



Draft EV Support Strategy

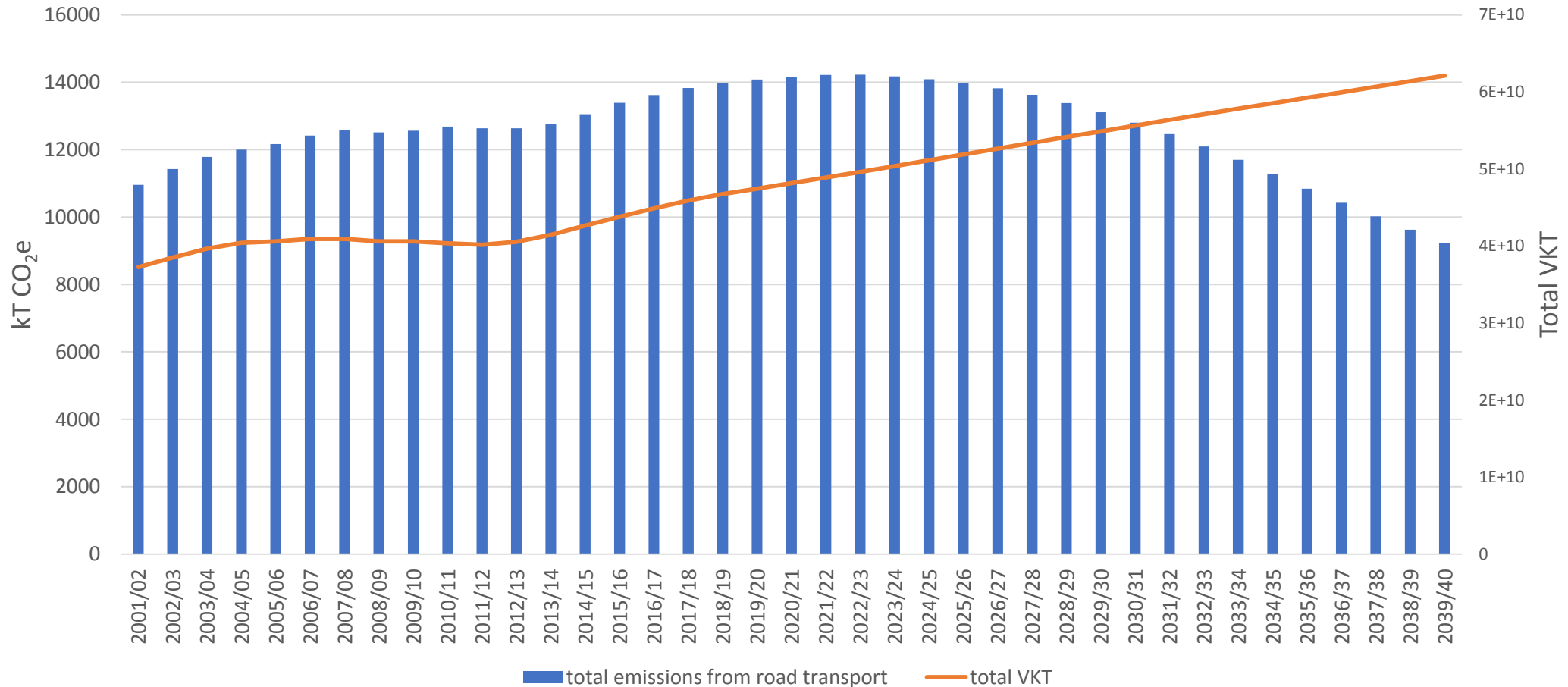
For the Wellington Region

(Version 1.5.7) 15 March 2019

Background

- Based on:
 - Experience and research from other countries as well as our own:
 - Chile, Netherlands, Norway, USA, UK, Germany, Japan
 - Information collected directly from commercial sector (interviews)
 - Charge.net, NZ Post, GreenCabs, Tranzit, NZBus, MEVO
 - MoT data and projections
- Not intended as a report (hence no recommendations) but a document for adoption by councils and network companies with limited customisation by each (i.e. of some measures and targets)

Projected national greenhouse gas emissions from road transport and total VKT (average of five scenarios for EV adoption)



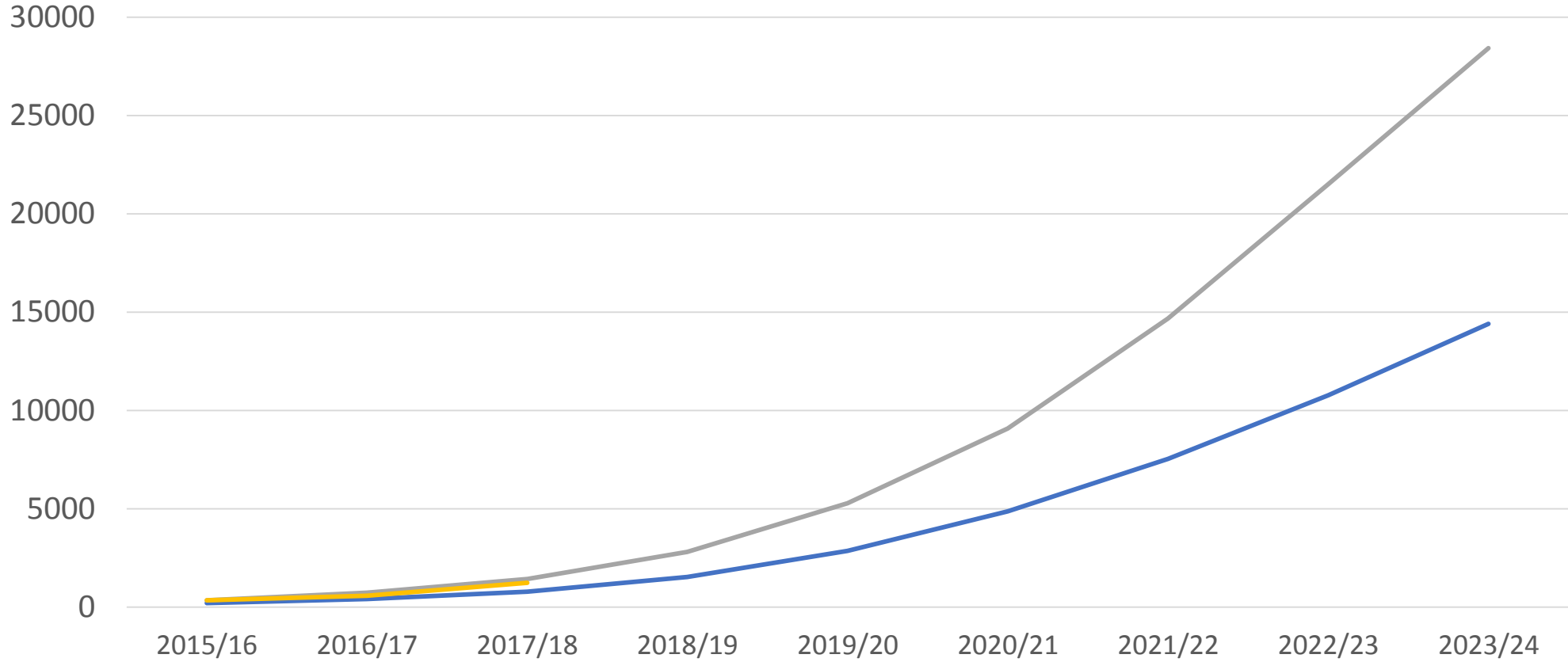
- MoT medium forecast: two-thirds of new cars added to the fleet in 2030 are EVs (53% BEV, 13% PHEV) and 90% are by 2040.
- Productivity Commission and Vivid Economics say we need 100% by 2030 at the latest.

Present situation

Area	EV registrations at 30-01-19	Population estimate 30-06-18	EVs per 1000 people	Number of DC fast charging devices Jan 2019	EVs per fast charger
Wellington City	816	216300	3.8	6	136
Hutt City	311	105900	2.9	3	104
Porirua City	156	56800	2.7	1	156
Upper Hutt City	142	43700	3.2	1	142
Kapiti Coast District	129	53200	2.4	3	43
South Wairarapa District	39	10450	3.7	1	39
Masterton District	30	25700	1.2	1	30
Carterton District	17	9340	1.8	0	0
Wairarapa (combined)	86	45490	1.9	2	43
Wellington Region	1640	521390	3.1	16	103

NZ average EV ownership rate is 2.5 EVs per 1000 people

Projected EV adoption for Wellington Region (all vehicle types)

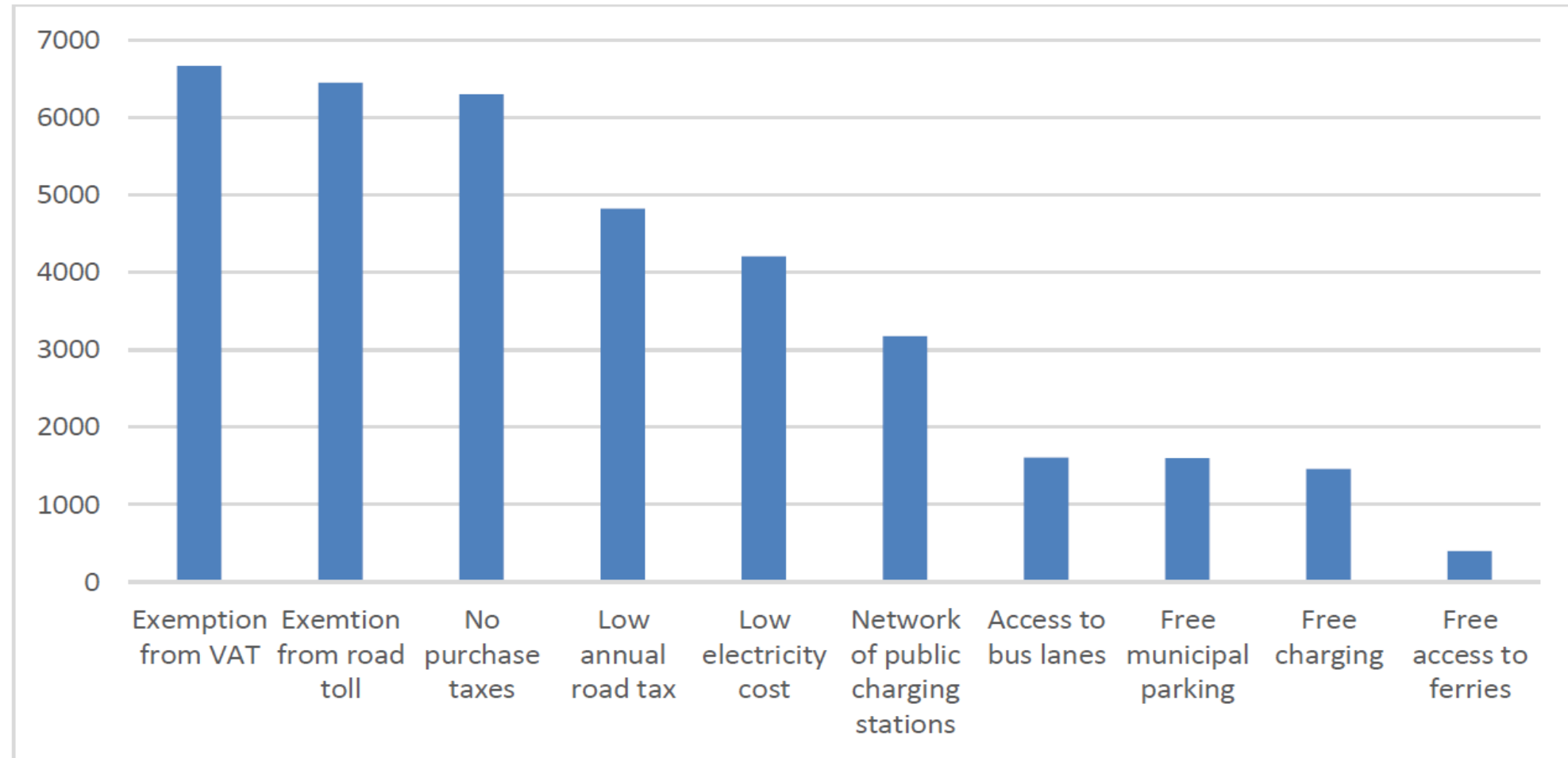


- Low (average NZ adoption rate, lowest uptake scenario for NZ)
- High (current Wellington adoption rate, highest uptake scenario for NZ)
- Wellington EV registrations (actual)

30% Battery EV, 70% Plug-in Hybrid EV.

Between 4% and 7% of fleet EV in 2024

Most important incentives for buying an EV according to 12,000 EV owners in Norway, 2017 (they were asked to pick 3)



Norwegian Institute of Transport Economics: *“Policies that address the purchase price of a BEV are found to be most effective in the way that they contribute significantly to BEV market shares.”*

International comparison of charging infrastructure

	As at...	BEVs	PHEVs	Total EVs	DC fast chargers	All public chargers	BEVs per DC fast charger	EVs per DC fast charger	EVs per public charger
Norway	Oct-18	190,000	90,000	280,000	1600	10,600	119	175	26
Netherlands	Dec-17	20,000	100,000	120,000	750	32,000	27	160	4
UK	Dec-18	60,792	138,765	199,557	1900	19,000	32	105	11
Germany	Dec-18	105,115	89629	194,744	unknown	16,100	-	-	12
USA	Dec-18	630,000	480,000	1,110,000	8244	57,586	76	135	19
New Zealand	Jan-19	9,140	2,927	12,067	148	447	62	82	27

‘Charger’ means charging device, not the number of connectors (one device = one vehicle can charge at a time)

Regional projections for public charging based on '1:100' and '1:10' guidance

	EVs	AC chargers (3 - 22kW)	DC fast chargers (25 - 50kW)	Total capacity (MW)
Jan 2019	1,640	39	16	~1
Jun 2021	5,000 - 9,000	500 - 900	50 - 90	6 - 11
Jun 2024	15,000 - 28,000	1,500 - 2,800	150 - 280	18 - 34

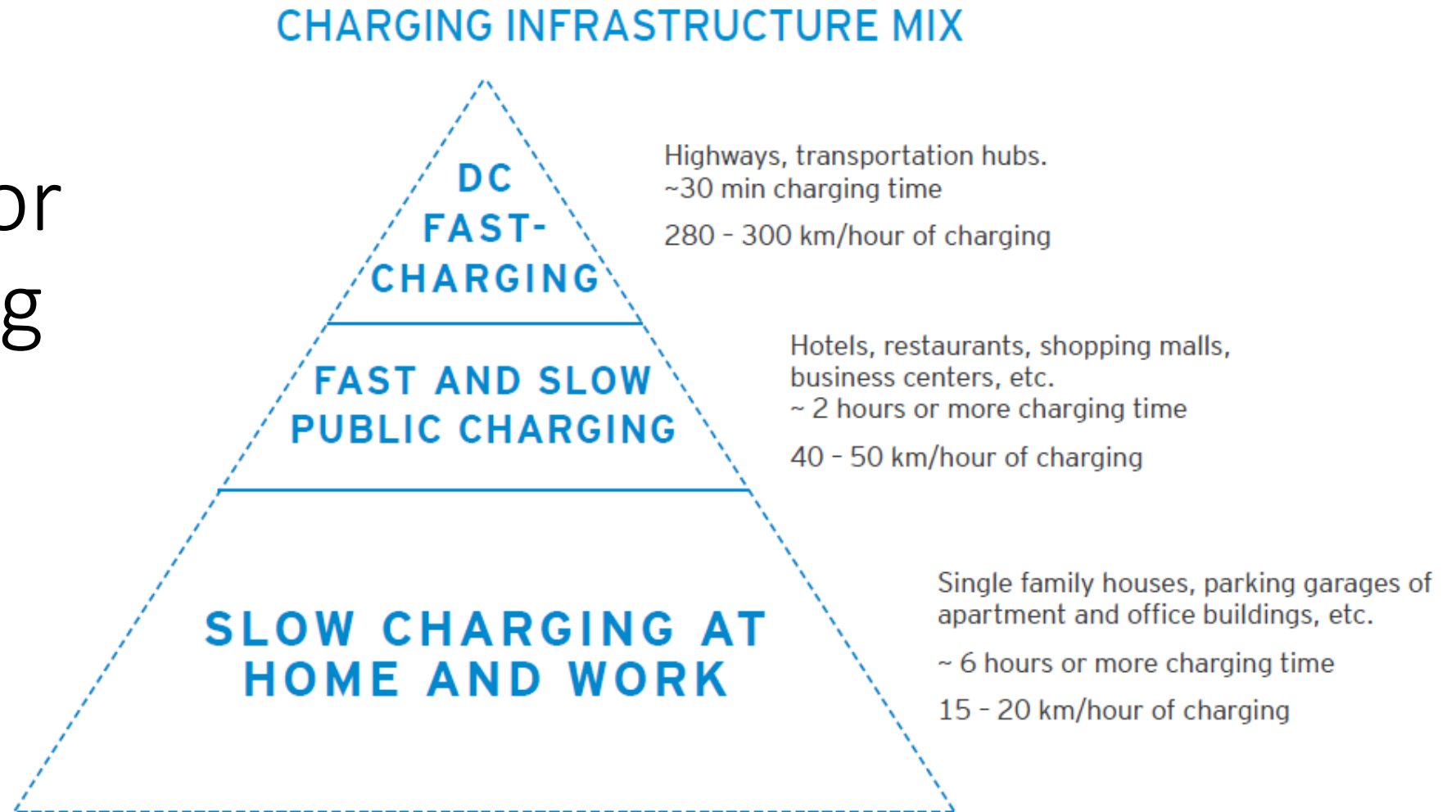
Daily fixed network costs for DC fast charging

	Fast (50kW)			Ultrafast (350kW)		
Load group	WE*	PowerCo	Electra	WE*	PowerCo	Electra ¹⁷
<300kVA	\$ 11.35	\$ 62.87	\$ 1.64	N/A	N/A	N/A
300 - 1500 kVA	\$ 35.90	\$ 45.14	\$ 1.64	\$ 104.36	\$ 315.99	\$ 1.64
>1500kVA	\$ 21.46	\$ 35.90	\$ 1.64	\$ 149.87	\$ 230.52	\$ 1.64

Assumes capacity and demand are matched, chargers operate at full power occasionally, power factor of 1

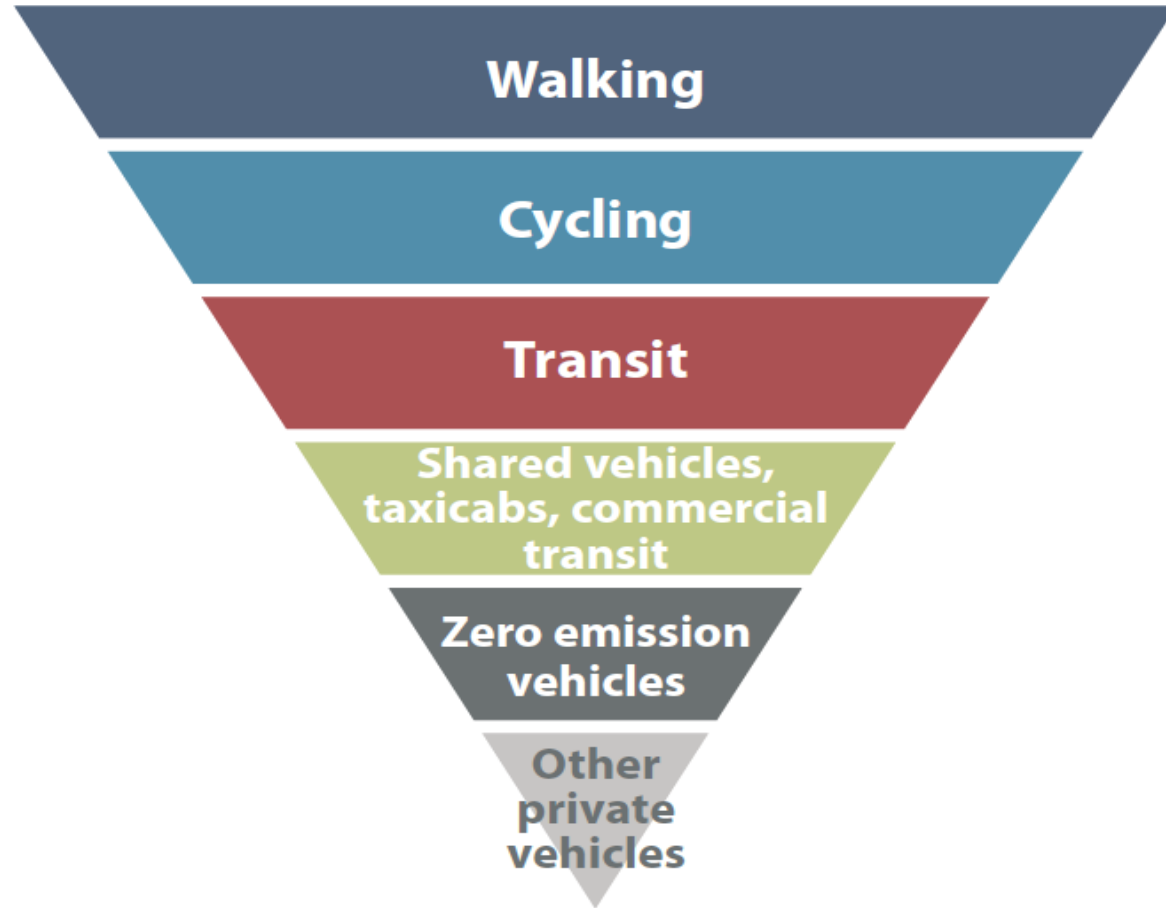
[\[17\]](#) Electra recovers their costs mainly on the energy component of their charges. As these are volume based, a lightly used fast charging station will face lower overall electricity costs in their supply area compared to the WE* and PowerCo areas. The difference with the other areas will be lower if utilisation is higher.

'Food pyramid' for EV charging



- From municipal EV guidance for the EU by Cleantechica and Greenway 2017

Portland's transportation hierarchy for people movement.



- Limited research of negative impacts of EV incentives/promotion policies
- However one study found impact was limited
- Norway starting to roll back some incentives now

Wellington Region EV Support Strategy (Draft)

Vision

Renewable energy replaces fossil fuels in road transport

Wellington Region plays its part in limiting global warming to 1.5°C

Pathways

Public Transport

Electric vehicles

Active Modes

Approaches

Leadership

- Include EVs in organisational plans, strategy and operations
- Prioritise EVs for in-house transport and fleet
- Facilitate e-buses for public transport
- Collaborate with our peers, community, government and business

Infrastructure

- Encourage charging at home and work
- Enable sufficient public charging
- Users pay for public DC fast charging
- Efficiently process applications for public chargers
- Encourage systems to replace, repurpose and recycle EV batteries

Promotion

- Promote EVs to the public and businesses
- Promote and encourage EV car share schemes

Ambition

6% of vehicles in Region are EVs by 2024

An increasing number of people view EVs favourably

Targets

All public transport buses are battery electric by 20xx

X% of households without parking can charge overnight by 2024

50% of organisation fleets (owned leased or shared) are EVs by 2024

Principles

Priority to active modes and PT

Polluter pays

Just and sustainable

Mitigate any negative impacts

What about a charger target?

- Not suggesting a target or ‘level of ambition’ for number of public chargers in the Region because:
 - a) need is related to number of EVs
 - b) councils and network companies are not the principal agencies installing and operating them and
 - c) will not necessarily induce EV adoption
- Exception is on-street residential (‘pillow’) charging.

Suggested 'core' measures #1

- Undertake a fleet audit and optimisation review to identify opportunities for EVs and use of corporate car-share schemes by 2020.
- Implement an EV first policy (i.e. purchase or lease EVs for fleet renewals unless not fit for purpose), by 2021.
- Rapidly transition fleet to EV by means of direct purchase, lease and/or use of a shared fleet. 50% EV fleet by end 2024, 100% EV fleet by 2030.
- Update procurement requirements to reward the use of EVs (by 2020), and require the use of EVs by contractors as part of procurement policies and processes (50% by 2024, and 100% by 2030).

Suggested 'core' measures #2

- Develop and introduce organisational policies and systems for the efficient processing of requests to install EV chargers on public land in collaboration with other agencies to ensure there is a consistent approach across the region by 2020.
- Support e-mobility in planning requirements for all new development,
 - This means requiring AC charging points with a proportion of any new car parks provided in any development and/or requiring electric car sharing in certain cases.

Suggested 'core' measures #3

- Co-ordinate with other organisations in the Regional EV Working Group to advocate to central government and others for stronger policies to
 - help drive the uptake of EVs,
 - increase supplies of renewable electricity to power EVs and
 - address potential issues with the reuse and recycling of EV batteries.
- Undertake regular promotional activities related to EVs – for example helping facilitate EV test-drive events.
- Support further work through the Regional EV Working Group to plan the deployment of charging infrastructure and co-ordinate its development.

Suggested next steps

- Present to WE*, Electra and PowerCo senior management
- Organisations to socialise document internally, provide feedback
- Agree 'common' parts of strategy
- Format document design and layout
- Individual organisations customise (within agreed boundaries) and consider adoption

Thanks!



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