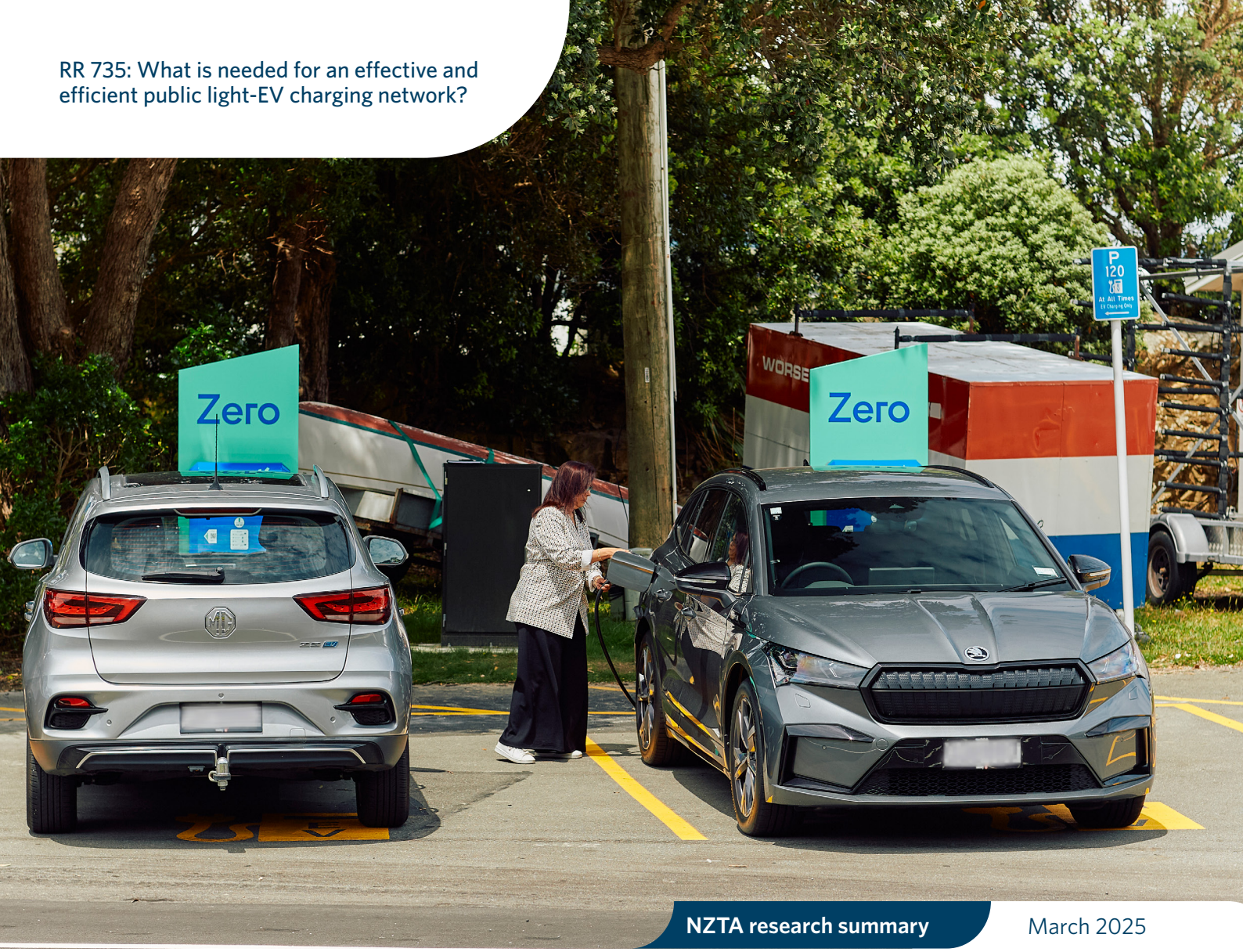

NZTA research summary

March 2025

What is needed for an effective and efficient public light-EV charging network?

This project set out to provide information that could aid in the establishment of a comprehensive public electric vehicle (EV) charging network in New Zealand. This report provides a collation of work that could assist to support effective and efficient charging services for light EVs in New Zealand.

A key part of our approach has been to examine the context for EV charging services and their supporting infrastructure as this provides a foundation for understanding who might need what information and for what purpose.

NZ TRANSPORT AGENCY
WAKA KOTAHI

Te Kāwanatanga o Aotearoa
New Zealand Government

What we did

From our examination of context, we developed a framework with four components:

- **Economic framework:** This provides a way of thinking about the benefits that may flow from intervention in the market for EV charging services both directly and through influencing the uptake of EVs (which in turn delivers various benefits).
- **Service types:** This highlights how journey charging, which is the type of charging service that is both most analogous to petrol stations and most commercially challenging, is a relatively small but important part of the charging ecosystem alongside private (including at home) and destination charging.
- **Supply chain components:** This identifies three key service layers (sites, chargers and digital services) that differ markedly in their economic characteristics and potential commercial models.
- **Market functions:** This sets out key functions in the market for charging services, highlighting the importance of consumer preferences and the mix of centralised and decentralised planning and investment activities involved in charging services.

We complemented the framework components with literature surveys and case studies that reinforce key points, including:

- a mix of commercial investment and public co-funding is prevalent internationally
- the market for charging services is at an early stage of development, with technologies, business models and consumer behaviours all evolving
- consumers, including potential purchasers of EVs, are learning and it is common for people to misapply mental models from liquid refuelling, which can lead to an overemphasis on availability of public charging and on battery range and charging speed
- from the points above, consumer research is vitally important and useful – both for informing policy (including funding priorities) and for supporting public education (as a complement to infrastructure provision)
- there are a variety of distinct rationale for public investment in EV charging services that could motivate specific programmes of co-funding or other regulation – for example, transport system resilience, services for remote areas, accelerating near-commercial rollout (to reduce congestion) and bolstering services in low-income areas are all distinct and different investment cases.

With the above context in place, we systematically examined potential information requirements from a top-down perspective. We then compared our long list of requirements to information that is available in New Zealand. From this exercise, we were able to develop a prioritised list of information gaps.

What we found

We prioritised information gaps from the standpoint of government and consumer interest in a well-functioning market for EV charging services.

These are the top five priorities we identified:

- **Basic network information:** Currently, information is collected on a voluntary basis, which means it is incomplete and lacks quality assurance. There is not a clear home for regulation to make information provision mandatory (given charging services span transport, electricity sector and consumer domains). If this hurdle were overcome, comprehensive and high-quality information would inform market monitoring, policy (including funding), consumers and suppliers.
- **Dynamic network information:** Information on utilisation of existing charging facilities is valuable for guiding investment to expand charging services. Currently, this information is only available to incumbent providers who have generally benefited (directly or indirectly) from public co-funding. We think there is a case, building on a platform of basic network information, to make utilisation information publicly available.
- **Consumer research:** Information on preferences and perceptions of EV owners, EV drivers and potential EV purchasers is highly valuable in the context of a new and evolving market. EECA already commissions some consumer research. This should be continued and expanded to inform charge point operators, vehicle sellers, government funding programmes and consumer-facing information.
- **Consumer-facing information:** Building on consumer research, we think the next priority is consumer-facing information for vehicle purchasers and EV drivers. This recognises that consumers' perceptions rest on the actual state of EV charging services as well as assumptions about the importance of charging services. Research shows that novices tend to overestimate the importance of public charging. It is likely that investing in information alongside infrastructure is more cost-effective than investing in infrastructure alone.
- **Improved electricity network cost information:** Electricity network connections are typically a major cost component for charging services. Costs are difficult to predict, including due to engineering differences and differences between New Zealand's network businesses in how they determine upfront and ongoing charges. This need has been identified previously and is reinforced here for completeness.

We also identified two secondary priorities relating to charger cost information and charging network analysis (such as resilience, blackspot or congestion analysis).

Finally, we contacted nearly 20 organisations across government, academia and industry to assist us to compile an inventory of work relevant to EV charging services policy. We identified more than 50 resources, which we catalogue in Appendix A. This appendix presents a snapshot of work under way in New Zealand relevant to policy settings and practice for EV charging services. It responds to the research objective to undertake an inventory of work with a New Zealand focus (government led, academic) that would aid in informing the approach to an efficient and effective publicly available New Zealand charging network. We collated the inventory by:

- carrying out a desktop review to identify publicly available or discussed work across organisations we were aware of that are working on EV matters
- identifying contact people at each organisation, including with the help of our project steering group
- emailing contacts, providing our draft inventory and requesting assistance to identify additional work and improve our descriptions of work we had already identified.

RR 735: What is needed for an effective and efficient public light-EV charging network?
NZ Transport Agency Waka Kotahi research report.
Available at **www.nzta.govt.nz/resources/research/reports/735**