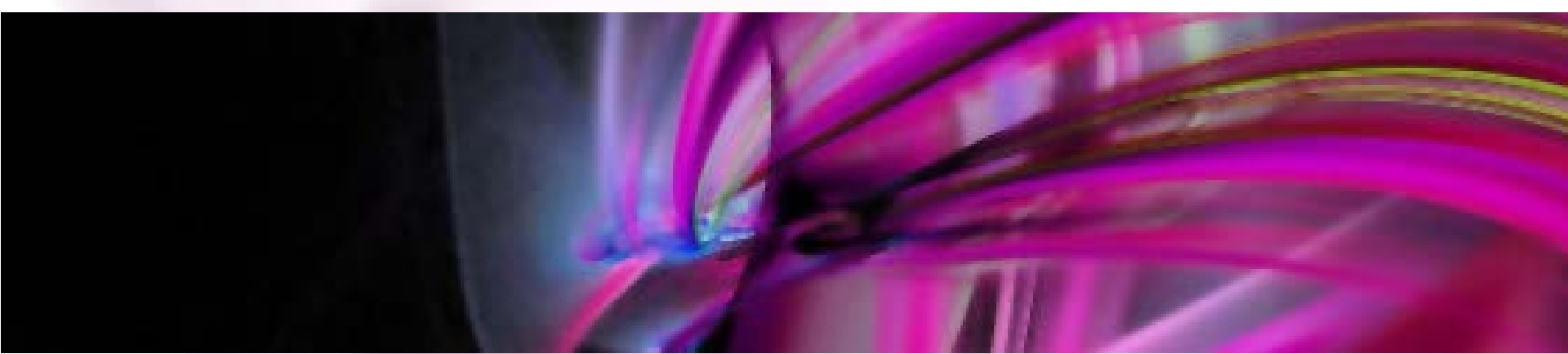


# **Consumer attitudes to electric vehicles in the UK: emerging results from the national ultra low carbon vehicle demonstrator**

**David Bott**

**Director of Innovation Programmes**



# Technology Strategy Board

Driving Innovation

## Technology Strategy Board

- The UK innovation agency investing in business to drive economic growth
- Working across business, universities and government
- Investment of around £300m a year
- Started in 2007!



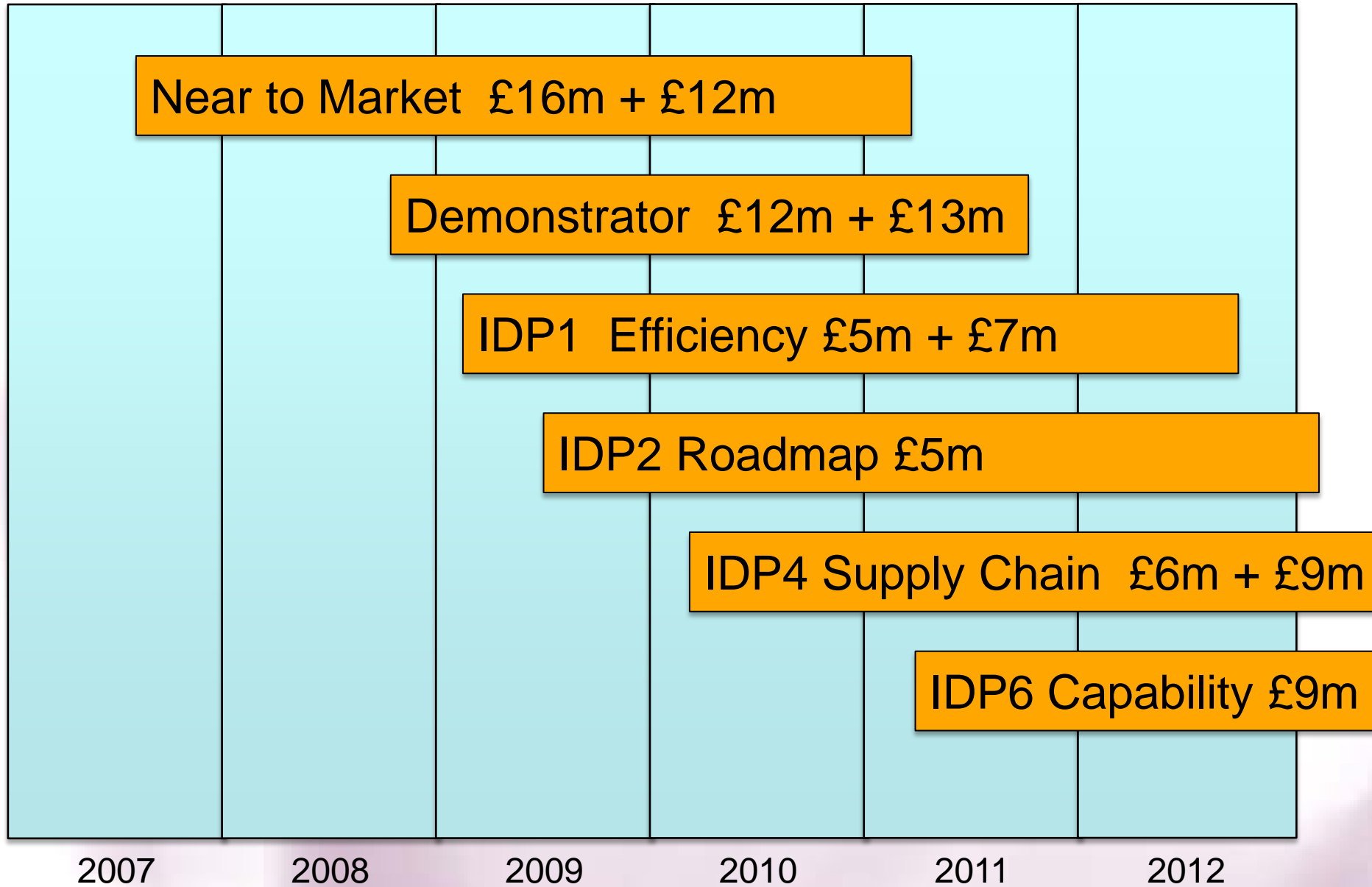
### Low Carbon Vehicle Innovation Platform Goals

- Growth of the UK Automotive Sector
- Acceleration of the introduction of Low Carbon Vehicles
- Reduction of carbon dioxide emissions from transport



# Technology Strategy Board

Driving Innovation



# Technology Strategy Board

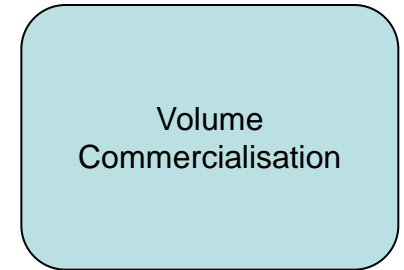
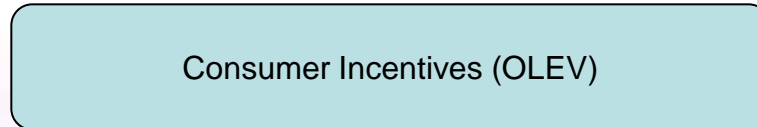
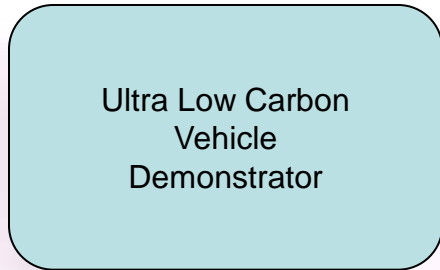
Driving Innovation

## ...ULCV Demo is the first major step in a journey...

2010

2015

2020



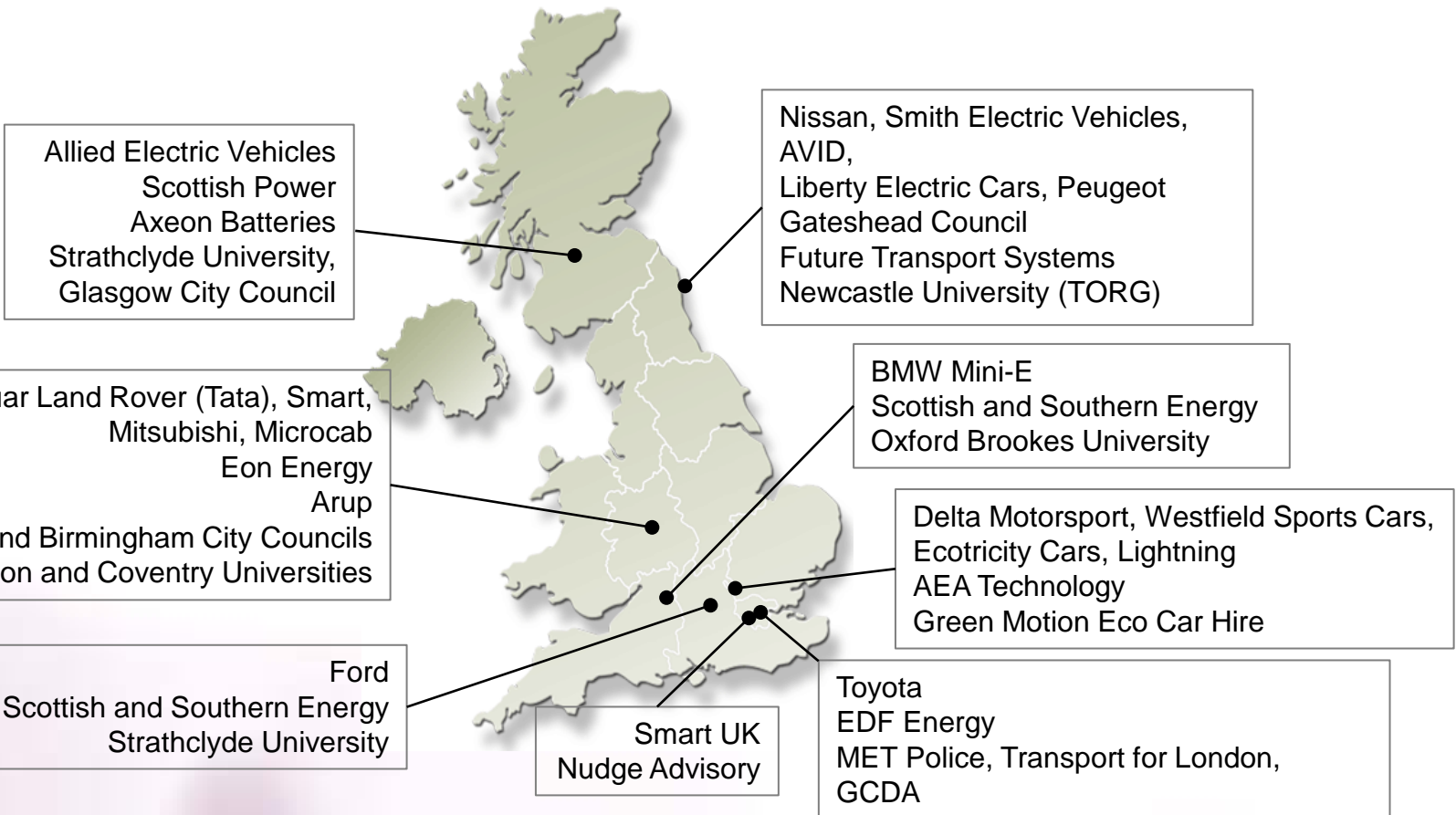
UK means business

## The Competition was designed to provide....

- Evaluation by multiple drivers and drive cycles
- Real World Testing through in-vehicle logging and analysis (supported by Cenex)
- Opportunity to understand customer perceptions and concerns (supported by Oxford Brookes University)
- Examination of interface challenges with infrastructure
- Use of passenger cars on the road for 12 months each
- Total Funding Value £25m

# Technology Strategy Board

## Driving Innovation



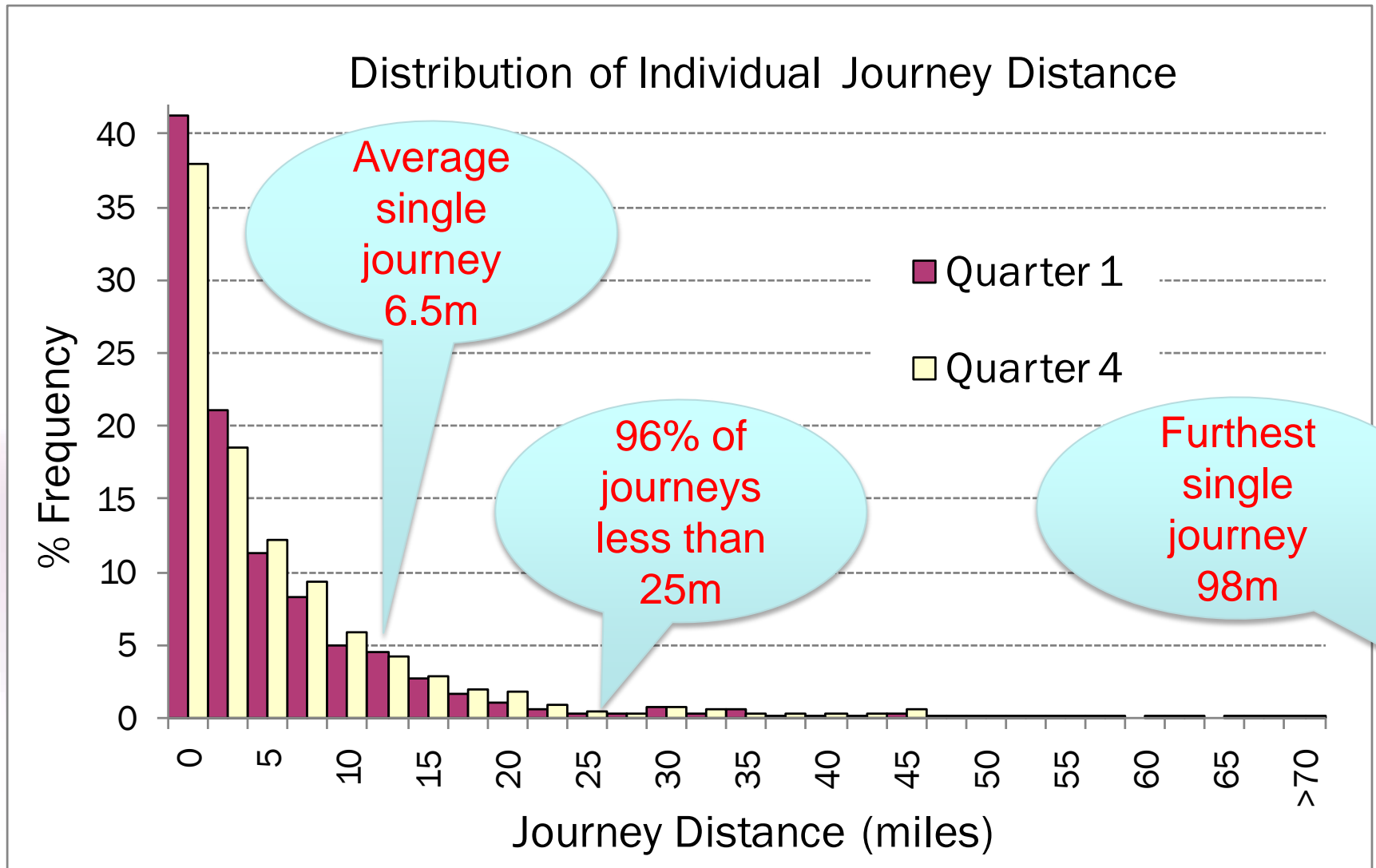
## ...and what has happened...

- **329** vehicles have been used in the trial
- Over **500** charging points installed
- **680,505** km travelled
- **80,414** individual journeys recorded
- **10,916** charging events



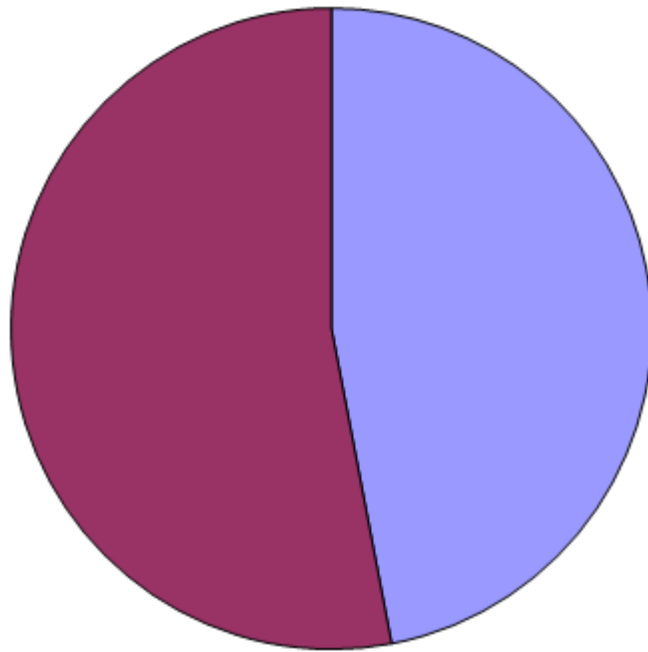
# Technology Strategy Board

Driving Innovation

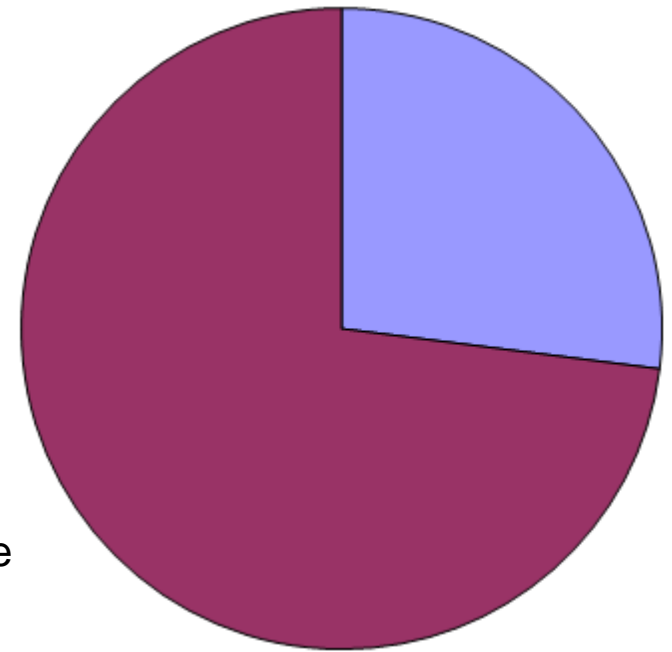
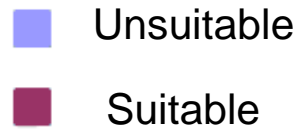


Comparison of individual journey distance from Quarter 1 and Quarter 4 data.

## Does the speed of charging suit the daily routine?



Pre Experience



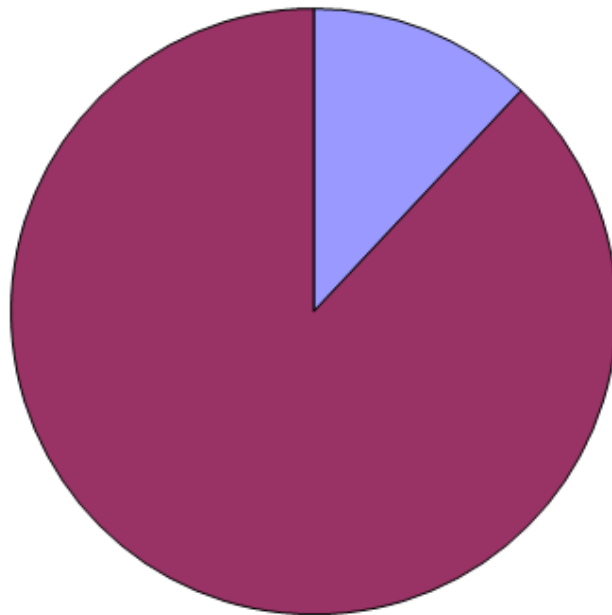
3 Months Experience

Charts showing whether the charging time would suit their daily routine

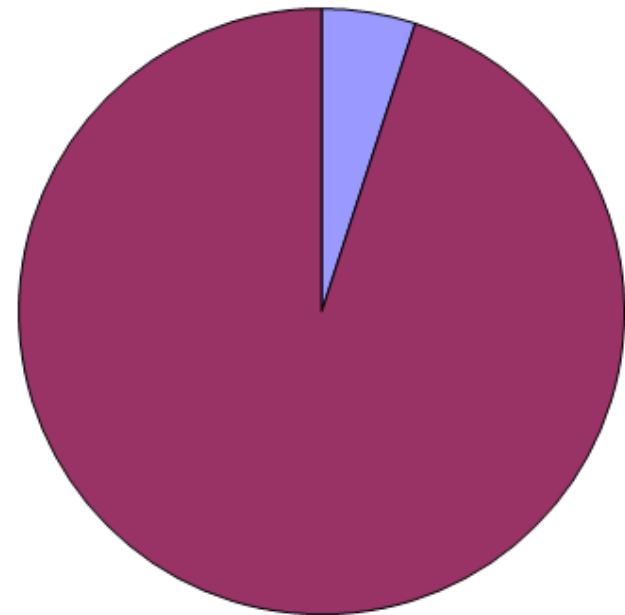
## How long should charging take?

- 'Sufficiently good'
  - Down to 4hr 44 mins from 5hr 30 mins
- 'Exceptionally good'
  - Up to 2hr 40 mins from 2hr 18 mins

## Is the charging process difficult?



Pre Experience



3 Months Experience

■ Difficult  
■ Easy

Charts showing evaluations of charging difficulty

## What is a “low charge”?

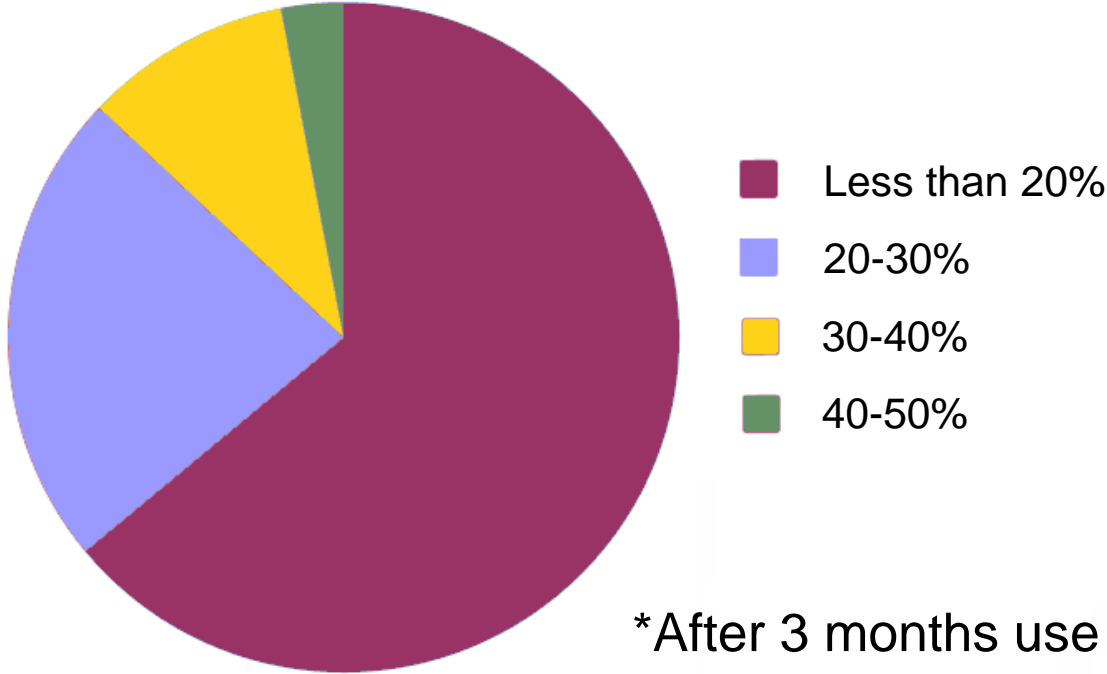


Chart showing what users considered to be 'low charge'\*

## When do you recharge?

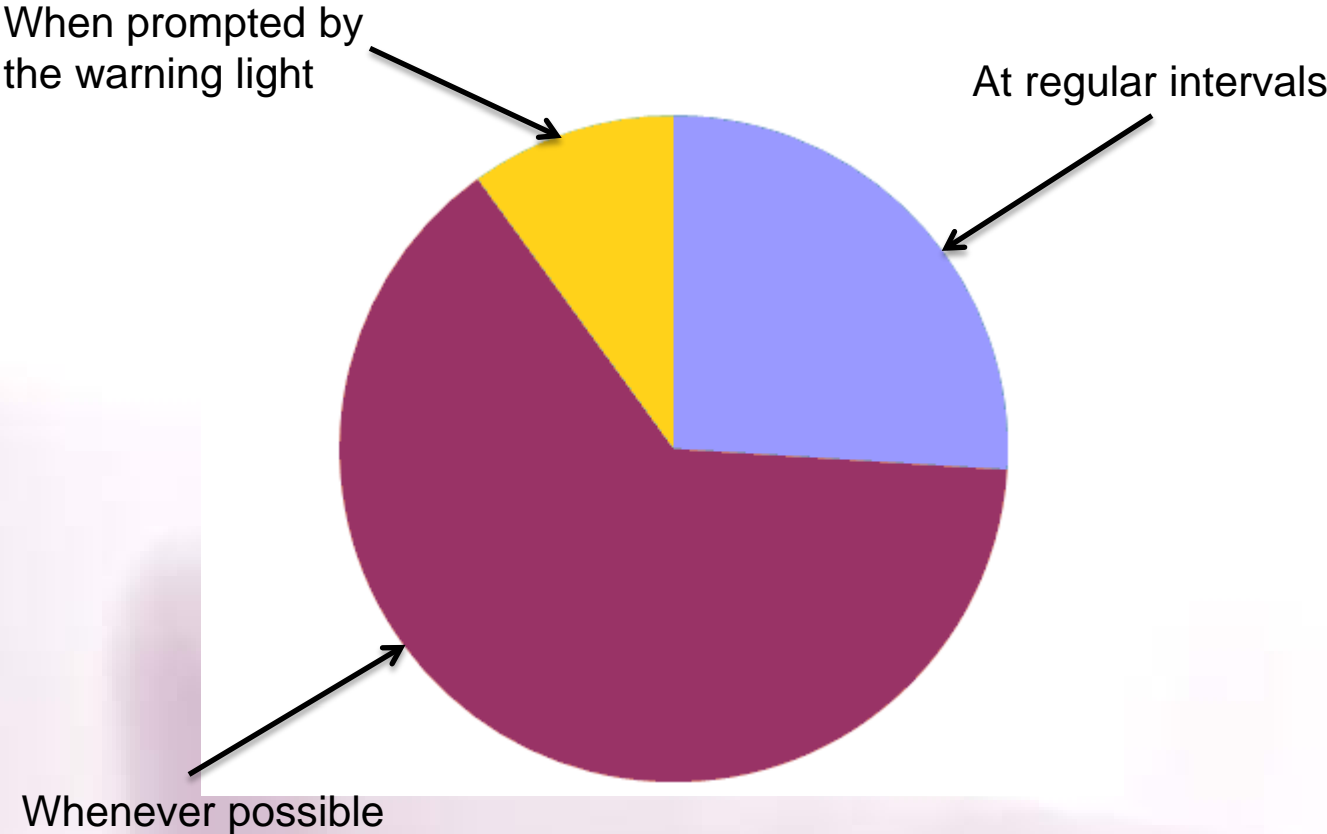
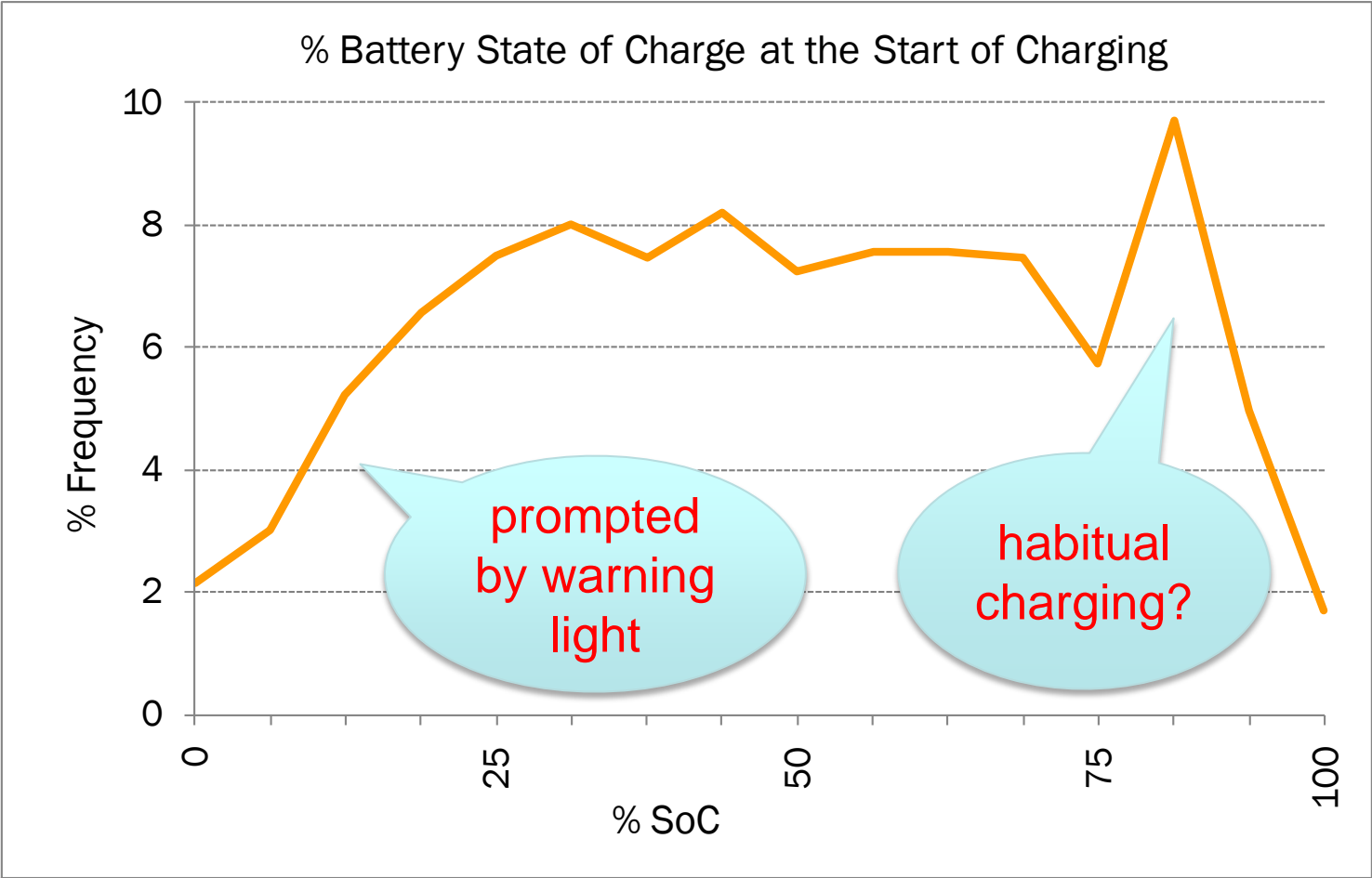


Chart showing when users charged their cars

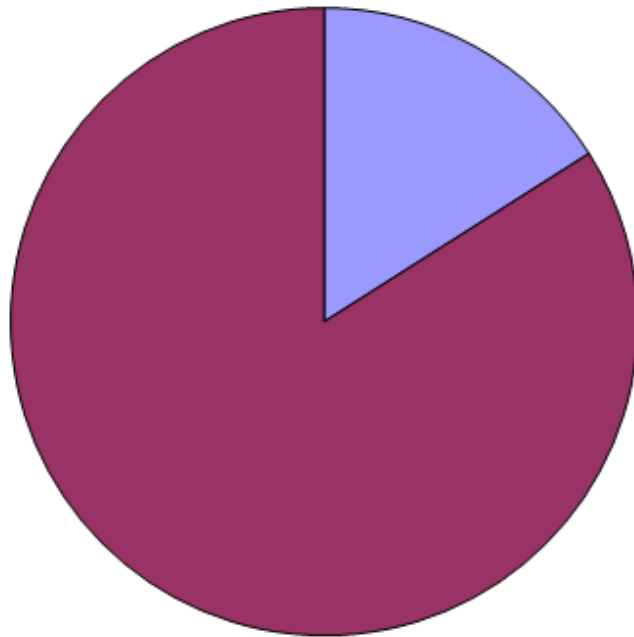
# Technology Strategy Board

Driving Innovation

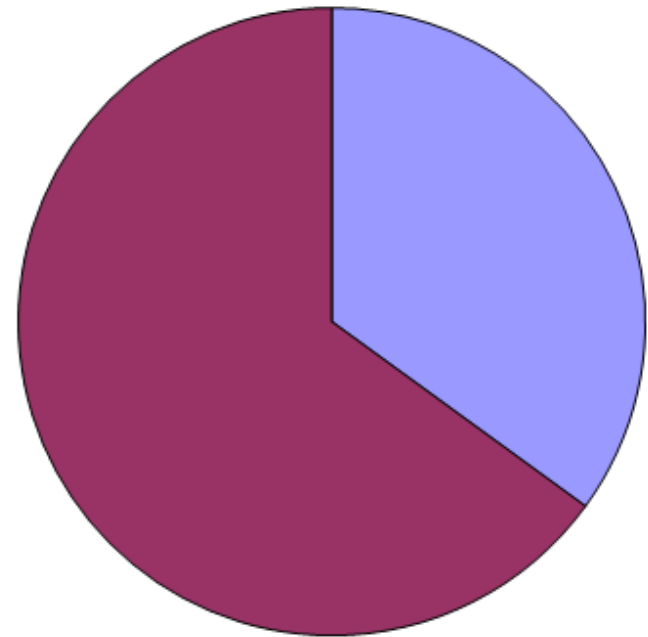


Distribution of battery state of charge at the start of a charge.

## Is public charging necessary? (In principle)



Pre Experience



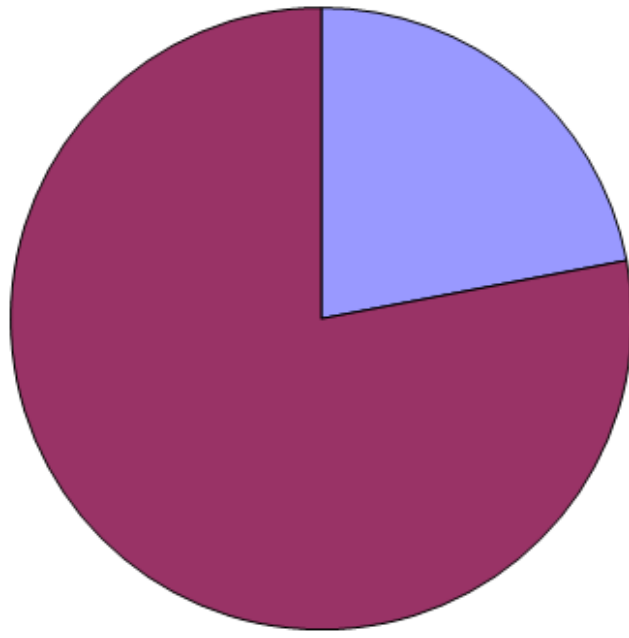
3 Months Experience

■ Essential  
■ Not Essential

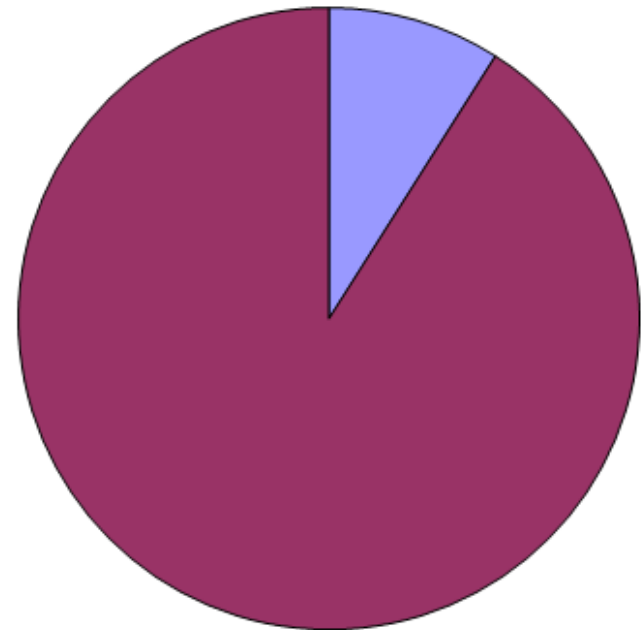
Charts showing whether a public charging infrastructure is essential



## Is public charging necessary? (for real trips)



Pre Experience



3 Months Experience

■ Agreed  
■ Disagreed

Charts showing whether daily trips could be completed without using a public charging facility

# Carbon impact...

<b>Average well to wheel carbon emissions</b>		
	Petrol / Diesel	EV Trial
Well to Wheel	170.63 gCO <sub>2</sub> e	120.13 gCO <sub>2</sub> e
Tank to Wheel	144.2 gCO <sub>2</sub>	0

Average CO2 emission estimates for this EV trial compared to petrol or diesel cars.

## Conclusions...

- Over 300 vehicles have been involved in the trial.
- The typical usage of the trial vehicles aligns to the national data.
- Users learn and adapt to charging routines quickly.
- The perceived need for publicly available charging points reduces with experience.
- Electric Vehicles produce less CO<sub>2</sub> than equivalent petrol/diesel cars, tailpipe and well to wheel.
- Further analysis will be conducted and disseminated during this year and next.

# Technology Strategy Board

Driving Innovation

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