



# Optimise Prime

**HITACHI**  
Inspire the Next

**Uber**

 **Scottish & Southern**  
Electricity Networks

**centrica**



**UK**  
Power  
Networks 

**Optimise Prime Project**

*LCNI 2019 Conference - Glasgow*

Dr Sung Pil Oe – UKPN

James Bracegirdle - Hitachi

31<sup>st</sup> October 2019

# Agenda

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1. Optimise Prime background
2. Project aims and outcomes
3. Trials design
4. Progress to date
5. Q&A

## Today



Photo: Royal Mail

- 58% new cars company owned
- Higher mileage and payload
- Clustering of charge points

## 2030



Photo: UK Power Networks

- When and where EVs charge
- Invest just enough, just in time
- Keeping the lights on

# Accelerating fleet transition to electric

“World’s biggest commercial EV trial” targeting 3,000 commercial vehicles

Home  
Charging



Depot  
Charging



Mixed  
Charging



Photo: Casey Gutteridge/Uber/PA/CC BY-SA 3.0

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There are a variety of problems that the project seeks to address



- Complex to claim back charging cost
- Cost of residential tariffs
- No visibility of commercial charging on domestic properties



- Connections are planned on “worst case”
- High connections cost
- Depot energy modelling & optimisation is complex



- Unknown charging behaviours
- Charging infrastructure availability
- Lack of visibility of this growing sector



The **world's largest dataset** on commercial EV usage and charging



A solution for home charging of commercial EVs, with separate billing & flex aggregation



A suite of tools, e.g. **depot planning model**, allowing an easier switch to EV



'**Profiled Connection**' enabling more efficient use of network capacity

# Outcomes & Benefits



The **world's largest dataset** on commercial EV usage and charging



A solution for home charging of commercial EVs, with separate billing & flex aggregation



A suite of tools, e.g. **depot planning model**, allowing an easier switch to EV



'**Profiled Connection**' enabling more efficient use of network capacity



By 2030, **Optimise Prime** will deliver savings of:

**£207m**

through optimised connection cost and deferred reinforcement



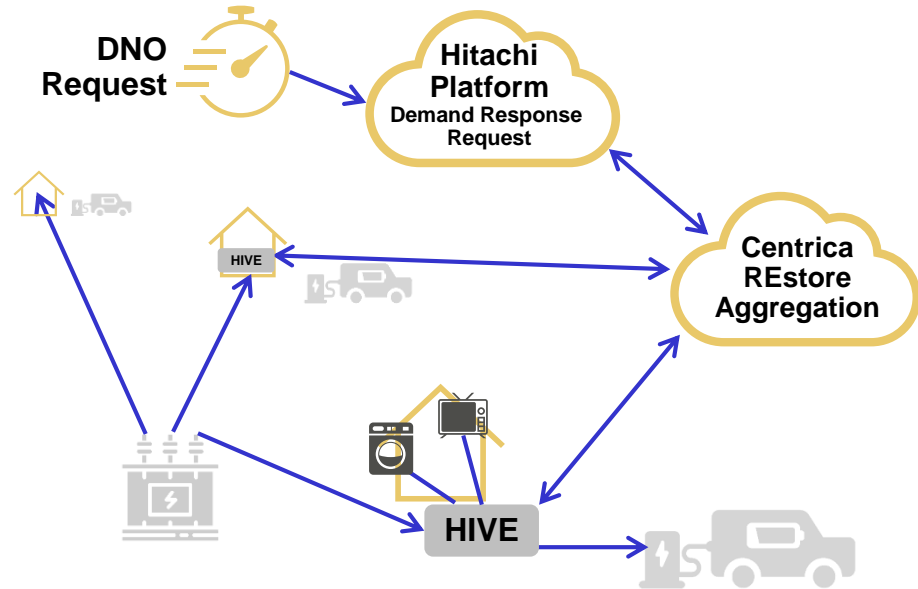
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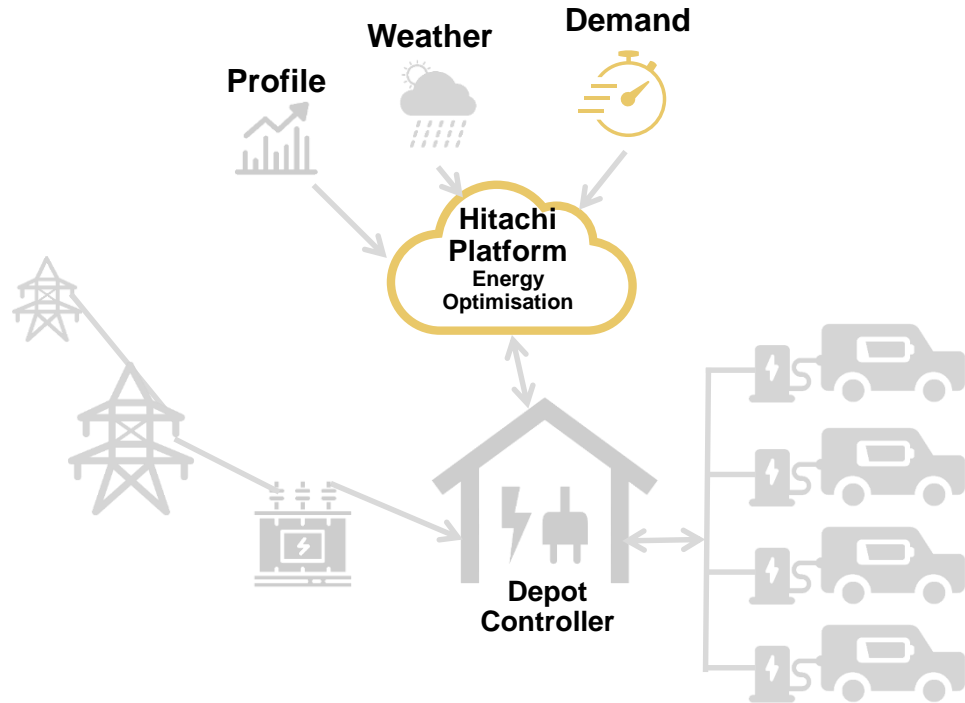
## THIS TRIAL WILL:

- Monitor charging of home based commercial EVs to help understand the extent of the issues faced by the network
- Trial 'demand response' to alter charging patterns when the grid is stressed
- Look at technical and economic solutions to make it easier to split commercial and residential power use



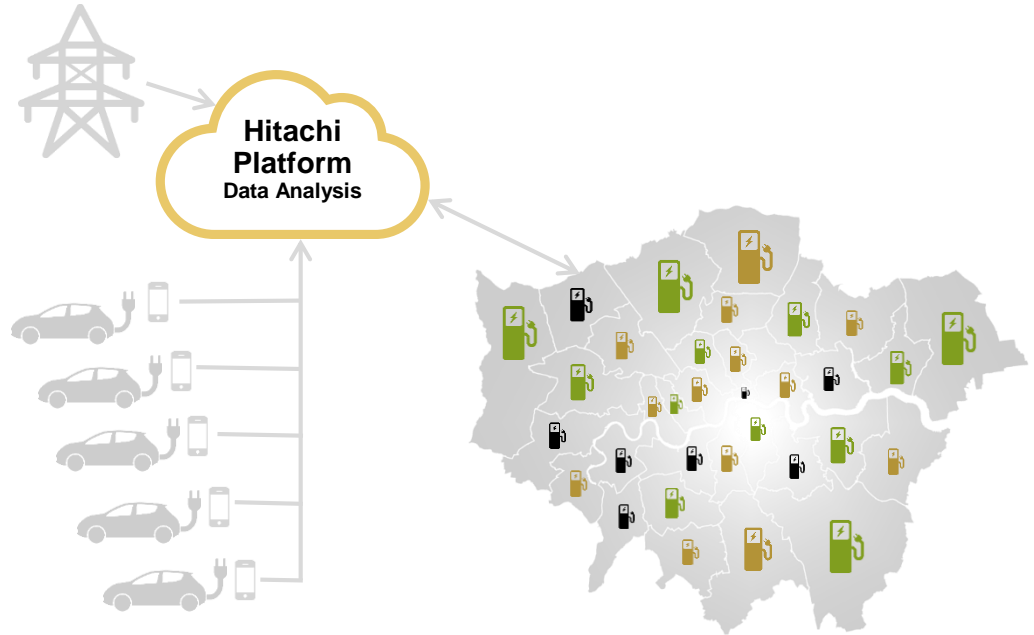
## THIS TRIAL WILL:

- Install EV infrastructure at Royal Mail depots throughout London and South East England
- Implement 'profiled connections' that control the amount of network capacity used by each depot throughout the day
- Optimise charging in order to maintain that profile and reduce costs for the depot while ensuring vehicles are charged when they're needed

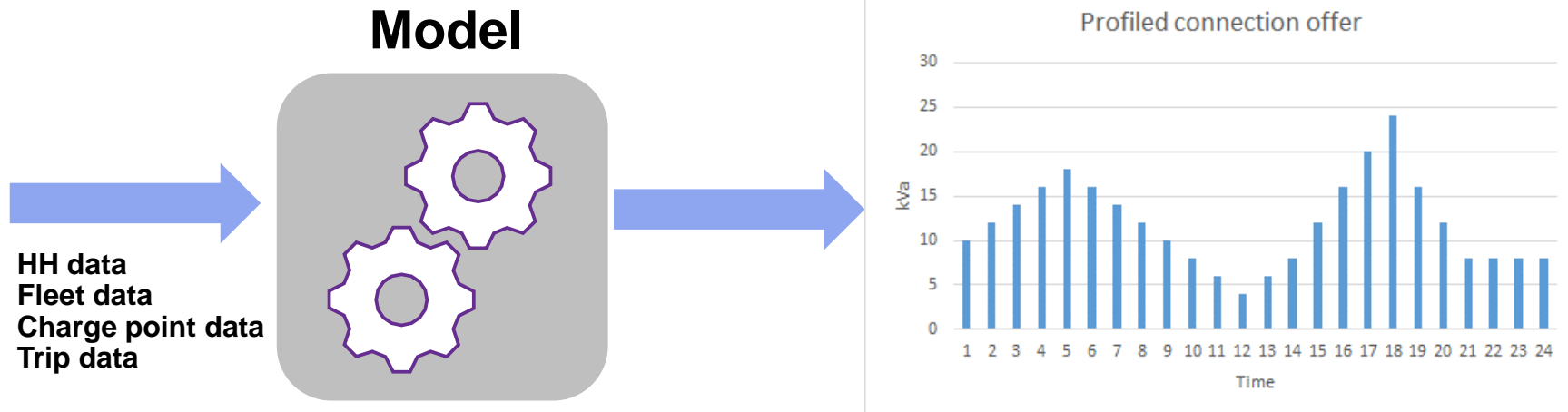


## THIS TRIAL WILL:

- Collect anonymised journey data from Uber EVs across the Greater London area
- Combine this with grid data to generate heat maps of charging demand and network capacity
- Analyse this data to estimate future charging demand from private hire EVs and potential locations for future infrastructure



The Depot Planning Model has been developed to explore the potential of profiled connection agreements with the DNO.



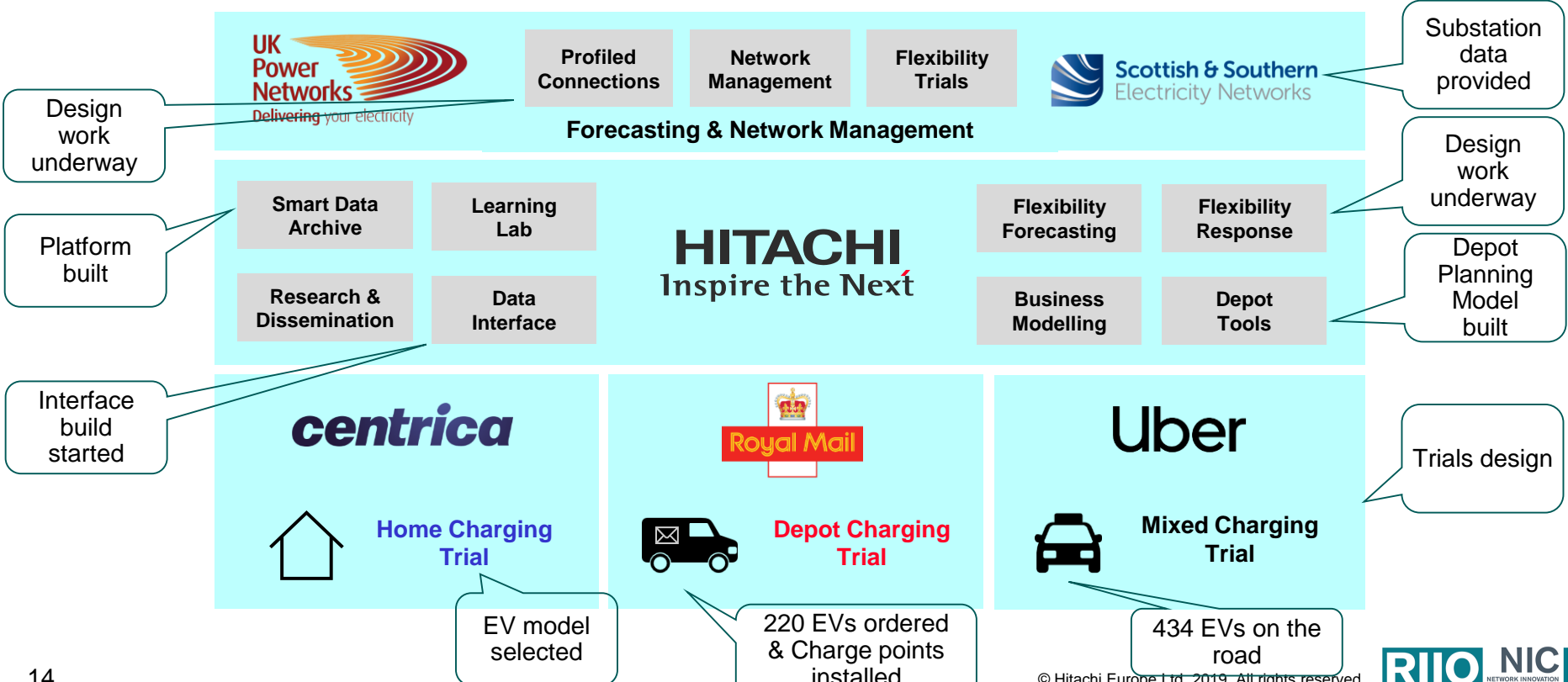
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# Progress to date

Since January, work has involved designing the trials, ordering EVs and installing infrastructure





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## Questions ?

