

Annexes to the AVERE Discussion Paper: WHAT ROLE OF CHARGING INFRASTRUCTURE IN ENCOURAGING EV UPTAKE?

Annex 1: EV growth vs. charging point growth, 2019-20

Country	Annual growth (2019-20)			BEVs YTD 2020	BEVs 2019	Annual growth (2019-20)
	Fast Charge	Normal Charge	Total			
Austria	126,77%	83,99%	89,85%	41646	29523	41%
Belgium	32,25%	31,89%	31,90%	33703	18707	80%
Bulgaria	46,15%	70,00%	59,80%	1404	1062	32,20%
Croatia	61,21%	-2,82%	9,30%	1353	552	145%
Cyprus	n/a	21,05%	84,20%	251	208	20,60%
Czech Republic	67,12%	43,90%	54,80%	6504	2837	129,20%
Denmark	23,61%	20,28%	20,80%	30516	16331	86,80%
Estonia	7,49%	10%	9%	1769	1466	20,60%
Finland	45,35%	81,63%	75,90%	9697	4661	108%
France	98%	52%	55%	277001	166092	66,80%
Germany	46,54%	8,80%	13,70%	308139	133886	130,20%
Greece	350%	533	9,30%	1104	426	145%
Hungary	131,45%	70,27%	80,80%	6101	3696	65,10%
Iceland	31%	162%	108%	5499	3749	46,60%
Ireland	40,10%	-3,91%	4,50%	11278	7267	55,20%
Italy	42,48%	46,17%	45,80%	55307	22728	143,34%
Latvia	51,61%	-4,82%	31,90%	846	557	51,90%
Lithuania	136,90%	0,0%	9,80%	1945	1360	43%
Luxemburg	0%	16,78%	16,50%	4032	2574	56,60%
Malta	0%	0%	0%	1934	1128	71,45%
Netherlands	126,49%	29,74%	31,60%	182481	107536	69,70%
Norway	51%	31%	36%	319540	242796	31,60%
Poland	110%	96%	101%	6556	2902	125,90%
Portugal	109,32%	34,33%	44,60%	36882	29033	27%
Romania	85%	50,24%	61,40%	5563	2718	105%
Slovakia	15,02%	87,43%	58,50%	1863	956	95%
Slovenia	6%	35%	29%	3665	1998	83%
Spain	111,37%	34,33%	48,40%	45057	26799	68,10%
Sweden	56,12%	118,14%	105,8%	58240	30343	92%
Switzerland	47,33%	7,68%	26,40%	52008	32697	59%
United Kingdom	31,95%	21,75%	23,50%	206998	99437	108%
Lichtenstein			n/a	222	166	33,70%

Annex 2: New car registrations and existing phaseout policies across Europe

	2019	2020	ICE sale stop
Germany	3.607.258	2.917.678	
France	2.214.279	1.650.118	2040
United Kingdom	2.311.140	1.631.064	2030 (ICE), 2035 (hybrid)
Italy	1.916.949	1.381.496	
Spain	1.258.251	851.211	2040
Belgium	550.003	431.491	2026 (company cars)
Poland	555.598	428.347	
Netherlands	445.217	358.330	2030
Sweden	356.036	292.024	2030
Austria	329.363	248.740	2027 (taxis, car shares, hire cars)
Switzerland	311.466	236.828	
Czechia	249.915	202.971	
Denmark	225.581	198.130	2030
Portugal	223.799	145.417	
Norway	142.381	141.412	2025
Hungary	157.900	128.021	
Romania	161.562	126.351	
Finland	114.203	96.415	
Ireland	117.109	88.324	2030
Greece	114.109	80.977	
Slovakia	113.863	76.305	

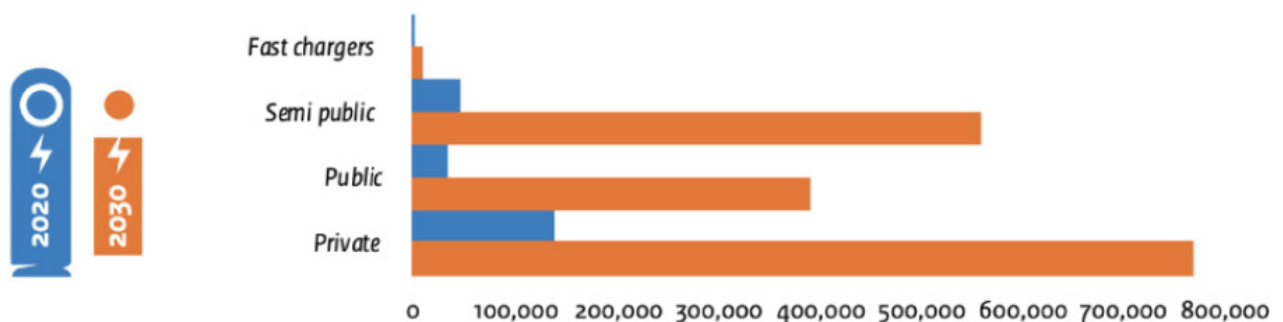
Annex 3: National good practice examples

Good practice example I: the Netherlands

The National Charging Infrastructure Agenda of the Netherlands is part of the Dutch Climate Agreement. The Agenda consists of a set of agreements between the various stakeholders, which together form a concrete multi-year policy program, combining ambitions and actions.

The current realization process of charging infrastructure is unable to keep track of the expected sales numbers of EVs. By 2030, the Netherlands estimates to need 1,7 million charging points (see graph below). Starting 2021, the rollout of public charging infrastructure must be proactively designed by cities and regions. In addition, a number of basic conditions are required for governments, market parties and grid operators to enable the acceleration of the roll-out of the charging infrastructure in an efficient, predictable and future-proof manner.

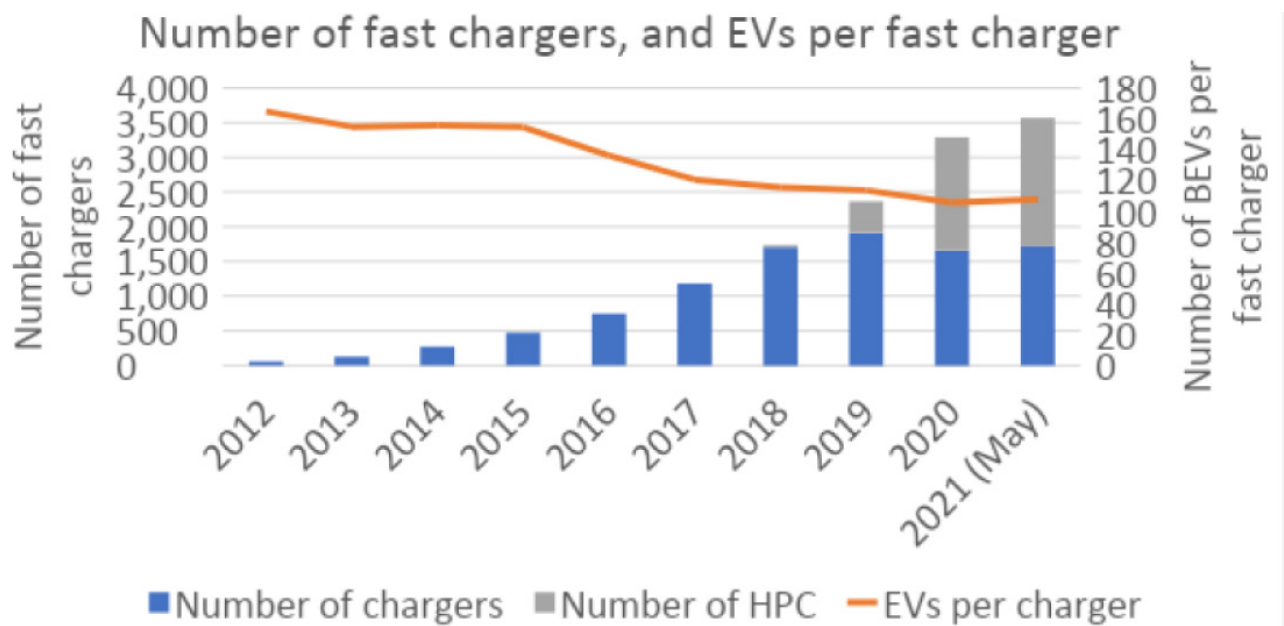
Charging point prognoses



Good practice example II: Norway and Oslo

Fast charging

There are now over 3600 publicly accessible fast chargers in Norway. With the target of 100% zero emission vehicles in new sales, there will be one million EVs on the road by 2025. The Norwegian EV association has estimated a need for 9600 fast chargers by 2025. The government-owned energy and environment fund Enova has provided grants for a basic public network of fast charging along the main highways in Norway. The amount of support for fast charging is small compared to the amount of rebates through purchase incentives for EVs. A large part of the fast charging network has been built on a strictly commercial basis, and most of the grants have been given in reverse auction processes, where state funding has only been a share of the investment.

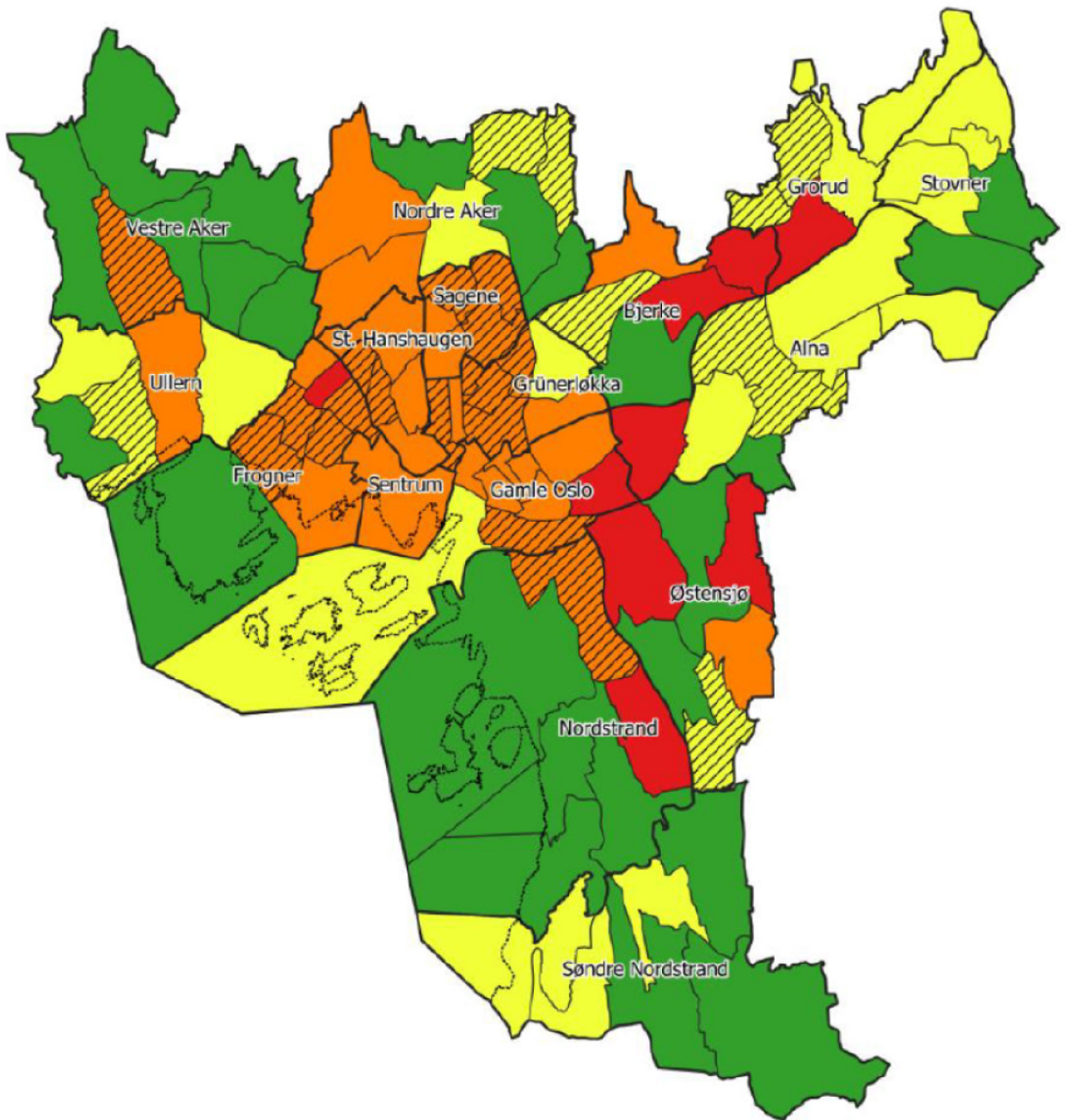







Fast charging

Many actors in Norway have called for a large roll-out of public normal charging points for street parking. The city of Oslo started building a network of normal charging points already in 2008. Many other cities in Norway have followed Oslo's example. In 2019, the city of Oslo made an assessment of the need for normal charging, using data from their network of 1200 public charging points (3,6-22 kW) in different parts of the city. Even with the share of EVs approaching 20 per cent of the total car fleet, many charging locations were idle large parts of the day. In other areas the charging points were occupied most of the time.

The reason for the large difference in usage is that most car owners in Oslo have their own dedicated parking space, even in densely populated areas in the city of Oslo. Home charging while the car is parked, is the most convenient and cheapest way to charge an EV. According to the Norwegian EV owner's yearly survey Elbilisten, 80% of all charging is done at home. The building code in Oslo introduced in 1960 required all new housing to be equipped with dedicated parking spaces, also for apartments.

The assessment showed that building of normal public charging points could be concentrated in areas with a high ratio of apartments built before 1960.



Many old apartments and very high use of charging points (75-100%)	
Many old apartments and high use of charging points (50-75%)	
Many old apartments and low use of charging points (<50%)	
Many new apartments and high use of charging points (75-100%)	
Many new apartments and lower use of charging points (<75%)	
Few apartments	