030: Regulating our digital future*, the “essential characteristics of any future regulator wishing to retain consumer confidence and remain effective as we approach 2030”² (illustrated below):



¹ Chartered Accountants Australia + New Zealand (June 2017), *The Regulator of 2030: Regulating our Digital Future*, available at <https://www.charteredaccountantsanz.com/news-and-analysis/insights/research-and-insights/the-regulator-of-2030-regulating-our-digital-future>, page 18

² *Ibid.*, page 2

18. A digitally transformed regulator could make conducting trials for new products and services less daunting for innovators. Some sectors are well advanced in the use of digital technology for regulatory purposes. For example, the United Kingdom was ranked by EY to be the world's most fintech-friendly jurisdiction. The U.K.'s fintech policy environment includes *Project Innovate*,³ a scheme designed to help fintech firms get regulation fit. It also includes a 'regulatory sandbox' which enables businesses to test out new services in an environment that is exempt from standard regulations⁴ (usually within a time-limited period).
19. Another example is the Monetary Authority of Singapore (MAS) which has set up *Looking Glass @ MAS*. It is a regulatory sandbox that will allow the central bank to test fintech solutions with financial institutions, start-ups and technology vendors, as well as facilitate consultations with industry experts.⁵
20. Closer to home, increasing digitalisation underpins the implementation of the Consumer Data Right (CDR) in Australia's banking sector (now covering most banking consumers) and fintech sector, and its commencement in the energy sector this year. The CDR enables end consumers, in a secure manner, to access their consumption data in near-real time and/or authorise their service providers to share their data with accredited third parties. The New Zealand Government intends to introduce a CDR to the country along the lines of the Australian CDR.
21. The use of digital tools and platforms enables regulators to conduct consultations more nimbly, by allowing ongoing conversations between multiple parties, e.g. through online feedback platforms and virtual roundtables. This reduces the regulatory burden on both regulators and stakeholders. Through these interactive tools, regulators can also collaborate with interested industry participants and consumers in developing regulatory options or solutions, i.e. 'crowdsourcing' of solutions, or co-designing some of the early stages of new or innovative solutions.
22. Collaboration between industry participants and others beyond the energy sector is expected to ramp up in the coming years. In Vector's case, we are developing new solutions that enable the delivery of more affordable, reliable and cleaner energy to end consumers through our strategic alliance with Amazon Web Services (AWS).
23. The work we are doing with X is contributing to their Tapestry project, which is about accelerating the decarbonisation of electric power systems. Tapestry aims to create highly accurate visualisations and simulations of the grid that can predict how it will behave from nanoseconds to years into the future. As a 'moonshot' project, there is uncertainty over final outcomes, however, the challenge and potential solutions have huge relevance for the sector and across sectors in NZ and internationally.
24. We encourage the Authority to explore and consider the use of more digital tools and technology and embark on becoming a digitally transformed regulator sooner rather than later.

Updating the regulatory settings for distribution networks

25. Electricity distributors will play a key role in enabling and unlocking the benefits from CER and facilitating the transition to a low-emissions future. While the electrification of transport and process heat are expected to have significant impacts on low-voltage distribution networks, the exact nature of these impacts are only starting to be understood as access to data improves.

³ Chartered Accountants Australia + New Zealand, *op. cit.*, page 16

⁴ *Ibid.*

⁵ *Ibid.*

26. We encourage the Authority to continue to actively engage, and engage more broadly, with industry and cross-sector initiatives aimed at developing options and solutions for the energy transition. These include groups we are a part of, such as the FlexForum, the Electricity Networks Association's Smart Technology Working Group, the Northern Energy Group, and various parties conducting flexibility trials in partnership or in parallel, etc. Engagement in these forums will increase the Authority's appreciation for the scale of transformation required.
27. The uncertainty from CER installed at homes and businesses presents both a challenge and a significant opportunity for distribution businesses and the wider industry. A key focus of many ongoing discussions on the energy transition is the implications of the growing number of EVs on the distribution network. Multiple forums are exploring how this CER can be utilised to better manage the network and the overall system, reduce the need for traditional wired network investment, and deliver benefits for consumers who made the decision to invest in CER.

Network visibility of EV chargers

28. At this stage of the energy transition, understanding where and when EVs are charged is critical for efficient network planning and operation. This is heightened by the fact that this technology is new and largely unknown, with pathways that are still unclear. Network visibility of EV chargers can be enabled by requiring the registration of EVs against an ICP at the time of the installation of the EV charger.
29. In Vector's submission on the Energy Efficiency and Conservation Authority's (EECA) consultation on improving the performance of EV chargers, issued in August 2022, we proposed pathways to increase distributors' visibility of EV chargers on their network. These are: 1) the Certificate of Compliance pathway, and 2) the Qualified Installer Programme pathway.⁶ We suggest that the Authority, as part of its workstream on *Updating the regulatory settings for distribution networks*, or as a standalone project, consider amending the *Electricity Industry Amendment Code 2010* (the Code) as may be necessary to enable these proposed pathways. We describe these pathways in detail, and how they can be facilitated through Code amendments, in the Appendix. Implementing this would deliver significant tangible benefits to consumers today and in the future by enabling efficient network management of and planning for EVs, and as such, should be prioritised for funding as necessary from the proposed increase in levies.

Distribution pricing reform

30. Vector acknowledges the active engagements by the Authority's pricing team with our pricing team over the past year. We look forward to further engagements going forward as we undertake the process of publishing updated electricity prices, which commence in April 2023.
31. In parallel, we will be updating our pricing methodology and roadmap for publication, also in April 2023. With the Authority's assessment of the 2022 disclosures being paused, we encourage Authority staff to visit distributors' sites to learn of the practical implications of its decisions and understand how distributors operate at a working and operational level. We believe this will provide some practical insights in the development of the distribution pricing scorecards for 2023.
32. Vector is currently taking stock of the latest Practice Note issued by the Authority and the focus areas signalled in its recent open letter on distribution pricing.

⁶ https://blob-static.vector.co.nz/blob/vector/media/vector-2022/vector_eeca_ev_smart_charging_submission_1.pdf, pages 15-17

33. In October 2022, the Authority issued additional guidance on distribution pricing and added an additional appendix on the pass-through of transmission charges. Yet, there remains a degree of uncertainty within the sector on the Authority’s overall position on the pass-through to consumers of distribution price signals, and indeed for whom it expects distributors to be pricing – whether it is for retailers and flexibility traders, or end consumers. This distinction is fundamental for framing up the design questions and considerations that follow (for example, whether complexity needs to be moderated). The sector would benefit from the Authority clarifying its views on this, explicitly, to reduce this uncertainty and help the sector progress.

Wholesale market reforms

34. Ensuring electricity remains affordable to consumers through the energy transition is one of Vector’s highest priorities. A workably competitive wholesale market will be critical to achieving that.
35. We are therefore supportive of the Authority’s focus on addressing future large electricity contracts akin to the contracts between New Zealand Aluminium Smelters, Meridian Energy, and Contact Energy (“the Tiwai contracts”). However, rather than solely addressing a *symptom* of a lack of competition (as the Tiwai contracts could be described), the Authority must continue to prioritise addressing the potential *causes* and the conditions on the supply side that led to the Tiwai contracts being struck in the first place.
36. Vector supports the ongoing development of longer-term and durable solutions to wholesale market pricing and other inefficiencies that potentially harm consumers. The multi-dimensional nature of the Authority’s ongoing Wholesale Market Review (WMR), which we support, highlights the importance of considering more holistic and enduring reforms, in anticipation of a future with 100% renewable power supply. We also strongly support the Authority’s *Future security and resilience* workstream and the Market Development Advisory Group’s investigation of market design under 100% renewables.

. . . The future price of electricity will be a function of choices and costs across the whole supply chain – including, critically, in new renewable generation. As consumers rely more on electricity as part of a low-emissions energy system, we must take a whole-of-system approach to future investment.

We want to ensure that market conditions are in place to encourage electricity system growth and evolution that will increase our reliance on renewables as efficiently, and securely, as possible, without compromising the level of service New Zealand’s consumers expect. In the case of new generation, this requires us to unlock the potential of localised and diverse sources of renewable generation and consider the total system cost of new investments. This can help support affordability for our consumers and support New Zealand’s emerging independent generation market.

. . . While New Zealand has always had a relatively high penetration of renewable generation, complete removal of fossil-fuelled generation from the system would represent a significant shift away from the paradigm contemplated when the original generations of wholesale market design – from dispatch to new investment – were developed internationally in the 1990s.

Given the magnitude of the transition it is vital that we continue to ask deep and probing questions of this design, and openly question whether it will deliver efficient investment in the large quantities of renewable generation required – which is the real prize for consumers – as well as efficient operation of the system. We owe it to our consumers to do more than look back at what the existing market has achieved, or to compare its performance to inferior models internationally. Rather, we need to look forward to the future and to the model that will deliver the best outcomes for generations of New Zealand energy consumers to come.

– Vector’s submission to the Authority on price discovery under 100% renewables, 15 March 2022⁷

⁷ <https://blob-static.vector.co.nz/blob/vector/media/vector-2022/vector-mdag-100re-issues-submission-cleaned.pdf>, pages 1-2

Coordination with the Commerce Commission on the IM Review and DPP reset

37. Vector encourages the Authority to coordinate closely with the Commerce Commission (the Commission) during its ongoing Input Methodologies Review (IM Review). This would ensure that regulatory settings developed by both regulators for the future are appropriate and aligned. In practical terms, this would ensure that whole-of-system costs are minimised, and regulatory gaps and duplication – which impose unnecessary costs on industry participants – are avoided.
38. In coordinating with the Commission on the IM Review and in the Authority’s development of electricity regulation for the future, we encourage the Authority to have regard to the need to remove barriers to decarbonisation as soon as possible. Both the Authority and the Commission need to explicitly include the importance of decarbonisation in promoting the long-term interests of consumers.
39. Actions that directly relate to the Commission’s work which we believe would help remove, or mute the adverse impacts of, such barriers include:
 - a. improving the performance of EV chargers;
 - b. overcoming any remaining barriers to acquiring smart meter data so the value of this data can be unlocked for retailers, flexibility traders, networks, and the long-term interest of consumers;
 - c. incentivising procurement that supports decarbonisation, e.g. switching to SF₆-free switchgear;
 - d. incentivising investment in energy efficiency measures, campaigns, and initiatives with end consumers;
 - e. expanding the purpose of ‘innovation’ to include decarbonisation; and
 - f. clarifying the scope of the ownership and use of generation assets by distributors.
40. While the IM Review is the Commission’s focus at present, its focus will soon shift towards the resetting of the next Default Price-Quality Path (DPP). We foresee a key role for the Authority to ensure electricity distribution businesses’ allowances reflect the investment required to unlock the potential from electrification, a key enabler of an orderly energy transition.

Coordination with the Gas Industry Company on the Gas Transition Plan

41. Vector further encourages the Authority to coordinate closely with the Gas Industry Company as it continues to develop options for the *Gas Transition Plan* that would feed into the Government’s *Energy Strategy*. Gas has an ongoing role to play to support industry during the energy transition and remains a fuel of choice for many end consumers. A coordinated approach is important, particularly in the development of solutions to ensure that gas supply is available for electricity generation when it is required (‘the lights are kept on’), particularly during dry winters.
42. At the retail end of the market, a more coordinated approach to market monitoring would ensure that end consumers are well informed of the range of market offerings (including dual-fuel offerings), and experience the same minimum level of consumer protection regardless of who supplies the fuel.

Metering compliance forum or working group

43. Vector appreciates the active engagement by the Authority’s new compliance team with our smart metering business (Vector Metering) during its MEP and ATH Forum in July this year.

44. To keep engagements such as the above sustainable, we suggest the establishment of an industry-wide “metering compliance forum” where issues related to compliance with Code provisions related to metering can be identified, discussed, and resolved. As the need for smart meter data accelerates to enable the delivery of more digitalised energy services, complex and challenging metering issues that are causing confusion amongst industry participants need to be addressed in a more structured and timely manner. We suggest that the Authority facilitate such a forum at least every six months.
45. Alternatively, the Authority could consider establishing a “metering compliance working group” to consider systemic metering-related issues raised by industry participants. This working group can present options and recommendations to the Authority on how specific issues may be addressed, e.g. by introducing the appropriate Code amendments or developing guidelines. This working group, which can serve as the ‘first point of call’ for participants on metering compliance issues, could include representatives from metering service providers, approved test houses, retailers, distributors, auditors, consumer groups, and new energy service providers.
46. The Authority could further consider refreshing or expanding the Standing Data Formats Group (SDFG) to enable it to discharge the above functions. It is not clear what the status of the SDFG is currently.
47. The resolution of many compliance issues can be a discovery process, particularly those that are alleged to breach untested provisions of the Code. It is therefore important that a shared understanding of identified issues can be established across the industry in the first instance, which the above proposed metering compliance forum or working group can facilitate.

Omnibus Code review

48. Vector suggests that the Authority re-activate its omnibus Code review process annually, or at least every two years. Regular reviews of non-controversial and technical improvements provide greater clarity and promote consistency of provisions across various parts of the Code.
49. An omnibus Code review could also help identify systemic and complex issues that require more in-depth consideration by the Authority. This would make the Code more responsive to accelerating changes enabled by new technologies and rising consumer expectations during the energy transition.

Q4. Would you support a further increase as signalled to funding for the Electricity Industry Governance and Market Operations appropriation for 2024/25 and outyears?

Note: The Authority is not seeking feedback on the amount for the Electricity and Industry Governance and Market Operations appropriation for 2024/25 and outyears in this consultation as this is pending the baseline review.

50. Our comments in our response to Q3 equally apply to the workstreams that are the subject of the proposed additional baseline funding for FY2024/25 and outyears. There is a significant amount of change required to the sector’s regulation and facilitating this, along with the sector, will require our regulators to increase their capacity and capability.
51. In addition, Vector suggests that the proposed independent baseline review be either informed by stakeholder consultation, or the outcomes of the review be subject to stakeholder consultation. This would ensure that the review would be meaningful not only for the Authority but also for participants and their customers, who ultimately bear the costs of the levy. This should be informed by the Authority’s corporate strategy, developed over 2019-20.

Q8. Would you like to provide any other comment on the Authority's proposed 2022/23 or 2023/24 funding?

Regular regulatory updates

52. Vector recognises the improved engagements between the Authority and industry participants over the past year or two, despite the COVID-19 restrictions. These engagements help create a shared understanding of ongoing and emerging issues and each other's priorities. Importantly, this will assist in the identification of potential and preferably industry-based solutions for the complex and multi-dimensional issues of the energy transition.
53. In the context of the lifting of almost all of the COVID-19 restrictions, we suggest that the Authority consider re-activating the meetings with industry regulatory managers and consumer representatives – ideally every two months but at least every quarter. These were a critical method of engagement for the first decade of the Authority's existence, and were highly appreciated by industry stakeholders. Regular briefings, which can be held face-to-face and/or online, would help participants keep abreast of the Authority's multiple workstreams and enable them to have a more comprehensive picture of the inter-relationships of multiple new and ongoing workstreams, enabling them to make more informed decisions.

Reporting on the Authority's carbon footprint

54. As a regulator of an industry that is actively transitioning to a low-emissions future, the Authority could consider reflecting in its regular and/or statutory reports the actions it has taken and/or is taking to minimise its carbon footprint.

Concluding comments

55. Vector looks forward to more productive engagements with the Authority in the coming months on the above and related issues. As always, we would welcome Authority staff should they wish to visit our offices in Auckland and other locations to learn more about our operations and the communities we serve.
56. We are happy to discuss any aspects of this submission with the Authority. Please contact Luz Rose (Senior Regulatory Partner) at Luz.Rose@vector.co.nz in the first instance.
57. No part of this submission is confidential, and we are happy for the Authority to publish it in its entirety.
58. The Appendix sets out our proposed pathways to enable network visibility of EV chargers – for the Authority's consideration.

Yours sincerely
For and on behalf of Vector Limited



Dr James Tipping
GM Market Strategy / Regulation

APPENDIX: Proposed pathways to enable network visibility of EV chargers

Vector's submission on the *EECA green paper – improving the performance of EV chargers*, issued in August 2022, proposes two pathways that would provide electricity distributors greater visibility of the EV chargers on their network. This would help them manage their network more efficiently, avoiding costly new network investment or expansion.

EV locational data requirements

The Certificate of Compliance pathway

Part 6 of the Code (*Connection of distributed generation*) requires the 'distributed generator' to register the 'distributed generation' (e.g. a solar system or vehicle-to-grid/V2G) with a distributor when it is installed:

- 9B Application for distributed generation of 10 kW or less in total in specified circumstances
- (3) The distributed generator must also give the distributor the following information as soon as it is available, but no later than 10 business days after the approval of the application:
- (a) a copy of the Certificate of Compliance issued under the Electricity (Safety) Regulations 2010 that relates to the distributed generation;
 - (b) the ICP identifier of the ICP at which the distributed generation is connected or is proposed to be connected, if one exists.

This registration is executed through a Certificate of Compliance being completed by the electrician and provided to the distributor. Whilst Part 6 applies to distributed generation (including V2G technology – which is captured by Part 6 as it injects power into the network, making it 'distributed generation'), this process could be expanded to include the registration of all EV charging installations. Indeed, including EV charging installations in the existing registry administered by the Authority is something Vector has been seeking for some time. Enabling network visibility of EV chargers through their associated ICP virtually costs zero. This option does not propose that the application process in its entirety, as set out in Part 6, be applied to all EV charging installations – only the requirement in section 9B(3).

There are also some important changes that would need to be introduced to ensure the viability of the provision of locational data of EV chargers to distributors:

1. The requirement to register the installation should be placed on the installer rather than the customer. The Code currently imposes an obligation on a consumer (understood as a distributed generator for the purposes of Part 6 and thus an industry participant for the purposes of the Act) to provide the location of the installation. However, this is generally performed in practice by an electrician or installer. When data on the EV charger is not provided (as is true for around 14% of installations), following up with the installer rather than the consumer is more fruitful.

We **recommend** that the Code reflect that the obligation to register the installation with the distributor rests with the installer. Having this clarity would increase consistency across installer practices. Introducing this responsibility for installers now would be timely, alongside the introduction of an EV charger standard for chargers sold and installed in New Zealand.

2. Penalties for non-compliance should be introduced. Currently, the only recourse available to a distributor when there is non-compliance with the Code registration requirement is cutting the asset off the network. This is not a consumer-centric approach, and we virtually never do this. This also penalises a consumer when, in our view, the responsibility should rest with the installer.

Requiring installers to register the installation gives rise to the need for a viable penalty on installers for non-compliance, i.e. to enforce the registration requirements. The burden of registering an installation to provide evidence for compliance is much less than the burden on a distributor following up 14% of installations to gain the registration data. This burden on distributors would only increase if the registration requirements were broadened without the appropriate enforcement levers.

3. The Authority's registry needs to be amended so that registered assets can be 'tagged' as an EV. This currently does not exist, even for V2G – for which the registration requirement already exists. As a result, these assets are 'seen' as similar to distributed generation – even though their power injection behaviour is likely to have some differences which are relevant for network management purposes. For the process of providing networks with data on the location of EVs to be viable, new categories for 'V2G' and 'EV charger' would need to be added in the registry so that the type of asset is identified upon registration.

We appreciate that Part 6 is designed to apply to distributed generation – and indeed that the Code can only apply to those who are an “industry participant” as defined in the *Electricity Industry Act 2010*. While amending the Code is the role of the Authority, rather than EECA's, we understand that the relevant Crown entities will be working together to determine the best means by which to achieve desired EV-related outcomes.

Qualified installer programme pathway

The UK's Office of Zero Emissions Vehicles (OZEV) administers a scheme through which people can become a registered installer for EV charge points (CPs). This is alongside regulations that ensure the CPs sold and installed have smart functionality, and a subsidy for compliant EV CPs which is claimed back by installers for customers.

To become accredited, installers must:

- be registered with a Competent Persons Scheme (which is also a requirement to become a registered electrician);
- have completed an EV charging course (these typically have pass rates of 100% and cost around £350); and
- have completed the course of a manufacturer and registered with them to install their EV CPs.

Depending on the manufacturer and home requirements, a home installation takes around two hours. The EV CP typically costs between £300 - £1000. Depending on the manufacturer, installers connect a smart CP with a platform for management as part of the installation process. There are separate qualification channels outside of the OZEV registered installer scheme through which someone can install an EV charger, although these pathways are not eligible for the EV subsidy.

For the full value of smart EV charging to be realised, chargers need to both have the right functionality and be connected to a platform or third-party aggregator for management. Whilst there is a need to ensure that the devices carry the right 'smartness', there is also a need to subsequently consider pathways beyond a regulated standard to drive connectivity. A qualified installer programme (or process – which leverages existing electrician qualifications in New Zealand) or a widened Certificate of Compliance process could provide this. As is the case in the UK, the installation process could ensure that the EV charger is connected to a demand management platform at the time of installation. Unlike the provision of EV registration data by ICP, this outcome does not need to be delivered now, but will need to be soon.

In our view, there is a need to ensure that regulations are accompanied by the right incentives, processes, and market solutions – to avoid a situation where every EV charger is smart but continues to behave in a non-smart way.

Facilitating EV registration

The ability of an EV charger to capture and transmit data on its location may be a valuable way of future proofing pathways for EV chargers to add the most value to the electricity system in the future, i.e. this data may be valuable for planners or local government. For networks, the key thing is that the EV is registered against an ICP.

Rather than require EVs to collect and transmit location data, we **recommend**:

- that the existing Certificate of Compliance process is improved and widened, as above, to ensure that EV registration data – which is imperative for network planning – is immediately provided to distributors with some degree of certainty; and
- the exploration of a qualified installer programme as an option, noting that such a pathway may also be valuable in enrolling EVs into valuable demand management services in the future.

These two steps could be considered together with the development of a pathway for EV registration and connection. This supports our recommendation that registration requirements rest with the installer rather than the end consumer.