



## WHITE PAPER

### **Freight Carbon Zero Think Tank: Unlocking the challenges of heavy-duty electric truck charging infrastructure**

#### **Executive summary:**

This white paper summarises key findings from a Freight Carbon Zero Think Tank workshop focused on the challenges and opportunities associated with deploying public charging infrastructure for heavy-duty electric vehicles (HGVs). The workshop, co-hosted by Volvo Trucks and various stakeholders, identified critical issues surrounding location planning, investment certainty, data utilisation, network standardisation, and driver facilities. Collaboration across industry, government, and local authorities is crucial for successful implementation.

#### **Key challenges:**

**Location selection:** Strategic site selection is paramount for maximising vehicle throughput and minimising wasted mileage. Prioritising major freight corridors and logistics hubs is essential, considering a mix of repurposed motorway service areas and purpose-built charging hubs. The effective use of existing data (traffic flows, grid capacity, origin-destination patterns) is crucial for optimal placement.

**Investment certainty:** A significant hurdle is the "chicken and egg" problem: fleet operators are hesitant to transition to electric trucks without guaranteed charging infrastructure availability, while infrastructure providers require confidence in demand to justify substantial investments. Collaboration and clear government policy are needed to bridge this gap, potentially including government support for less commercially viable locations.

**Data utilisation and collaboration:** Accessing and integrating various data sources (traffic patterns, grid capacity, truck parking data) is vital for informed decision-making. A unified, publicly accessible dataset could significantly streamline planning efforts. Improved collaboration between government agencies, data providers, and industry stakeholders is needed to maximise data's impact.

**Network standardisation:** Lack of standardisation in charging connectors (MCS vs CCS), socket locations on trucks, and overall site design limits efficiency and interoperability. Harmonising standards across manufacturers and charging providers will be essential for optimising space utilisation and driver experience.

**Driver facilities:** The workshop highlighted the inadequate provision of driver facilities at existing truck stops. New charging infrastructure presents an opportunity to address this deficiency and enhance the driver experience.

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**Power requirements and grid capacity:** High-power DC charging for rapid charging necessitates significant grid upgrades, which can be costly and time-consuming. Strategic planning, considering phased capacity increases and off-peak charging optimisation, is vital.

**System and processes:** Efficient management of charging networks requires sophisticated systems for managing bookings, monitoring availability, enabling re-routing in case of faults, and balancing rapid vs. slow charging needs.

**Key recommendations:**

**Government support:** Extended government funding for HGV charging infrastructure is needed, potentially through the existing Rapid Charging Fund. A clear national strategy outlining roles and responsibilities for different stakeholders is crucial.

**Data-driven planning:** Consolidate relevant data into a publicly accessible platform for efficient location planning.

**Industry collaboration:** Foster strong collaborations across all stakeholders (manufacturers, charging providers, fleet operators, grid operators) to harmonise standards and achieve interoperability.

**Phased approach:** Implement a phased approach to infrastructure deployment, starting with smaller-scale projects and gradually scaling up as demand increases.

**Smart charging technologies:** Utilise smart charging technologies (predictive charging, load balancing, demand forecasting) to optimise grid utilisation and reduce costs.

**Driver amenities:** Integrate driver amenities into the design of charging infrastructure to enhance the overall driver experience.

**Streamlined planning processes:** Improve communication and coordination between national government and local authorities regarding planning approvals.

**Conclusion:**

The successful transition to electric HGVs demands significant effort and collaboration from various sectors. By addressing the challenges and adopting the recommendations discussed in this white paper, the UK can pave the way for a cleaner, more efficient, and sustainable road freight industry. Ongoing dialogue and data sharing will be critical for ensuring the long-term success of the transition.

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