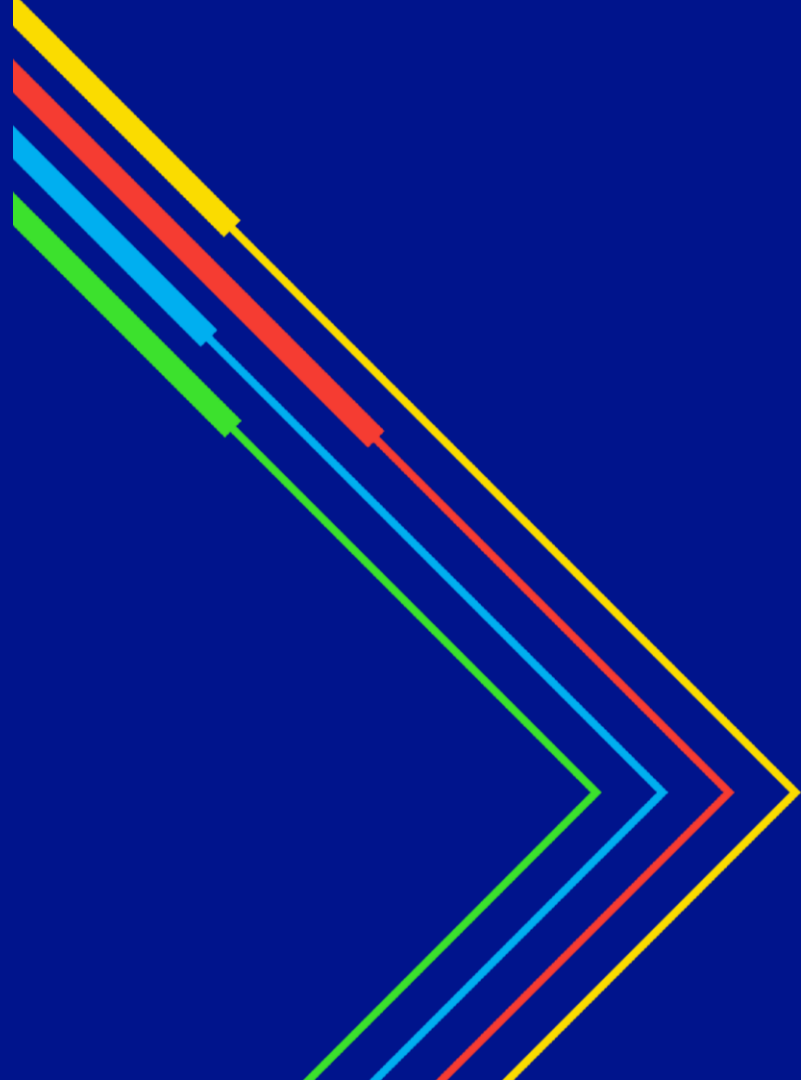


Electricity  
Distribution

# EIP110: DNO Fleet recharging during system emergencies

Jenny Woodruff – NGED, Innovation Manager  
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nationalgrid



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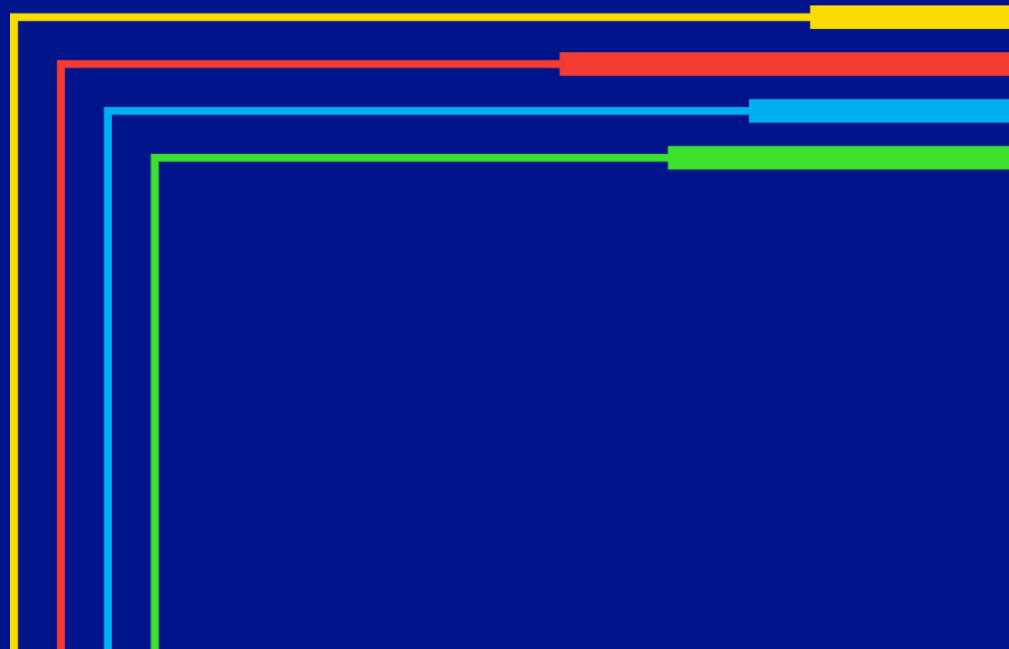
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# 01

## The Problem



# EIP110: Problem

**As we decarbonise our operations the proportion of EVs within our fleet will increase. Severe weather events can cause widespread damage taking days to be restored.**

In a major system emergency local recharging stations may not have power. This is similar to the current situation with diesel/petrol forecourts also not operating without power, however, what will be different is the mileage capacity of the vehicles. A diesel vehicle with a full tank may have twice the mileage capability as an electric vehicle with a full battery.

We need to understand this impact and ensure that the mitigations put in place are sufficient to ensure that vehicle charging limitations do not impede system restoration.



# EIP110: Problem

We already have some mitigation options including;

- Retaining some non-electric vehicles
- Taking mobile chargers to site which can be powered by mobile generators
- Ensuring EV chargers at depots can operate off mobile generators or static backup generators at the depot.

We want to understand;

- If there are other mitigations we could use
- How we can optimise our mix of vehicles, generators, mobile chargers etc. to achieve an acceptable balance of risk and cost.
- What information and systems are needed to understand the likely requirements.



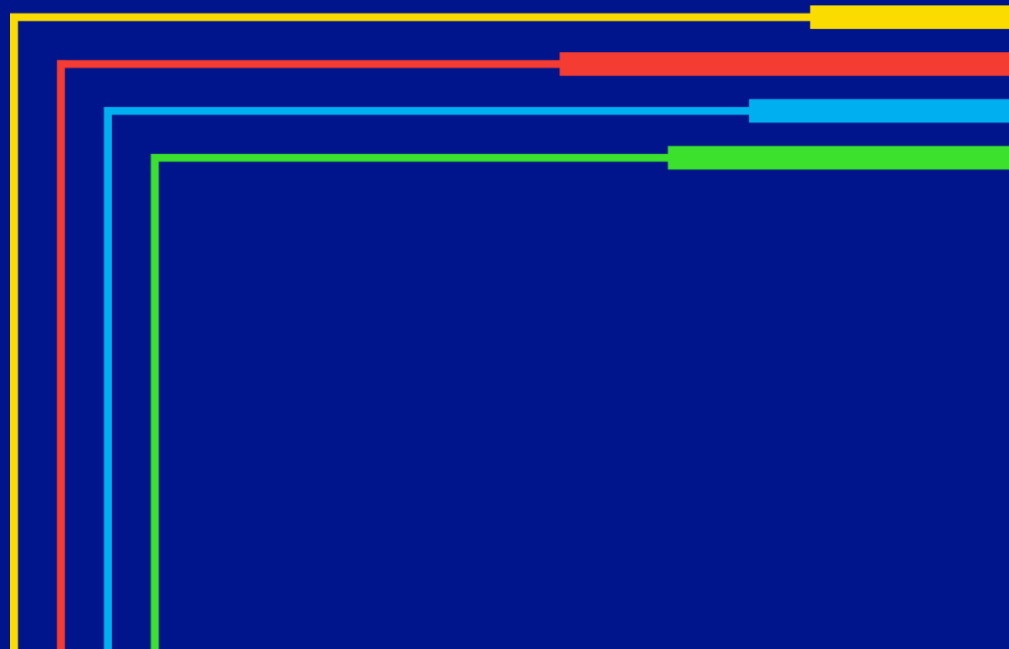
# EIP110: Key Players

## Who are the key players

- DNOs and GDNOs, TNO
- Water and Telecoms utilities
- 999 services
- Local authorities and councils
- EV charge point operators
- Generator Hire companies
- Mobile charger manufacturers
- Vehicle manufacturers

# 02

## Solution Constraints

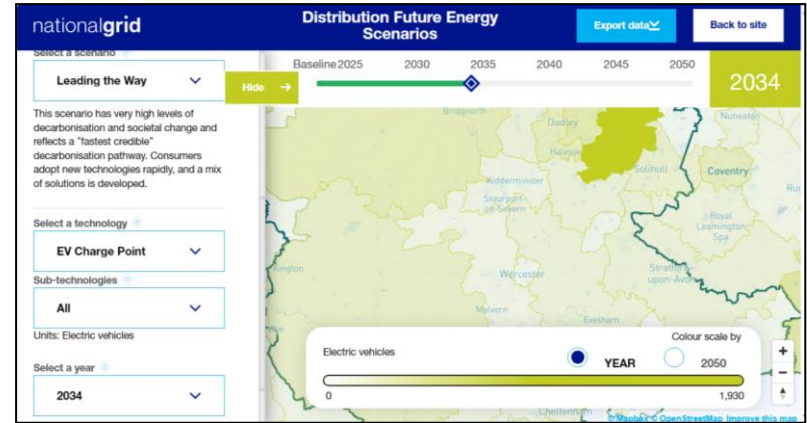


# EIP110: Solution Constraints

As there will be a degree of uncertainty associated with the assumed inputs to the analysis, we are looking for an updateable tool rather than a static report.

This should;

- Allow recalculation as assumptions are updated and should support modelling multiple options & scenarios.
- Allow for the inclusion of Distribution Future Energy Scenarios (DFES) data assumptions for the coverage of different types of EV charging facilities e.g. fast, rapid, ultra-rapid.
- Show how the optimum solution may change over different timeframes i.e. 2025-2030 vs 2045-50
- Support Cost Benefit Assessments covering Capex, Opex, CML/CI risk, Carbon impact, Risk, etc.





# EIP110: Solution Expectations

The solution would be expected to reflect how certain variables change over time

- Number of system emergency events, typical scale, duration
- Number of EVs
- EV chargers of different types ( Private access vs public access)
- Average distance to working charging point
- Average mileage capacity of EVs
- Average rate of battery use by EV during emergency work
- Time to charge (including queuing)
- Costs
- Etc.

# EIP110: Solution Expectations

We want a strategy support tool

The assessments should help determine the high level strategies.

Relevant policies to implement the strategies can be written  
e.g. should we negotiate access to charge points with other utilities

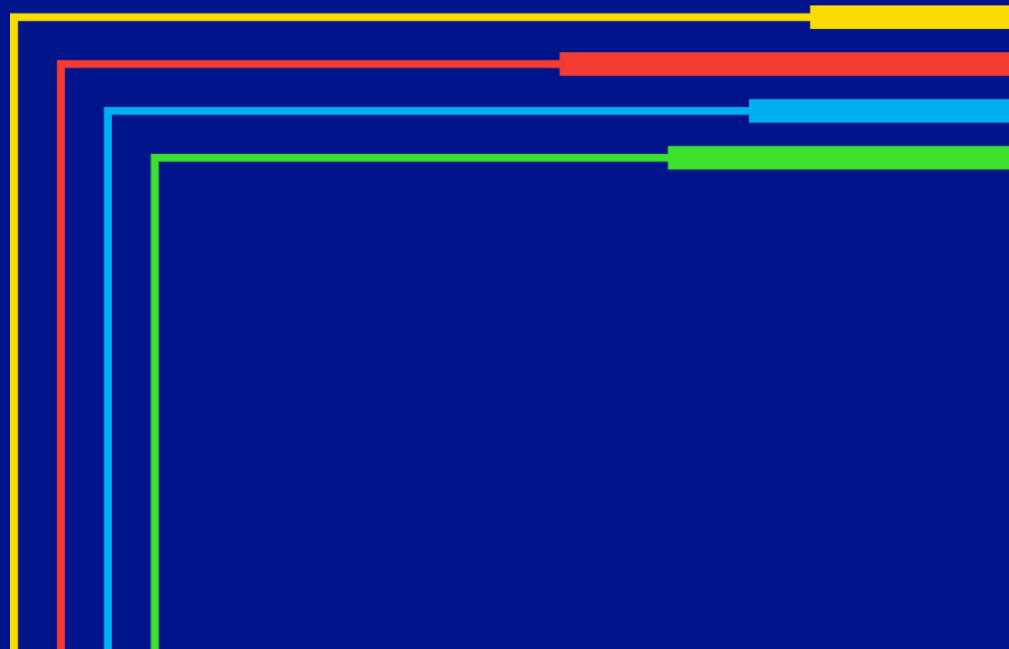
The tool will be developed in an agile way allowing for feedback to be incorporated as the tool matures.

Multiple organisations have expressed an interest in this problem statement so this may involve multiple sponsoring partners.



# 03

## Contacts



# Contacts

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