Facilitating the development of charging infrastructure in New Zealand

Enabling timely development of charging infrastructure in an emerging technology environment

Rebekah Rennell, NZ Transport Agency
Electric vehicle programme

64,000 by the end of 2021

Cross-agency

Public charging infrastructure

In May 2016, the Government announced the electric vehicle programme to increase uptake to reduce greenhouse gas emissions.

Ministry of Transport
EECA (Energy Efficiency and Conservation Authority)
MBIE (Ministry of Business, Innovation and Employment)

WorkSafe

The NZ Transport Agency was tasked with supporting the development of public charging infrastructure, including creating guidance.

NZ Transport Agency
Key issues

Interoperability
Countries supply different connection types.
Type 1 (Japan) or type 2 (EU) AC inlets.
First charging stations were type 1 tethered to support Nissan Leaf.

Many modes of charging
Any power outlet is a potential charging point – a need for clarification of what modes would be suitable for public charging.

Safety
Worked with WorkSafe to understand the risks and required standards for this emerging technology.

Works or installation
Road controlling authorities asked us to clarify if electricity distributors could install charging stations by right.

Permitting sites
Investors wanted consistent processes for consent required under the RMA and by road controlling authorities.
Approach

Helping ensure infrastructure develops at a rate to support uptake

- Identified sector expertise
- Sought feedback
- Clarified regulatory framework
Sector alignment by ‘recommendation’

Recommended types of charging station connector, so all makes of electric vehicles could use them.

Industry responded positively, switching to the recommended connectors and sockets

- Charging providers
- BMW
- Hyundai

Full suite of guidance for those setting up charging infrastructure was published online in January 2017.  
www.nzta.govt.nz/ev
The vision

Ensuring we have a nationwide network of public charging infrastructure to support EV uptake

Nationwide coverage of fast / rapid DC charging stations every 75kms across our state highways.
Setting minimum requirements
Putting customers first

**Safe**
Meet NZ safety standards
Minimum Mode 3 or Mode 4 charger
Designed and intended for use by the general public
Endorsed and sign-posted by the road controlling authority

**Reliable**
Support driver confidence
Monitored for reliability by the charging operator
Available (ideally 24/7) for use by the general public

**Interoperable**
Reduce variability of connector types and open to the public
DC – CHAdeMO & CCS
Type 2 connectors
AC – Type 2 socket
Universal payment system
Interoperability
Ensuring the network is optimised and available to all EV drivers.

- **Connector Type**: Standardising our infrastructure was key to optimising coverage, and ensuring the widest range of EVs for New Zealand.
- **OCPP Standard**: Open Charge Point Protocol software standard means all installations can be integrated into the same data network.
- **Universal Payment**: Ensuring infrastructure can be used by all EV drivers.
Network development
Current vs. planned
Ongoing challenges

**Growth**

- What is the commercial tipping point for infrastructure?
- How will infrastructure be funded in the future?
- Will government invest?

**Variance across electricity distributors**

- 28 in New Zealand
- Short v long-term strategies
- Regional differences
- Capacity of network

**Hardware**

- Emerging technologies
  - Pantographs?
  - In-road induction?
- Who will have long-term ownership?
The only known is that the future is electric

- **China**: 5 million charging stations by 2020
- **USA**: $2b on charging stations by VW
- **200 European cities**: low emission zones
- **Norway**: 2025
- **France**: 2040
- **Scotland**: 2032
- **Germany**: 2030
- **Netherlands**: 2030
- **India**: 2030
- **New Zealand**: where next…?