

# ELECTRIC VEHICLE CHARGING INFRASTRUCTURE *Case Study* 2020



*EO Charging is a fast paced and entrepreneurial IT company specialising in the design and manufacture of electric vehicle (EV) charging station hardware and associated smart software for homes, fleets and destinations. EO Charging has been selected as the preferred supplier for a large retailer to install 2500+ electric vehicle charging units and associated electrical infrastructure at 30+ sites across the UK and Ireland to support the electrification of the retailer's fleet vehicles.*

G&T's involvement included several interviews with key members of the EO Charging delivery team to help define various delivery strategies around the key challenges of successfully delivering programmes of this nature including:



Geographic dispersion of the sites



The client's demanding delivery timescales



Working within live, operational environments to:

- ensure that the online retailer's operational requirements at its fulfilment centres are considered in the design, including traffic flows and adjacency of welfare accommodation
- minimise the impact of construction works on business as usual activities



Planning and consenting requirements



Development of the necessary organisational capability to become a 'construction centric' business



There were also a number of challenges unique to the sector:



The capacity and capability of existing electrical infrastructure and any upgrade requirements to enable EV charging capability at each site.



The importance of timed connections and smart charging solutions to help manage distribution network constraints in a specific geographic area.



As a disruptive technology, EV charging solutions can suffer from two key challenges:

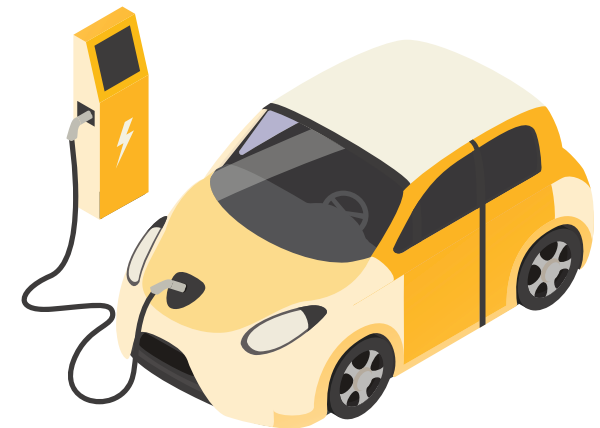
- an apparent lack of standardisation and accreditation available to installers, manufacturers and service providers
- Rapid changes in the technology itself as well as the overarching regulatory environment, which in turn can also result in changes to the EV charging market, as well as change in end-user requirements

*These challenges highlighted the need to futureproof the charging and associated electrical infrastructure to maximise the longevity and value of the working assets. Resilient solutions were needed to ensure that they provide the expected return on investment and don't need to be replaced before the end of their expected life.*



Our recommendations focussed on risk reduction and standard ways of working to ensure a robust contractual relationship with the client and supply chain partners. Our recommendations included:

- 1 Expansion** of the supply chain which would de-risk the reliance on a single contractor and introduce commercial tension in order to reduce build costs
- 2 Implementation** of standard forms of contract with its supply chain to enable common commercial ways of working and promote consistency
- 3 Development** of a standardised set of tender documents to enable efficiencies in the tendering process, combined with tender scoring criteria to support a robust and efficient evaluation process



G&T is an organisation that builds knowledge transfer and exchange capability and has extensive experience advising clients on how best to plan, set up and deliver projects. We have shaped EO Charging's thinking, showed the benefits of transitioning to a 'construction centric' business and of being a robust and commercially informed client. We introduced good project management practices, showing how governance and assurance improves organisational capability leading to delivery success.

We targeted specific areas of improvement:

- Project and programme level **planning and scheduling** capability to co-ordinate individual projects and resources, particularly where projects are run in parallel and grouped by geographic regions.
- **Cost management** and estimating capability to enable a database of project costs to be developed over time. This would allow EO Charging to demonstrate to its client that value for money is being achieved.
- Development of a **cost loaded programme** level schedule so that the cashflow of the overall programme can be modelled and monitored over the duration of the build works.
- The integration of **risk and change management** within its stage gate governance framework.
- Development of **CDM strategy** so that the CDM duty holder roles are appointed to the most appropriate party for each of the proposed delivery routes.





# 40%

of the **UK population**  
does **not have** access to  
**off-street parking**



The engagement with EO Charging has provided an introduction to a new sector for G&T enabling us to make a number of observations regarding the key challenges and complexities involved in the delivery of EV charging stations and the associated infrastructure including:

- A fragmented delivery supply chain.
- Large scale delivery of EV charging capability doesn't have a strategic, integrated approach.
- Determining existing site power capacity and capability is a critical consideration in understanding the feasibility of a particular site to provide charging solutions.
- The demand that EV charging will place on transmission grid and distribution network constraints is not fully understood.
- 40% of the UK population does not have access to off-street parking therefore the delivery of a comprehensive, publically available national charging infrastructure is critical to the mass adoption of electric vehicles.
- Commercial considerations such as different funding models available and revenue streams from supplying electricity for EVs and typical return on investment/pay-back periods.
- Consideration as to whether or not a supply license is needed to supply electricity to charge points.