Presentation by

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# Is transition to the electric car deliverable (and desirable)?

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# The new dinner party question…

# “Should I buy an electric car?”

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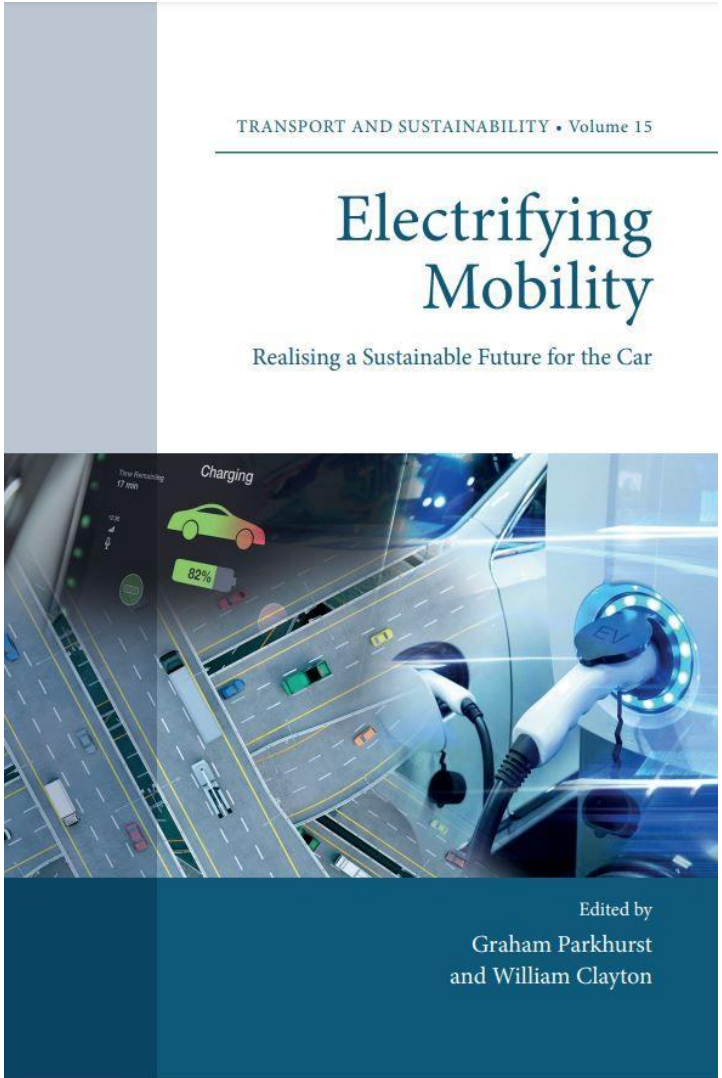

# Research on the Auto-Industry's Understanding of the Transition

- 14 interviews approx. 1hr during 2023 Q3/Q4
  - across the EV ecosystem in Western Europe
  - Varying nationalities and country locations
  - Experience from auto manufacture, lithium mining, battery manufacture + academics and policy-influencers
- Engagement in EV/mobility industry events
- Monitoring of specialist media

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# Our starting point…

The EV transition is not just a transport sector change

Car production has played a key part in the postwar ‘Fordist’ consensus

- Jobs in manufacture and wider retail and support industries

Society and space have co-evolved with car ‘consumption’

- Dependence hard to unpick for some
- Many citizens are not (yet) willing to end car ownership

Other sectors also undergoing transition

UN principle: sustainability transition should leave no one behind

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https://blogs.uwe.ac.uk/transport-and-society/why-a-car-is-not-just-a-car/

# Main Research Question

What is the scenario for transitioning from ICEs to EVs which is most likely to achieve emissions reduction targets whilst maintaining a viable future for the auto-industry in Europe?

# Price e.g. equivalent to VW Golf


VW ID3
270/345-mile WLTP range
£36,500/£40,000
10% to 80% charge in 26 mins on 150kW charger
(4-6 hours on home 7/11kWh wallbox charger)

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# Microlino “not a car” but maybe a “second car”

Half a typical EV?

- 2 seats
- 55mph max
- 140 miles range
- 4 hours recharge
- **But £18,000!**


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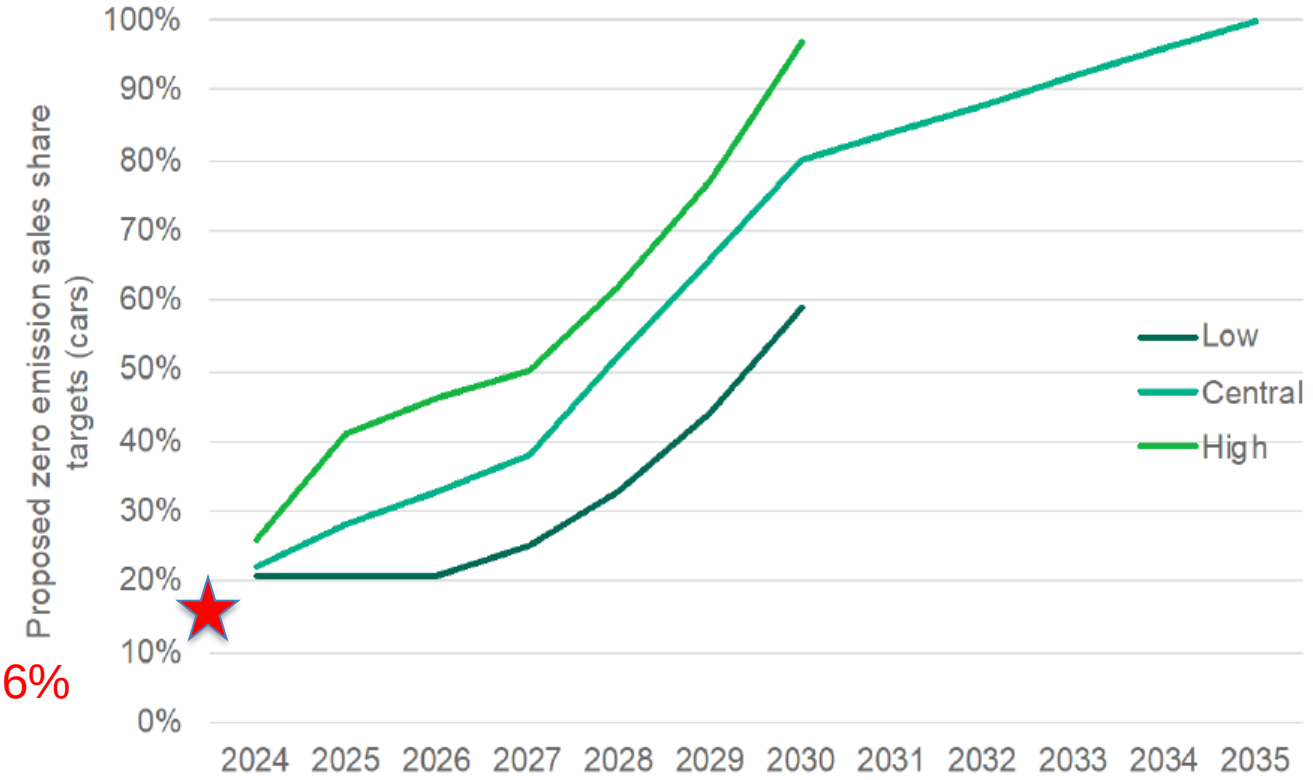
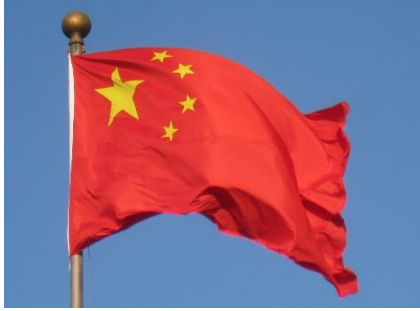
# Scenarios for zero-emissions car sales




2023 = 16.6%

DfT (2023) Consultation on a Zero Emission Vehicle (ZEV) mandate and CO2 emissions regulation for new cars and vans in the UK. Figure 7

# China as a quick fix?



- Lower EV costs due to
  - First mover advantage
    - 75% global EV battery capacity
  - Production capacity
    - domestic sales 60% of global
  - State subsidies (land, energy)

- Wider costs of reliance on China
  - High embodied carbon
    - Fossil fuel use in battery production
  - Leaves Europe increasingly as a producer of luxury vehicles
    - Smaller auto-sector workforce

- Our interviewees were unanimous: China has both fair and unfair competitive advantages
- EU has imposed BEV tariffs of 17-38% on top of 10% car tariff
- US has imposed 25-100% tariff!

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# Charging Infrastructure

ChargeUK White Paper (July 2024)

81% of EV owners primarily charge at home or work

Most also use public chargers at least occasionally

There are 0.9 million chargepoints for 1.1 million chargeable vehicles

65,000 (**7%**) of these are public, to grow to 300,000 by 2030

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# But capacity at what cost?

## Home Charging

- Wealthy households more likely to have off-street parking and investment in solar energy
- Domestic energy tariff with incentives (7p kW/h)
- Photovoltaic panels + battery storage
  - Car use may often be 'free' in summer

## Public Charging

- Less wealthy households more likely to be reliant on public chargepoints
- Cost of electricity provided = up to 75p kW/h
- 750km in ICE (@£1.5/l) = £60 (one fill)
- 750km in EV (@7km/kWh) = £80 (2+ charges)
- Will people accept queuing/waiting in hubs?
- What will the impact on property prices be?

# Summary of Issues with ‘Plan A’

- The share-of-sales targets look challenging due to range of cars available and their cost
- The percentage targets might be achieved, but on low volume, so ICE replacement is slowed
- Potential for political conflict
  - ICE model range and availability contracts due to phase-out by producers (to avoid penalties): consumer anger results
  - ‘EVs expensive to buy; cheap to run’ is no longer true
  - Charging infrastructure is rolled out, but user-pays principle deepens the divide between those with access to private chargers and those without
  - Job losses in the auto sector, combined with losses in other industries, are not compensated by the right kind of jobs in growth industries

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# What might Plan B look like?

**Road wear charge for EVs (weight-based):**

**- Part of proceeds used to subsidise public charging infrastructure and/or charge rates**

**VAT on public charging reduced from 20% to 5%**

**Greater incentives and targets for shared mobility:**

**- EV car clubs in urban neighbourhoods without off-street parking**

**Further public funds for auto-sector restructuring linked to commitments to produce:**

**- affordable EVs**

**- EVs for shared mobility**

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# Plan C: Revisit Battery Swapping!



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