

APSE Transport Seminar

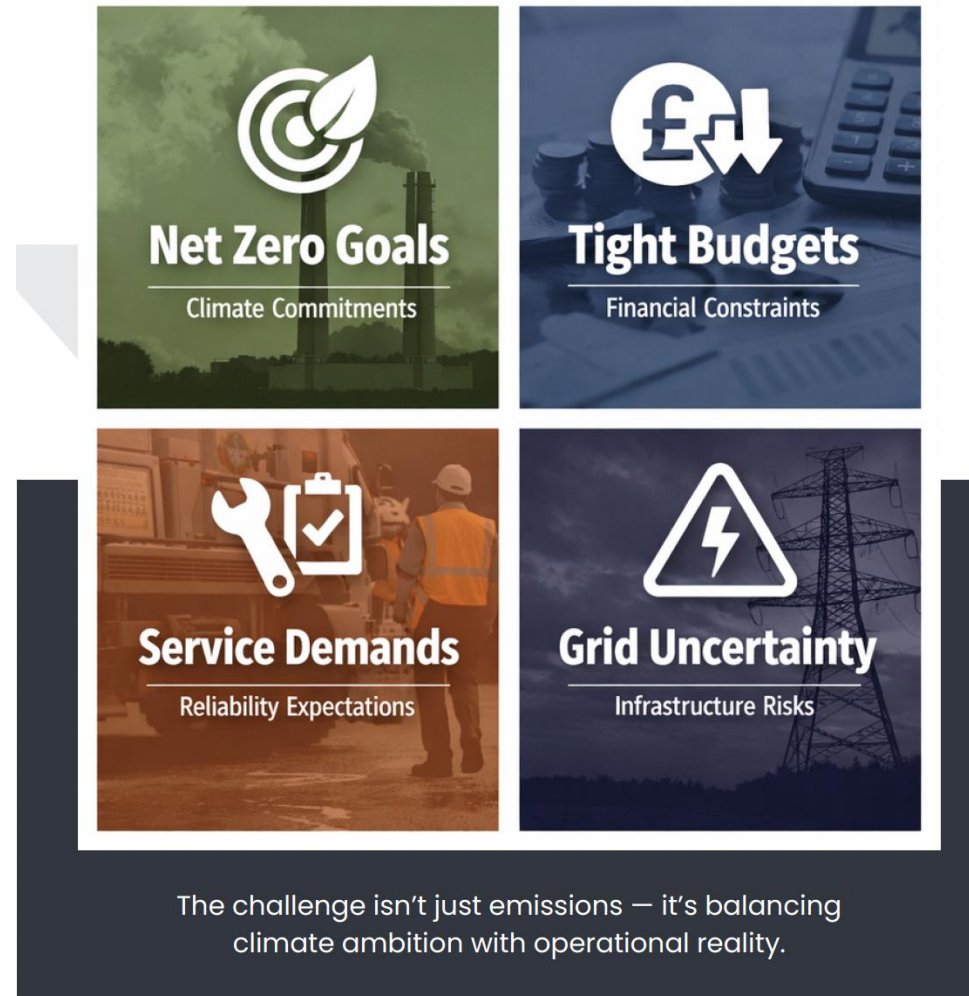


The Reality Councils are facing:

The Pressure is increasing

- Net Zero Commitments
- Budget Constraints
- Service continuity expectations
- Grid capacity constraints
- Political scrutiny
- LGR Planning

For local authorities fleet decarbonisation is both a climate duty and a service delivery risk management decision



Alternative Energy Options

The most mature and scalable pathway currently available to local-authority fleets is electric.

Electric Vehicles
(EV's)

Most mature & scalable

Bio Fuels
HVO, Biodiesel

Immediate transitional
option

Natural Gas
CNG & LNG

Established but
declining strategic fit

Hydrogen Fuel
Cells

Emerging / future
focused

Note: Early EV adopters faced smaller batteries, limited range and weak charging infrastructure.

Exec Summary

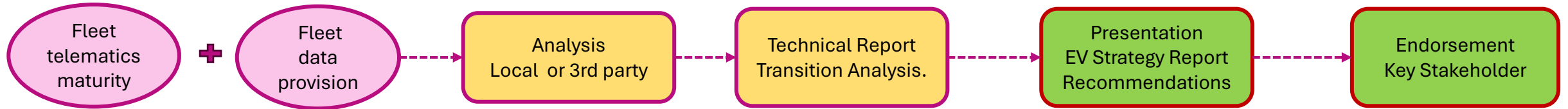
1 - The Right Use Cases 	2 — Build the Infrastructure 
Cost is only one factor — Utilisation, range, payload, duty cycle, reliability, downtime, hire vehicles and C02 reductions all matter. ✔ Use Telematic where available: Analyse real usage to identify where EVs fit best ✔ Validate Energy Use: Calculate real-world efficiency.	Engage Local DNA early – Understand Power constraints at each location Plan charging before vehicles arrive — match power availability to operations. (optimise charging timescales) ✔ Test Assumptions: Use trials to validate range, charging & fit before scaling.
3 — Bring People With You 	4 — Connect the Data 
Drivers, managers, workshop staff, operational teams & customers need to understand the operating model changes. ✔ Practical training & communication = buy-in.	EVs, chargers, energy, tariffs & fleet software must work together. ✔ One operational view across your entire estate becomes critical.

A staged approach to Fleet Decarbonisation

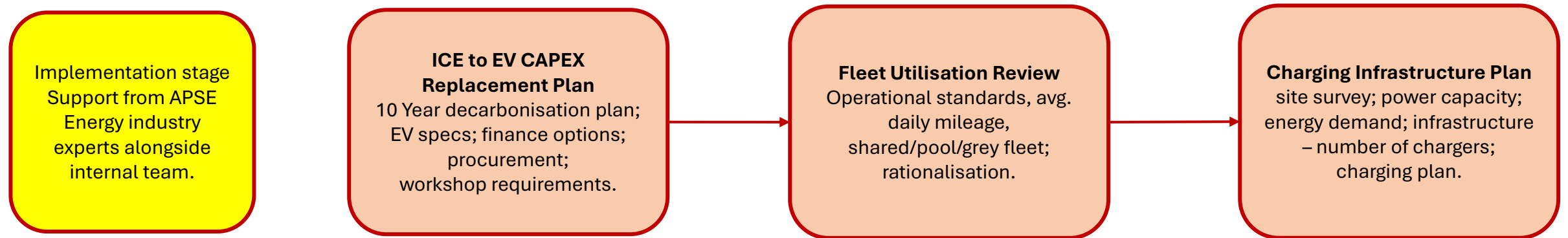


Project management, business case funding, risk management, monitoring, engagement, cross functional teamwork.

Stage 1. Fleet Decarbonisation Discovery



Stage 2. Post report recommendations – Road map implementation



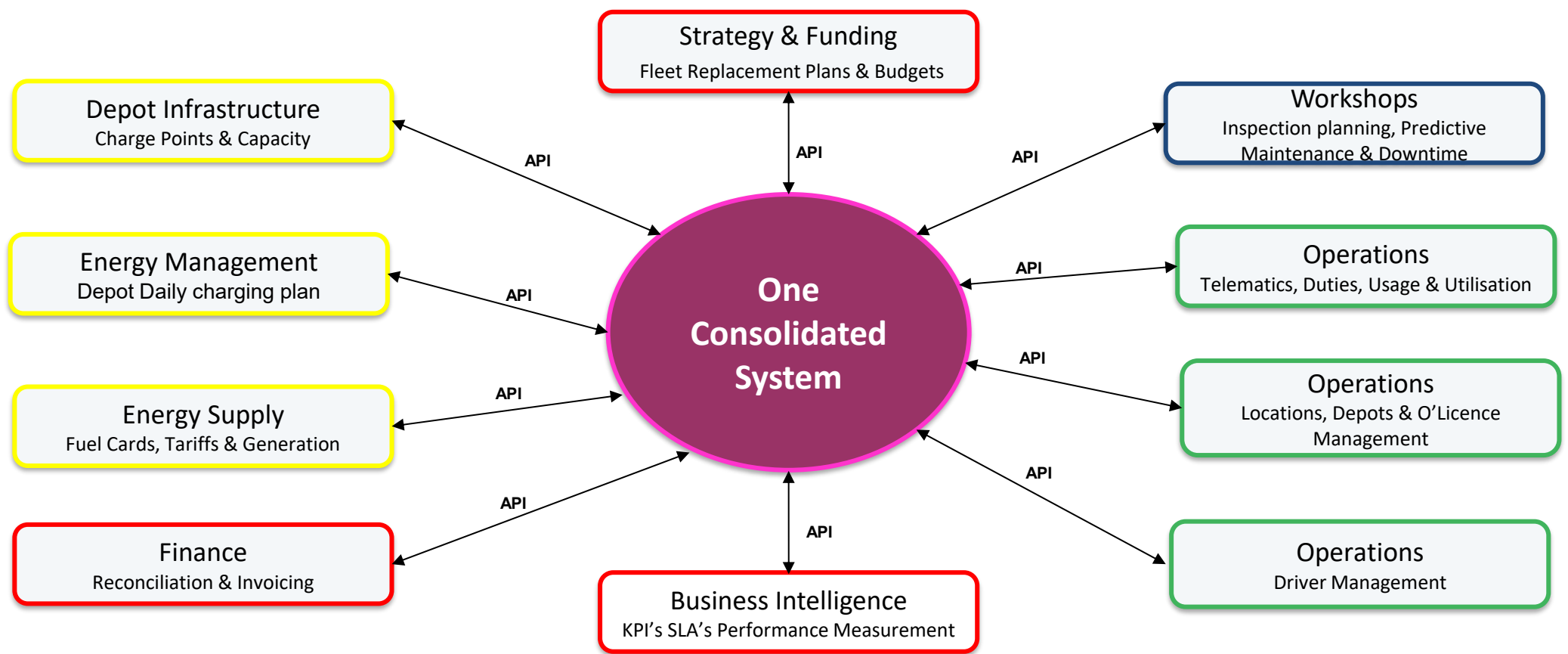
Project management, business case funding, risk management, monitoring, engagement, cross functional teamwork.

Where do we begin?

Fleet Discovery – Current State “As-Is” Baseline & Feasibility Analysis

-   What is the current capability of fleet systems and reporting?
-  What is the level of **telematics maturity** across fleet categories?
-  How will assets without telematics be addressed?
-  Is there an established replacement plan for ICE vehicles beyond 2030?
-   Has a climate emergency been declared ? *(What strategy to replace vehicles by Category, Depot or Function)*
-  Are sufficient internal resources and expertise available to complete the fleet analysis?
-  Is external decarbonisation consultancy support being considered?
-  Can a formal decarbonisation report with recommendations be produced?
-  **Note:** A report with recommendations represents an assessment only — implementation is the next phase.
-  Has dedicated funding been secured for this programme or project?

Fleet Systems - One consolidated digital system view of every fleet asset



Electric adds infrastructure, energy and digital assets to the traditional fleet estate.

Fleet Lifecycle Replacement Plan

- **175 of the 193** vehicles have associated telematics data available.
- This dashboard presents fleet lifecycle replacement dates by vehicle class, highlighting vehicles that are either overdue or due for replacement in **2025/26** as early-priority opportunities.
- Vehicles should be segmented to identify low-risk assets and programme exceptions.

Strategy should consider

- Funding Options – CAPEX, operating or finance leasing options and TCO

Planning should consider

- Overdue replacements (27%) represent a further opportunity, subject to available funding to accelerate early replacement.
- smoothing the projected replacement peak in 2030.
- Asset supply lead times present a key risk – delivery for some vehicle categories may extend to up to **24 months**.



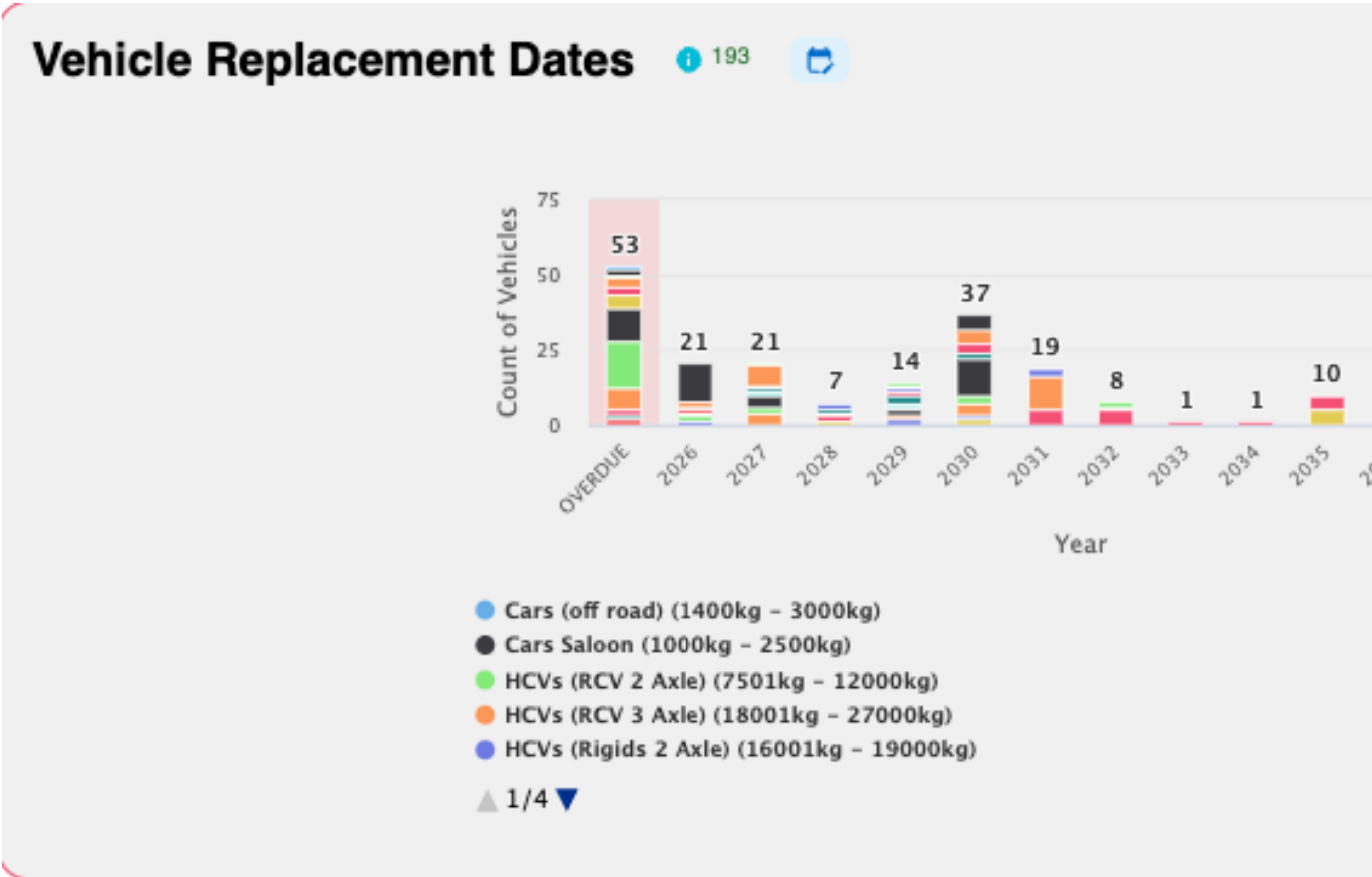
193
Vehicles



175
Telematics



18
No
Telematics

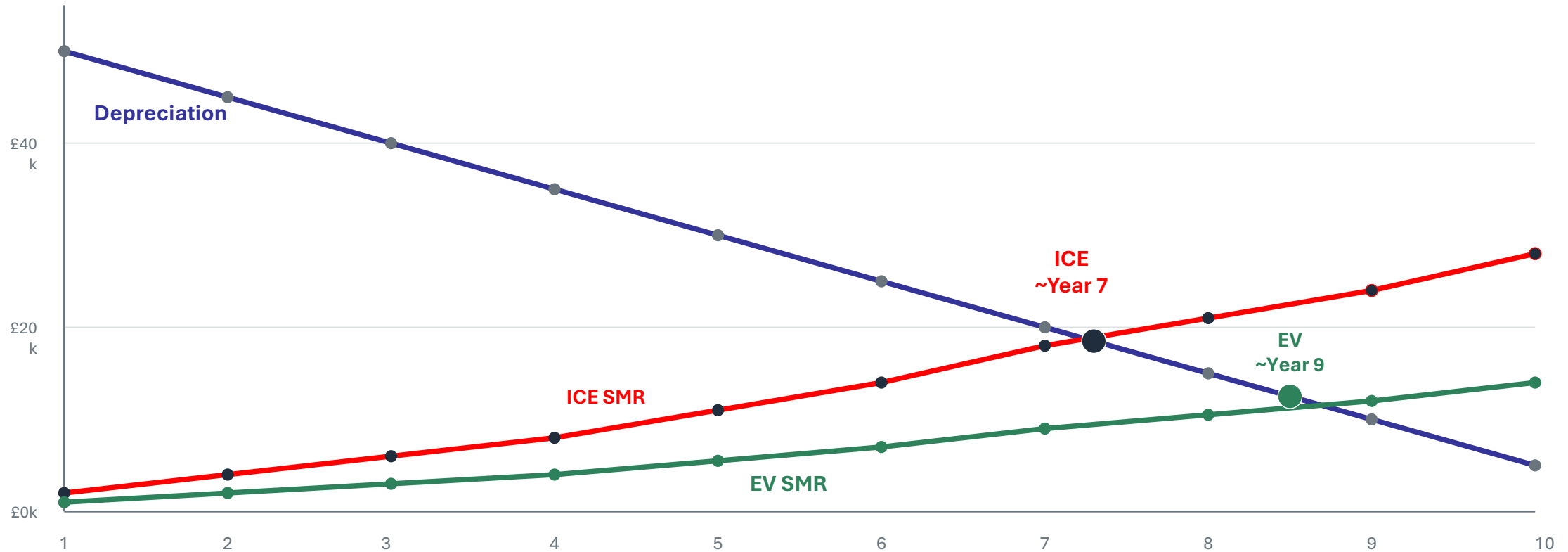


Financial Funding Options Summary

Feature	Outright Purchase (CAPEX)	Operating Lease (Contract Hire)	Finance Lease
Ownership	You own the vehicles	Finance provider owns them	Provider owns during term
Pros	✓ Full control & equity ✓ Keep residual value ✓ No restrictions on use/mileage	✓ Lower fixed monthly costs ✓ No depreciation risk ✓ Often includes maintenance ✓ Simple return at end	✓ Spread cost over time ✓ Retain most sale proceeds ✓ Flexible end-of-term options
Cons	✗ Large upfront capital outlay ✗ Carry depreciation risk ✗ Manage disposal & all costs	✗ No ownership / equity ✗ Mileage & condition penalties ✗ Never own the assets	✗ Responsible for all costs ✗ Carry residual value risk ✗ Appears on balance sheet
Best For...	Businesses with available capital; want full control	Want least hassle; fixed budgets; no depreciation risk	Want to spread cost; keep sale proceeds

Lifecycle Analysis — When does SMR overtake depreciation?

A simple view of the source data highlights when annual maintenance becomes larger than annual depreciation.



Maintenance costs overtake depreciation as the fleet ages.

Vehicle Specs - Avoid the common vehicle-selection traps

ICE
Internal combustion

Vehicle / lease cost	CAPEX
Life cycle	CAPEX
Warranty	OPEX
SMR & tyres	OPEX
Downtime	OPEX
Economy	OPEX
VED	OPEX
Payload	Operational fit
Duty cycle	Operational fit
End-of-life value	CAPEX

EV
Electric vehicle

Vehicle / lease cost	CAPEX	
Life cycle	CAPEX	?
Warranty	OPEX	
SMR & tyres	OPEX	?
Downtime	OPEX	
Energy cost	OPEX	
VED	OPEX	
Real-world range	Operational fit	?
Battery size & Degregation	Operational fit	?
Charge speed	Operational fit	
Available infrastructure & Grid Capacity	Infrastructure	?
Payload	Operational fit	
Duty cycle	Operational fit	
End-of-life value	CAPEX	?

Choose on whole-life cost and operational fit — not purchase price alone

Evaluate the vehicle as part of the operating system — not as a standalone asset

Biggest Battery does not always win

Toyota Medium Panel Vans 75kWh Battery simulated



563 Telematic routes for this class of vehicle were analysed



Average days in week usage = 2.78 Average drive time per day 3h 43m



GVW = 3,021kgs



75
kWh

Battery
Capacity

34.4

Vehicle Efficiency
kWh / 100m



218 mi

Ideal EV Estimated
Range



181

Harsh EV Estimated
Range

18 mi

Avg. ICE Daily
Vehicle Mileage

100 %

Avg. Duty Cycle
Completion

563 (100%)

Routes that transition
0 >63 mi

0 (%)

Routes that transition
126 >186 mi

214

WLTP Range miles

Transition Summary by Vehicle Class

Significant transition opportunity exists

Early EV adopters faced challenges such as range limitations; modern vehicle options now overcome these constraints

Fleet analysis identifies low average daily mileage across most vehicle classes, creating high feasibility and strong opportunities for electrification.

Battery capacity and usable state-of-charge percentages are key considerations in fleet planning

Larger battery packs carry higher capital cost, yet may reduce demand on depot charging infrastructure — making them advantageous where available power supply or fuse capacity is limited.

ICE Class	No. of Vehicles	Avg. Daily Mileage	Simulaion EV	GVW (kgs)	Battery Capacity (kWh)	Vehicle Efficiency kWh / 100m	WTLP OEM Range	Harsh EV Estimated Range (m)	Avg. Duty Cycle Completion %
Cars	19	26	Skoda Enyaq Estates EV Vehicles	2,650	77	22.5	359	284	100%
MPV	22	44	Merc e-Veto Medium Panel Vans	3,021	60	37.1	160	134	97%
HPV	29	31	Peugeot e-Boxers Heavy Panel Van	4,200	110	41.8	263	218	93%
HPV	24	32	Fiat e- Ducato Heavy Tipper Vans	4,200	110	42.1	262	217	88%
2 Axle Box Van	7	30	Iveco e-Daily Box Van	3,500 - 7,400	148	98.8	149	124	100%
2 Axle Truck	4	28	Mitsubishi Fuso	7,400 - 7,500	123.9	99.5	124	103	100%
2 Axle Trucks	8	34	DAF FA XB 190	7,500 – 12,000	282	128	217	183	96%
2 RCV Axle Truck	4	58	Electra Eurocargo with Turberg Orus 7 Body	12,000	140	139	155	84	90%
2 Axle Truck	7	29	DAF FA XB 190	19,000	282	128.1	174	183	100%
RCV 3 Axle 26t	18	38	Mercedes Econic	27,000	300	321.5	62	77	92%
Minibus	7	20	Maxus e Deliver 8 Seats	4,050	88	39.2	190	186	97%
Minibus	19	45	Ford E transit 17 Seats	4,250	90	55.2	200	135	99%

Charging is an operating model — not a refuelling transaction

Driver duty cycles are typically extended and subject to variation.

Charging may occur at the depot, at the driver’s home, or via the public network — each with distinct cost profiles, data requirements, and operational implications.

	Stage	Key Action
1	Home	Begin each operational day with a full charge where home charging is viable.
2	Workplace	Install charging infrastructure at depots or operational locations where vehicles are based.
3	Public	Deploy public charging only when necessary, minimising its use to manage costs and reduce downtime.
4	Reimbursement	Implement a system that reimburses actual charging costs, ensuring drivers incur no personal expense.

Depot Charging Plan

Charging hardware scenario 1 - Every vehicle has a charging hose with managed software

Depot has **10 Medium Panel Vans**, each with **100 kWh Battery capacity**



Average daily mileage = **20 miles per day**. Operates **5 days a week** – Weekly mileage = **100 miles**



- Each Vehicle has a **7kW** charging point, plugged in daily on return to base
- *Assume managed charging – Vehicles charge at non-peak times*
- Maximum energy per charger per day: $7 \text{ kW} \times 24 \text{ h} = \mathbf{168 \text{ kWh/charger/day}}$
- **10 chargers total:** Peak power = **70 kW** | Max daily energy = **1,680 kWh/day**
- Daily energy needed: $20 \text{ miles} \times 0.40 \text{ kWh/mile} = \mathbf{8 \text{ kWh per vehicle}}$
- **Fleet daily requirement:** $10 \text{ vehicles} \times 8 \text{ kWh} = \mathbf{80 \text{ kWh TOTAL per day}}$
- ⚠ Depot has 1,680 kWh/day capacity but only needs 80 kWh/day — 21× oversupply
- Overspecified infrastructure → high unnecessary CAPEX & maintenance costs
- ✅ Benefit: every vehicle restored to 100% daily with ample spare capacity
- CO₂ Savings vs Diesel (tailpipe): $\sim 1.5 \text{ kg/vehicle/day}$ | $\sim 7.4 \text{ kg/vehicle/week}$ | $\sim 384 \text{ kg/vehicle/year}$
- Fleet total (10 vans): $\sim 15 \text{ kg/day}$ | $\sim 74 \text{ kg/week}$ | $\sim 3.84 \text{ tonnes CO}_2 \text{ eliminated per year}$

Think about how your strategy will deploy charging across locations, by Depot/Location ? Operational function or Vehicle Category ?
You have 21 times more charging capacity than the fleet actually uses.

Depot Charging Plan

Charging hardware scenario 2 — Shared charge points with managed software

Depot has **10 Medium Panel Vans**, each with **100 kWh Battery capacity**



Depot has two 7kW charging hoses



Average daily mileage = **20 miles per day**. Operates 5 days a week – Weekly mileage = **100 miles**

Charging plan has the two charging hoses deployed on specific days of the week

Monday Monday Tuesday Tuesday Wednesday Wednesday Thursday Thursday Friday Friday

- Depot installs **2 × 7 kW shared charge points** instead of 1 dedicated per vehicle
- *Assume managed charging — vehicles charge sequentially at non-peak times*
- Maximum energy per charger per day: 7 kW × 24 h = 168 kWh/charger/day
- 2 chargers total: Peak power = **14 kW** | Max daily energy = **336 kWh/day**
- Daily energy needed: **20 miles × 0.40 kWh/mile = 8 kWh per vehicle**
- Fleet daily requirement: 10 vehicles × 8 kWh = 80 kWh TOTAL per day
- Therefore, each vehicle charges **once per week**, consuming **40 kWh** — **leaving 60% SOC** in the 100 kWh battery
- ⚠ Depot has 336 kWh/day capacity but only needs 80 kWh/day — **still 4.2× spare capacity** → Efficiently sized infrastructure → lowest CAPEX, installation & maintenance costs
- The depot therefore requires reduced grid connection capacity from the DNO → significant CAPEX savings
- **Risk:** Drivers forgetting to plug in — but even so, ample battery capacity remains

People & Change

The driver is central to a successful EV transition

	Stage	Key Actions
1	Drivers	Deliver eLearning, in-vehicle instruction, pre- and post-delivery inductions, and practical guidance
2	Managers	Provide updated policies, duty-cycle analysis, and realistic performance expectations
3	Customers	Clarify contractual and service requirements, communicate environmental benefits, and deliver sustainability reporting
4	Continuous Engagement	Maintain proactive communication, address challenges, and reinforce best practice
5	Workshops	Engage the team in the vehicle replacement plan and EV specs. Consider any new equipment and training of staff

Levels of EV understanding vary widely — a blended approach is therefore essential.

A practical roadmap for a local-authority operational fleet

	Stage	Key Actions
1	Baseline	Map fleet composition, duty cycles, operational locations, and existing charging and energy data
2	Segment	Identify low-risk EV use cases and any exceptions requiring further evidence or assessment
3	Design	Plan charging infrastructure, grid capacity requirements, site works, energy supply arrangements, and operational procedures
4	Pilot	Deploy pilot schemes and trials; capture real-world energy performance, operational availability, and driver feedback
5	Scale	Prioritise EV rollout where economically viable; phase infrastructure deployment and organisational change programmes
6	Optimise	Consolidate performance data; monitor cost per mile, asset utilisation, reliability, and carbon reduction metrics

Technical analysis and discovery work must be supported by operational expertise to deliver practical, implementable deployment recommendations.

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