Developing and Operating an EV Fleet

Andy Smith, Nottingham City Council

Slide 1: Background & EV Journey

- Nottingham City Council has prioritised reducing emissions since 2000, cutting CO_2 emissions by **41% between 2005 and 2020**.
- The **CN28 Carbon Neutral ambition** was launched in 2020 with the aim of becoming the UK's first carbon-neutral city.
- NCC operates a fleet of approximately **870 vehicles** across municipal and housing services.
- To lead by example, the Council began introducing electric vehicles (EVs) into its operations.
- Started with just **4 EVs in 2011** and expanded gradually through vehicle trials and market assessment.
- By 2016, grant funding enabled the purchase of **2 Nissan Leafs and 8 Nissan eNV200 vans**, proving EVs could successfully support city operations.
- Today, NCC has **220 charging sockets** across its sites, supporting continued fleet electrification.

Key message: Start small, learn as you go, and build confidence through practical experience.

Slide 2: Planning for Fleet Electrification

Success starts with planning

- Define your long-term goals and work backwards from the desired outcome.
- Understand operational requirements:
  - Urban vs rural operations
  - Vehicle duty cycles
  - Depot locations
- Take a collaborative approach involving:
  - Fleet Management
  - Facilities & M&E teams
  - Depot managers
  - Operational managers
  - Drivers and vehicle users
- Secure political, executive and stakeholder support early.

- Infrastructure planning is critical and must align with future fleet ambitions.

Lessons Learned

- Consult energy suppliers and Distribution Network Operators (DNOs).
- Maximise existing power through:
  - Load management systems
  - LED lighting upgrades
  - Solar panels
  - Battery storage
- Be realistic: projects will typically cost more and take longer than expected.

Slide 3: Vehicles - Start with the Easy Wins

- Cars and compact vans are the simplest and most successful first EV applications.
- Engage operators and managers throughout the procurement process.
- Use fleet reviews and telematics data to support decision making.
- Create EV champions among drivers and supervisors to encourage adoption.
- The EV market has matured significantly, with options now available across most vehicle types.
- Procurement routes for EVs are now widely available through major frameworks.
- Vehicle replacement plans must be aligned with charging infrastructure and operational requirements.

Key message: Choose the right vehicle for the right job and build momentum through early successes.

Slide 4: Challenges and Lessons Learned

Key Challenges

- Securing stakeholder buy-in and overcoming resistance to change.
- Managing operator concerns, particularly range anxiety.
- Delivering effective driver training and education.
- Access to charging infrastructure and charger availability.
- Managing vehicle payload limitations caused by battery weight.
- Ensuring specialist vehicle manufacturers provide ongoing support.

Financial Considerations

- Develop robust business cases using whole-life cost analysis.

- NCC's EV vans currently cost approximately:
  - **8p per mile** to charge
  - **23p per mile** for an equivalent diesel vehicle
- Light commercial EVs generally deliver:
  - Lower fuel costs
  - Reduced maintenance costs
- Savings for heavy goods vehicles (HGVs) are more challenging due to significantly higher acquisition costs.
- More significant savings can be made on fuel if the mileages covered is sufficient – Urban operation fuel savings are limited.

Workforce Development

- Invest in EV technician training.
- Upskilling workshops and mechanics is essential for long-term success.

Slide 5: Outcomes and Future Direction

Current Position

- Fleet size: approximately **870 vehicles made up of the Municipal Fleet and Housing Services Fleets**.
- Around **25% of the total fleet** is now ultra-low emission, rising to approximately **45% within the municipal fleet**.
- Two major depot power upgrades enabled significant charging infrastructure expansion.
- Nearly 10 years of planning, learning and continuous improvement have delivered the current position.

Looking Ahead

- Vehicle replacement funding is now in place through **2029/30**.
- Transition of the light commercial fleet will accelerate over the coming years.
- Ambition to achieve a **fully ULEV light commercial fleet by the mid-2030s**.
- Not every operation is suitable for electrification, but careful planning and realistic expectations deliver strong results.

Final Takeaway

"Lead by example, engage stakeholders, invest in infrastructure, and adopt EVs where they make operational and financial sense."