

# Alternative Fuel Considerations for Cars & Commercial Vehicles

**APSE Transport Network**

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## Introduction

- Commercial vehicle fleets are a significant contributor to carbon emission and local air quality impacts
- Volatile fuel costs, tightening regulations and Net zero commitments demand more strategic fleet management and energy security
- Why Now ? External pressures (global energy markets and geopolitical instability) are accelerating the need for change
- Local authorities must balance climate ambition with cost, resilience and operational delivery
- Alternative fuels and energy solutions are no longer theoretical, practical decisions are required now

# Why Alternative Fuels?



Deliver Net Zero and Clean Air commitments (CO2 and Nox)



Improve fleet resilience and energy security



Lower whole life costs (TCO)



Ensure compliance with tightening government regulations



Enable depot-based decarbonisation aligned to local infrastructure



Demonstrate Leadership in public sector sustainability

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

# Alternative Energy Options

The main pathways currently available to local authority fleets

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

# Electric Vehicles (EVs)

- Battery technology and range improving, zero tailpipe emissions
- Ideal for urban operations & delivery fleets

## **Advantages:**

- Best fit for urban and depot based operations - Suits the local authority  
Low operating & reduced maintenance / fuel costs (Opex)  
Less moving parts and a quieter operation  
Options to extend the vehicle lifecycle

## **Challenges:**

- High purchase costs (CAPEX)  
Charging infrastructure
- Limited range for long-haul-but range improving rapidly

## **Biofuels (HVO & Biodiesel)**

- Derived from organic materials (plants, waste, cooking oil etc.)
- Available now - Can be used in existing diesel engines (blends)

### **Advantages:**

- Low disruption transitional solution for existing diesel fleets  
Renewable
- Lower CO<sub>2</sub> emissions and NO<sub>x</sub> impacts than fossil fuels

### **Challenges:**

- Land use concerns
- Variable availability  
Do diesel tanks need to be cleaned before supply ?

## **Natural Gas (CNG & LNG)**

- Cleaner-burning than diesel
- Common in bus fleets & some commercial vehicles

### **Advantages:**

- Low carbon fossil fuel with infrastructure constraints
- Established technology

### **Challenges:**

- Still a fossil fuel
- Storage & distribution limitations  
Planning timescales  
Impacts of middle east conflict

# Hydrogen Fuel Cell Vehicles

- Electrolysis used to generate hydrogen from water  
Hydrogen mixed with oxygen in a fuel cell to create electricity  
Emits only water vapor at tailpipe

## **Advantages:**

- High potential zero emission option for heavy duty vehicles and long range  
Very clean technology  
Fast refuelling

## **Challenges:**

- Vehicle purchase costs extremely high (£850k)  
Very high hydrogen production cost  
Very limited supply options and infrastructure

# Comparison & Key Considerations

How local authorities should evaluate alternative fuel options

## **Strategic & Financial**

Fleet cost CAPEX vs OPEX and whole life costs (TCO)

Long term affordability and funding implications

## **Operational & Technical**

Vehicle specification, warranty, range and performance

Suitability for different duty cycle operations and services

## **Infrastructure & Delivery**

Depot infrastructure availability and readiness

Power capacity, fuel and space constraints by site

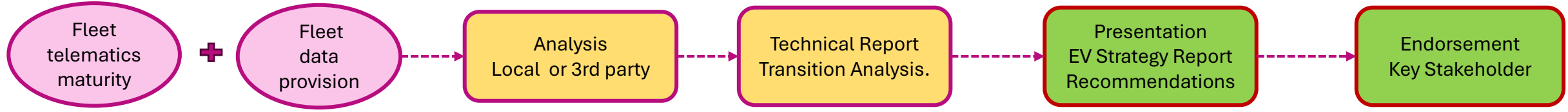
## **Environment & Policy**

Net Zero and air quality impacts

Alignment with local sustainability targets

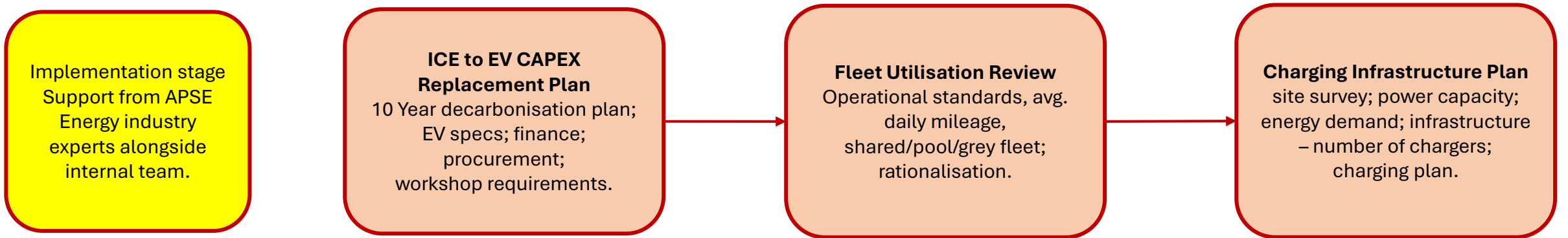
# A staged approach to Fleet Decarbonisation

## Stage 1. Fleet Decarbonisation Discovery



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## Stage 2. Post report recommendations – Road map implementation



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

# Conclusion

**Net Zero commitments must now be delivered.**

- **Transition:** Plan for net zero vehicles, fuels and energy
- **EVs:** Best long-term pathway against timelines
- **Biofuels & natural gas:** Viable transition options
- **Hydrogen:** High potential, limited by cost and infrastructure constraints
- **Local authorities:** Must adapt to shifting technology and policy

*Discovery technical analysis requires an operational team to deliver deployment recommendations*

# Contact details

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