



Living Mobility

by Mobility & Transportation

Living Mobility is Sustainable Spotlight on EV Charging Infrastructure

In conversation with Alex Harrison, partner, Energy and Infrastructure

Vehicle electrification is one step towards the sustainable mobility future many envision. But where and how fast we will charge electric vehicles remains uncertain and depends on the viability of domestic charging solutions and the impact of the transition to autonomous and shared vehicles. Alex Harrison discusses electrification developments and the need for interoperable and smart charging infrastructure to support future electrified mobility.

How is electrification impacting the mobility and transportation industry?

Harrison: Electrification is becoming increasingly important to the mobility and transportation industry. Historically, electric vehicle (EV) sales have been driven largely by government and policy. We are seeing advances in technology and vehicle choice driving growing popularity and affordability of electric and hybrid options on the consumer side. But price disparity, range anxiety and a perceived lack of access to charging stations still act as hurdles for uptake.

Tackling these challenges to support the EV growth curve remains an immediate priority.

Are any of these challenges specific to mass electrification of fleets?

Harrison: Fleets will play a major role in the transition to electric vehicles. They are significant bulk purchasers of new vehicles, which will in time create a buoyant market for used electric vehicles. They can also act as anchor tenants for charging infrastructure and through shared mobility can provide consumers with access to electric vehicles without needing to own one. Fleets tend to have different and higher mileage profiles to personal vehicles and will need access to a reliable charging ecosystem to support that demand.

What about repurposing existing infrastructure?

Harrison: One key to developing smart, sustainable cities in a cost-effective manner is the repurposing of existing infrastructure. London, like other major cities, is a good example of an area where using the existing electricity infrastructure on the street, for example through lamppost charging, can allow for more rapid rollout of EV charge points.

How will the charging ecosystem need to account for other technological developments in the mobility industry like autonomy and shared services?

Harrison: The charging ecosystem of the future will need to account for the emergence of ridesharing models as well as the shift to autonomous vehicles. With both business models, annual mileage per vehicle will likely significantly increase so charging demand will also increase.

– I’ve seen one estimate of autonomous vehicles travelling up to 25,000 miles a month - and therefore change the infrastructure needs for an optimal charging footprint.

How does the “charging footprint” factor into development of the charging ecosystem?

Harrison: The EV charging footprint refers to the speed, frequency and location of charging points. This concept is important to development of charging infrastructure as a variety of charging solutions will be needed. This optimal footprint will vary from country to country and within countries between, for example, urban and rural environments. Home, workplace, destination and en route charging solutions will need to offer access to varying charging speeds, to mirror consumer demand, most likely underpinned by different pricing and revenue models. A potential source of additional revenue for home, workplace and some destination charging solutions is the supply of power from vehicle to grid (V2G), vehicle to business (V2B) and vehicle to home (V2H). This would allow EVs to become energy storage supporting a domestic, corporate, national or regional energy system. This interoperability ties into “smart” charging.

Why is “smart” charging so important to the development of EV charging infrastructure?

Harrison: “Smart” charging will facilitate optimal charging behaviours for consumers. But the importance of “smart” charging is even more fundamental to the EV charging ecosystem. To anticipate exponential growth in EVs, the charging ecosystem needs to be “smart” to time-shift and smooth out the load on the energy system. Suppose everyone returns from work and begins to charge their EVs at the same time (typically coinciding with existing peak demand on the electricity system). This is the kind of significant increase in peak load on the national electricity network that “smart” charging works to avoid.

How will risk factors related to EV charging interoperability be balanced for optimal rollout?

Harrison: At the moment, the market is characterised by a large number of charging solution providers and differing charging technologies. This results in users needing a multitude of Apps or access cards and subscriptions. Over time, the market will naturally consolidate around the most successful technologies and the charging solution providers that are able to scale and build reliable demand for their services. If needed, governments may legislate for interoperability.

Featured Speaker



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