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|-----------------|--------------------------|
| Customer        | UK Power Networks (UKPN) |
| Size of project | £73k (\$94k)             |
| Start date      | September 2017           |
| End date        | April 2018               |

In this project, EA Technology worked with London electricity supplier (UKPN) to understand the evolving requirements that are stemming from the electrification of transport. The project was based in London focusing on taxi cabs (known as black cabs). This was in response to legislation changes which state that all new taxis have to be diesel-free and zero energy capable (ZEC) from January 1, 2018.

EA Technology analyzed the ZEC black cab and private hire vehicle markets, trends in electric vehicle models and existing industry survey responses from over 2,000 drivers. EA Technology was also responsible for liaising with Transport for London (TfL) and London Electric Vehicle Company (LEVC) to gather the necessary data. It was then possible to derive a set of likely domestic charging profiles for ZEC black cab and private hire vehicle drivers. The charging profiles were mapped against real network assets and modeled with real network loading data, utilizing access to UKPN's network.

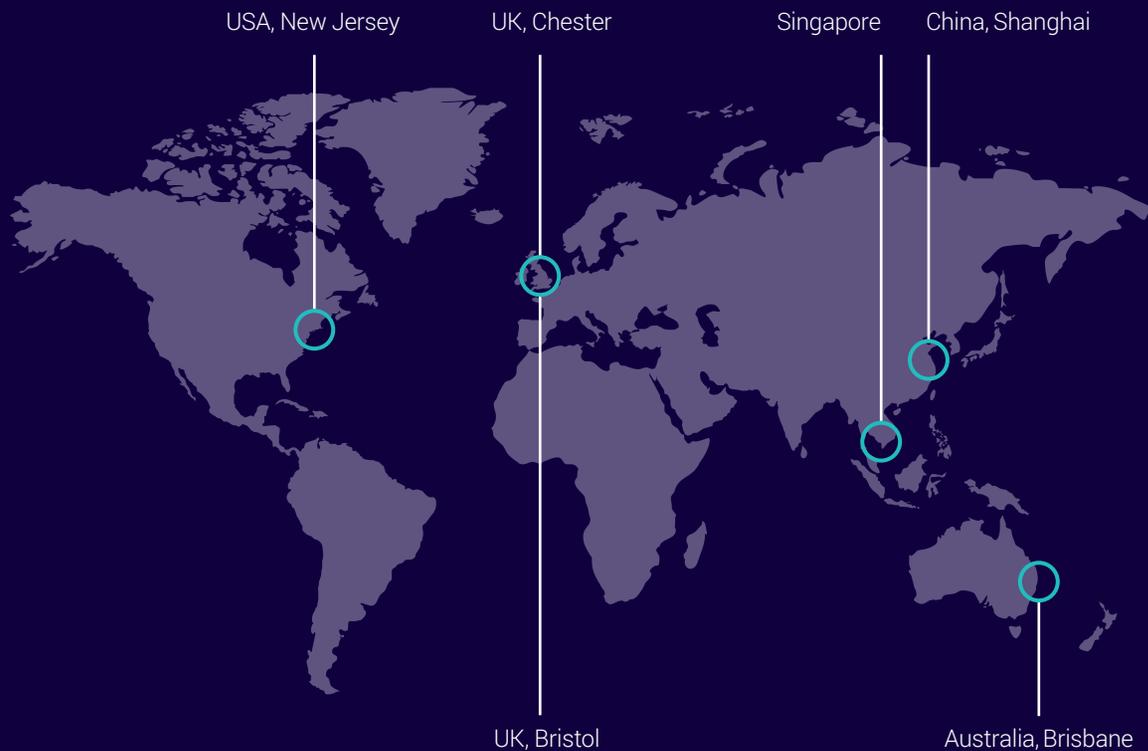
With over 120,000 licenses in Greater London expected to convert within 15 years, UKPN wanted to investigate the potential size, location and timings of the new load. Therefore, the project aimed to assist in understanding when and where electric vehicles (EVs) may be charged and the impact this would have on the local network.

The investigations conducted by EA Technology found that drivers live in clusters which form hotspots where network problems are predicted to arise. Black cabs and private hire vehicles cause later evening peaks than typically expected of domestic activity which leads to an additional peak load in the middle of the night. It was anticipated that the associated network reinforcement costs would be around \$14m. The project assessed smart solutions to alleviate network capacity issues to avoid reinforcements. These included developing additional charging profiles for managed charge rates (component of smart charging) and optimized time-shifted charging. The modelling showcased how smart charging approaches yield between a 15% and 71% reduction in the expected network investment required.

EA Technology played a pivotal role in the delivery of the Black Cab Green project, using our unique combined knowledge of EV's and distribution network design.

# Global Footprint

At EA Technology we specialize in asset management solutions for owners and operators of power network assets.



Founded in 1966 we have over 50 years' experience in the industry and 6 regional offices around the world to support our global customer base.

We work with a lot of our clients on a long-term basis to help them safeguard their power networks.

We advise our clients on strategy and implementation of a range of technology solutions to manage power assets, delivering maximum life and minimize cost.



Safer, Stronger, Smarter Networks

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