



Shift 2.0

Energy Innovation Summit 2024

29.10.2024



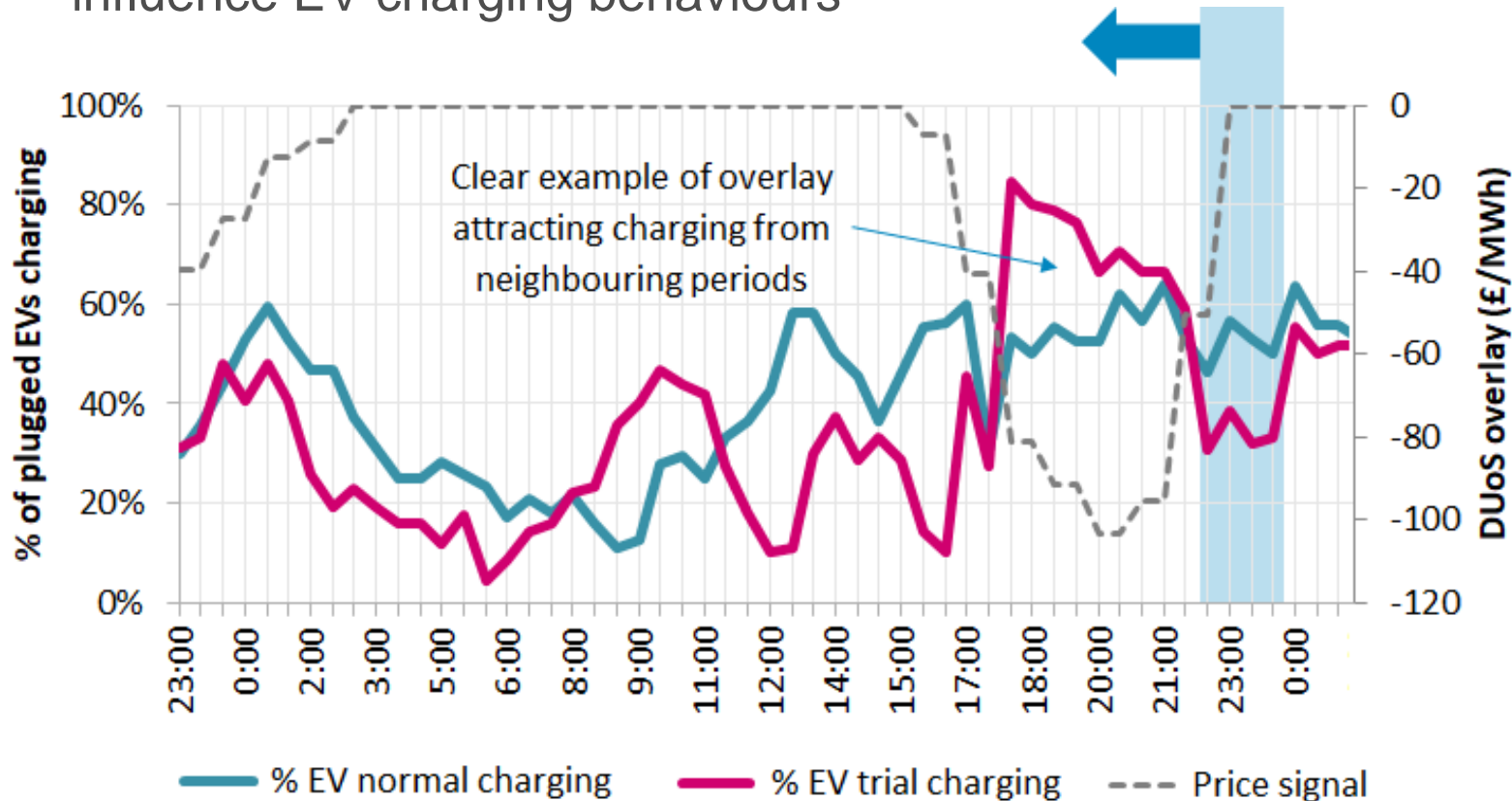


Problem Statement

- "Price herding" shifts EV charging to low wholesale price periods, often overnight
- Future low/negative wholesale prices due to increased PV and wind generation may incentivise daytime/evening charging
- Increased evening charging risks overloading substations, reducing network resilience
- Network reinforcement may be needed to handle new demand patterns

Shift 2.0 Details

- ❖ Observe current **EV charging behaviours** and algorithms with c.2,000 EVs
- ❖ Design and test **dynamic price signals** to determine whether they can influence EV charging behaviours



- ✓ NIA funding
- ✓ Completed in Sep 2024



octopus energy

ev. energy

Baringa

Emerging conclusions



1 EV charging behaviour can vary across EV suppliers and aggregators

- ❖ Octopus customers charge based on cheapest “*DA wholesale + DUOS costs*”
- ❖ ev.energy customers charge based on “*ToU tariffs or grid carbon intensity*”
- ❖ EV charging is constrained by charge-by times, battery SoC and charger capacity

2 Price signal was effective but requires further development

- ❖ More efficient for one algo over the other
- ❖ Load shifting happens even when wholesale prices are the most attractive
- ❖ Best suited for late evening and early overnight periods
- ❖ Can potentially achieve up to 35% turndown



3 Cost appears comparable to traditional DSO flexibility services

What's next

- ❖ Discussions on a potential Phase 3 to transition to BAU and scale up are ongoing
- ❖ Reports are available on [Shift 2.0 - UKPN Innovation \(ukpowernetworks.co.uk\)](https://ukpowernetworks.co.uk)
- ❖ For any queries reach out to loukas.douvaras@ukpowernetworks.co.uk