

# Electric vehicle uptake in Dunedin

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## Summary

Analysis of the Ministry of Transport's vehicle fleet statistics shows that Dunedin has the highest penetration of electric vehicles (EVs) of New Zealand's main cities as at the end of 2018.

Dunedin has the largest proportion of pure electric vehicles per 1000 people (3.73), with its closest rival being Wellington (3.19).

When both pure electric (e.g. Nissan Leafs) and plug-in hybrid electric vehicles (e.g. Mitsubishi Outlanders) are counted, Dunedin still just comes out top (4.34), marginally ahead of Wellington (4.33) which has a greater proportion of PHEVs.

Dunedin also has the highest proportion of electric vehicles registered for personal use (as opposed to commercial or other), followed by Wellington and Christchurch. Dunedin's personal registrations are mostly pure electric vehicles, at a far higher proportion per 1000 people (3.29) than all other cities (2.3 or less).

## Pure electric vs plug-in hybrids

Fig. 1 shows the number of EVs per 1000 residents for NZ cities with a population larger than 100,000. The graph differentiates between plug-in hybrid electric vehicles (PHEV) and pure electric vehicles (PE).

Dunedin and Wellington have the highest penetration of EVs, followed by Auckland, Christchurch and Lower Hutt. Most of these EVs are PE vehicles.

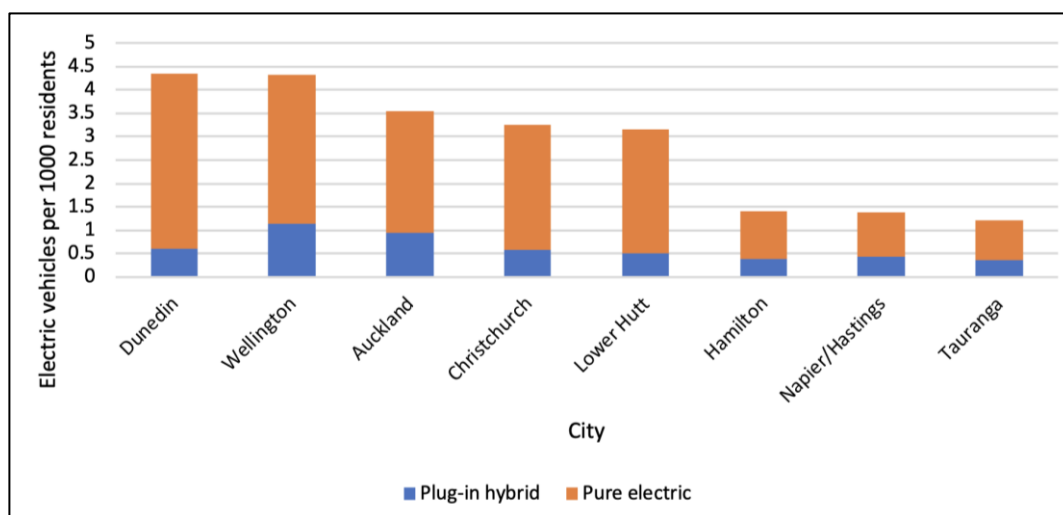
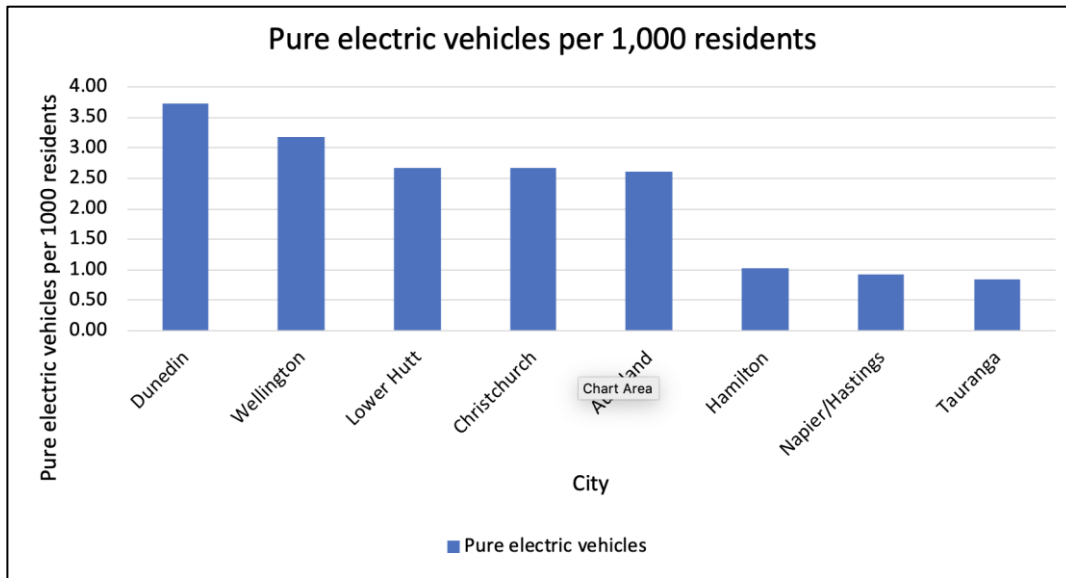


Fig. 1 Electric vehicles per 1000 residents for main NZ cities as at the end of 2018 (see Table 1 for details)



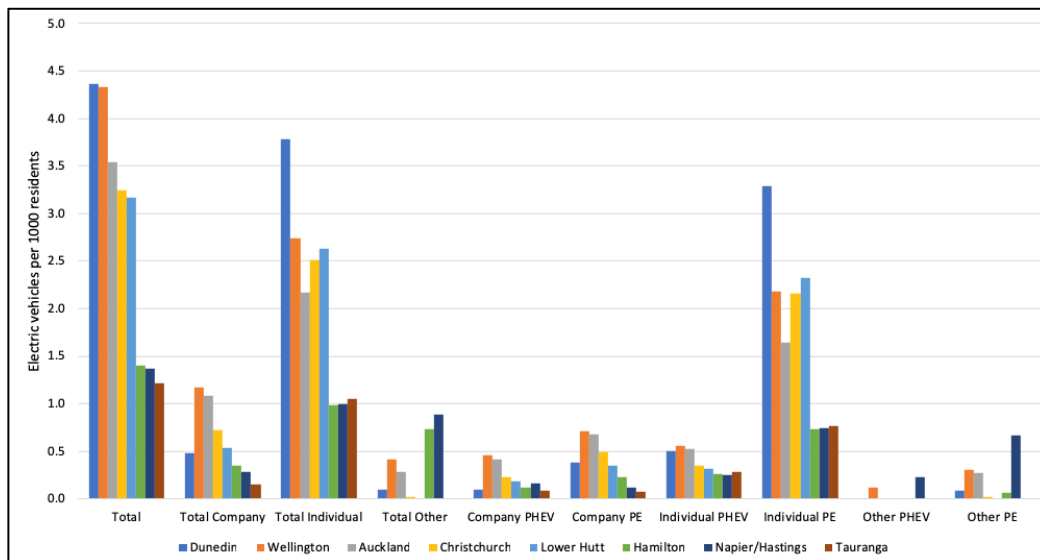
**Fig. 2 Pure electric vehicles per 1000 residents for main NZ cities as at the end of 2018**

## EV ownership

EVs are categorised by MoT into 3 ownership types:

1. Companies (this category includes EVs registered at businesses),
2. Individuals (this category comprises personal registrations), and
3. Others (such as council fleets).

Overall, there are many more EVs registered for personal use than by businesses (Figure 3). Personal registrations across all cities are predominately characterised by PE vehicles, less by PHEV. Dunedin has the highest penetration of EVs registered for personal use by a considerable margin, followed by Wellington and Christchurch (see Table 2 for details). Company-registered EVs are more prevalent in Wellington, Auckland, Christchurch and Lower Hutt than in Dunedin.



**Fig. 3 Electric vehicles per 1000 residents and owner type for main NZ cities**

## EV growth

The number of vehicles registered as EVs is increasing throughout New Zealand, particularly since 2015. Dunedin’s EV registration trends are shown in Fig. 3. Annual registrations for PHEV and PE vehicles are shown for each year, along with a cumulative total.

By the end of 2018, Dunedin’s total EV registrations had nearly doubled from the previous year. (See Table 3 for details).

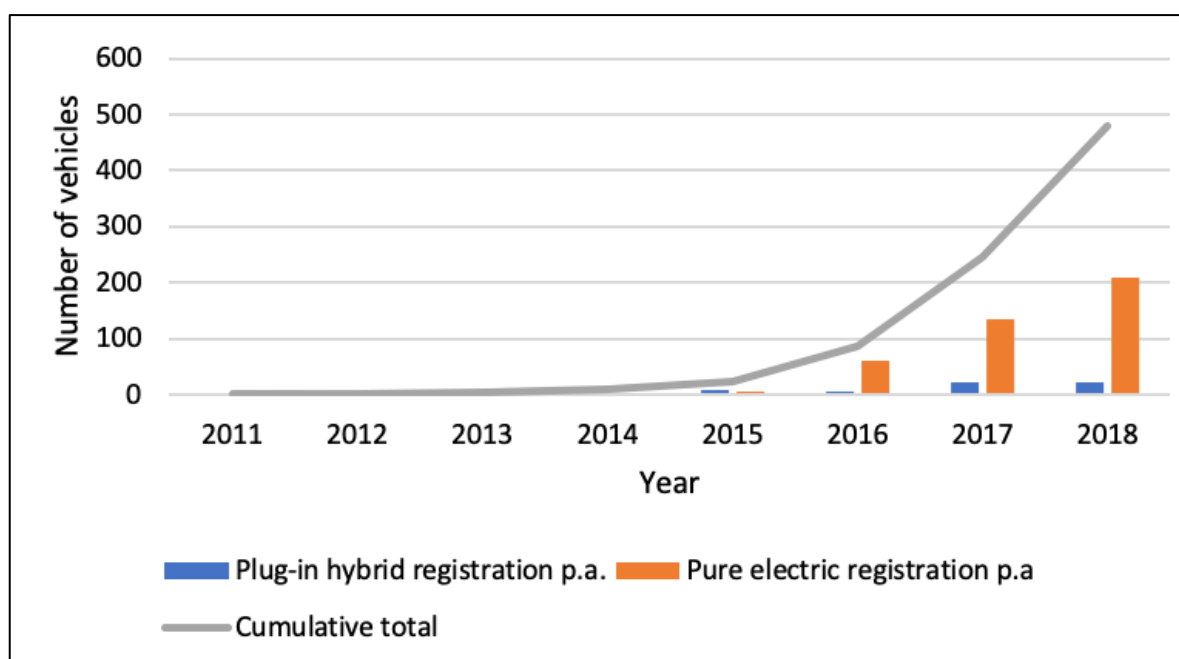


Fig. 3 EV growth in Dunedin (see Table 3 for details)

## Detailed Tables

**Table 1: Details of EV ownership in main cities**

City	Population	Plug-in hybrid per 1,000 residents	Pure electric per 1,000 residents	Total EV per 1,000 residents
Dunedin	122,000	0.6066	3.7300	4.3366
Wellington	215,400	1.1370	3.1890	4.3260
Auckland	1,570,100	0.9362	2.6020	3.5382
Christchurch	404,600	0.5783	2.6670	3.2453
Lower Hutt	105,200	0.4943	2.6710	3.1653
Hamilton	203,200	0.3839	1.0240	1.4079
Napier/Hastings	134,500	0.4387	0.9294	1.3681
Tauranga	141,600	0.3672	0.8475	1.2147

**Table 2: Details of EV ownership and customer in main cities**

City	Dunedin	Wellington	Auckland	Christchurch	Lower Hutt	Hamilton	Napier/Hastings	Tauranga
<b>Population</b>	122,000	215,400	1,570,100	404,600	105,200	203,200	134,500	141,600
<b>Total per 1,000 residents</b>	4.36100	4.32700	3.53700	3.24500	3.16500	1.40700	1.36800	1.21500
<b>Total Company</b>	0.47540	1.16990	1.08600	0.72170	0.53230	0.34450	0.28250	0.15537
<b>Total Individual</b>	3.78700	2.73900	2.17100	2.50600	2.63300	0.98920	0.99630	1.05230
<b>Total Other</b>	0.09836	0.41780	0.28020	0.01730	0.00000	0.73820	0.89220	0.00706
<b>Company PHEV</b>	0.09836	0.45960	0.41020	0.22490	0.18060	0.11810	0.16360	0.08475
<b>Company PE</b>	0.37700	0.71030	0.67580	0.49680	0.35170	0.22670	0.11900	0.07062
<b>Individual PHEV</b>	0.50000	0.56170	0.52290	0.35100	0.31370	0.26080	0.25280	0.28250
<b>Individual PE</b>	3.28700	2.17700	1.64800	2.15500	2.31900	0.72830	0.74350	0.76980
<b>Other PHEV</b>	0.00800	0.11610	0.00310	0.00247	0.00000	0.00492	0.22300	0.00706
<b>Other PE</b>	0.09016	0.30180	0.27710	0.01483	0.00000	0.06890	0.66910	0.00000

**Table 3: EV growth in Dunedin**

Year	Plug-in hybrid registration p.a.	Pure electric registration p.a.	Cumulative total	Total registrations/month
2011	0	1	1	0.1
2012	0	1	2	0.1
2013	0	1	3	0.1
2014	5	2	10	0.6
2015	8	5	23	1.1
2016	5	60	88	5.4
2017	23	136	247	13.3
2018	23	209	479	19.3
First two months of 2019	10	32	521	21.0

## Sources

1. **Data on population estimates:** <http://archive.stats.govt.nz/infoshare/SelectVariables.aspx?pxID=d6b197a9-683f-4a83-bda9-723f060df01d>
2. **Data on city boundaries:**  
<http://statsnz.maps.arcgis.com/apps/webappviewer/index.html?id=6f49867abe464f86ac7526552fe19787>
3. **Data on EV distribution in New Zealand:**  
<https://www.transport.govt.nz/mot-resources/vehicle-fleet-statistics/monthly-electric-and-hybrid-light-vehicle-registrations-2/>
4. **Application that is useful for the data analysis:**  
[https://public.tableau.com/s/download?source=viz\\_toolbar&ref=https://public.tableau.com/views/EVv3/Storytables](https://public.tableau.com/s/download?source=viz_toolbar&ref=https://public.tableau.com/views/EVv3/Storytables)