

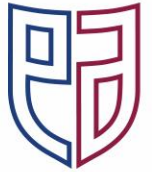
# Fleet Electrification

Mark Cox

Fleet Manager

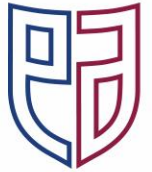
East Ayrshire Council

# Fleet Electrification

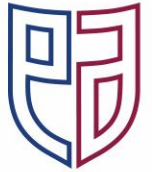


- Fleet currently 550 including hires
- 100 Electric Vehicles
- 55 Cars
- 45 Vans

# Electric Fleet

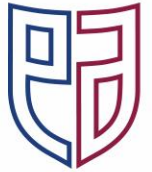


# Electric Fleet



- Transformation
- Attitudes/Information
- Target
- 2025/2030

# Barriers



- Cost
- Range
- Charging
- Suitability

**Mike Cooper**  
**Transport and Logistics Manager**

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**Benefits of Running a  
Leased Fleet**

# The Highlands

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- 9,906 sq miles
- 4194 miles Road Network
- 47 Operating Centers
- 750 LCV / 320 HGV

# Why Lease

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- Buy / Lease / Hire
- Passing the risk to someone else
- Current interest rates (sub 2.5%)
- De-risk maintenance and fixed revenue budget
- Only funding the difference between Capital cost and the RV
- Income opportunity



# Financials

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## VW Caddy Maxi Life, WAV

- Additional options included, based on 25k miles per annum
  - » Vehicle Capital Cost £22,396
  - Lease Annual Rental £3747 (£18,735 over 5 years)
  - Annual Maintenance £1,229 (£6,145 over 5 years)
  - Total 5 year cost of vehicle inc. maintenance
    - £24,880

# Moving to EV

## Small Van

Diesel	Electric	
£2,200 PA	£3,200 PA	45%
£12,000 +VAT	£20,000 + VAT	67%

## Medium Van

Diesel	Electric	
£2800 PA	£4300 PA	54%
£17,000 + VAT	£34,500 +VAT	103%

## Large Van

Diesel	Electric	
£4,000 PA	£8,500 PA	115%
£21,000 +VAT	£52,000 + VAT	148%

# Funding Options

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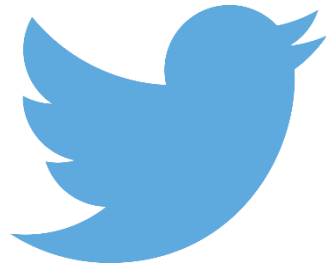
- Lots of Frameworks Available





Any Questions?

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# **APSE Performance networks seminar 2021**

## **Workshop J**

### **Transport**

# Welcome

Today's facilitators and presenters are:

Andy Mudd, APSE Solutions

Pete Johnson, APSE Solutions

Mike Cooper, Highland Council

Mark Cox, Ayrshire Roads Alliance

John Smith and Ian Jeromson, Shetland Council

- The need for evidence has grown and is growing
- Rapidly changing environment:
  - Climate change
  - Digitalisation
  - Post-covid world
- Decisions need to be grounded in good data rather than opinions



- Well-known and recognised by government bodies
- Continue to form partnerships with professional bodies
- We need to further develop the measures on climate change through the workshops and working groups.

# Impact of Covid-19 on Transport: 2020-21

PI 74 - Percentage of vehicles serviced within 7 days of schedule - percentage change from previous year									
0.75%	increase (effectively very little change)								
% change in Hire in vehicles									
65%	increase								
Change in hire in vehicles									
An extra FTE 9 vehicles on average were hired in									
% change in servicing (on scheduled day)									
5% improvement									
Maintenance staff FTE									
1% increase	(effectively very little change)								

# Climate Change data

- 83% diesel
- 33% petrol
- 11% electric vehicles
- 0% LPG
- 0% hydrogen

<b>Environmental</b>	
Litres of <b>petrol</b> used in all vehicles using this fuel	PETROL
Do all vehicles in this fuel class draw fuel from the depot	PETROLDF
Does the above fuel consumption figure include all vehicles in this fuel class (depot issue and other sources)	PETROLAV
Litres of <b>diesel</b> used in all vehicles using this fuel	DIESEL
Do all vehicles in this fuel class draw fuel from the depot	DIESELDF
Does the above fuel consumption figure include all vehicles in this fuel class (depot issue and other sources)	DIESELAV
Litres of <b>LPG</b> used ( <b>Liquid Petroleum Gas</b> ) in all LPG-based vehicles	LPGLTR
Do all vehicles in this fuel class draw fuel from the depot	LPGLTRDF
Does the above fuel consumption figure include all vehicles in this fuel class (depot issue and other sources)	LPGLTRAV
Cubic metres of <b>hydrogen</b> used in all hydrogen-based vehicles	HYDRO
Do all vehicles in this fuel class draw fuel from the depot	HYDRODF
Does the above fuel consumption figure include all vehicles in this fuel class (depot issue and other sources)	HYDROAV
Kilowatt hours of <b>electricity</b> used to charge all electric vehicles	ELECT
Do all vehicles in this fuel class draw fuel from the depot	ELECTDF
Does the above fuel consumption figure include all vehicles in this fuel class (depot issue and other sources)	ELECTAV

- Tea/Coffee Break

# Recruitment and Retention

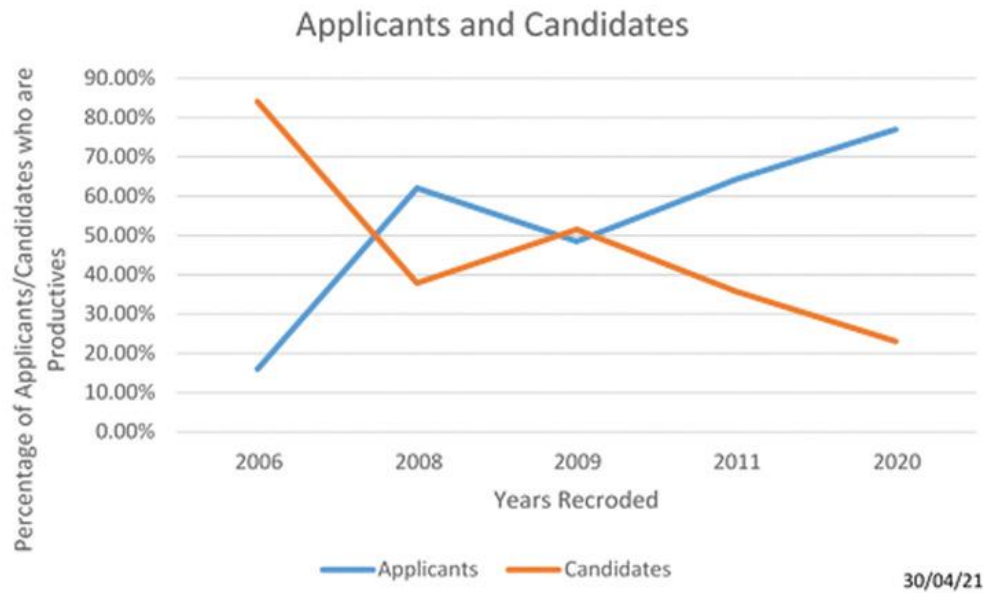
Andy Mudd, Head of APSE Solutions

# The problem?

more than half of vacancies for mechanics, technicians and fitters will not be filled in the coming years (FTA 2019)

- **Ageing workforce**
  - Fewer apprenticeships
- **Brexit**
  - UK now has negative net migration
- **Covid**
  - Increased numbers retiring
- **Electrification**
  - Whole new skill set
  - Institute of the Motor Industry predicts a shortage of 35,700 technicians by 2030

# What



PMM Online Sept 21

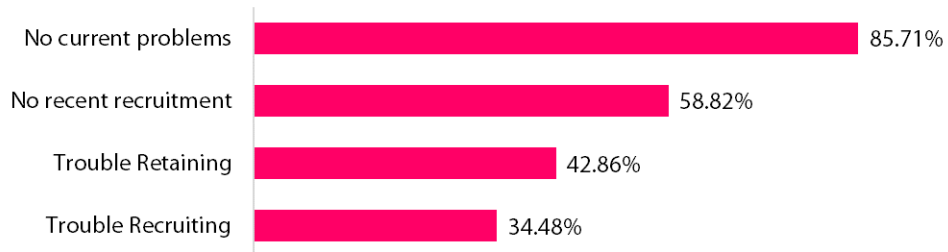




30/04/21

# APSE State of the market

## 2021 Operatives

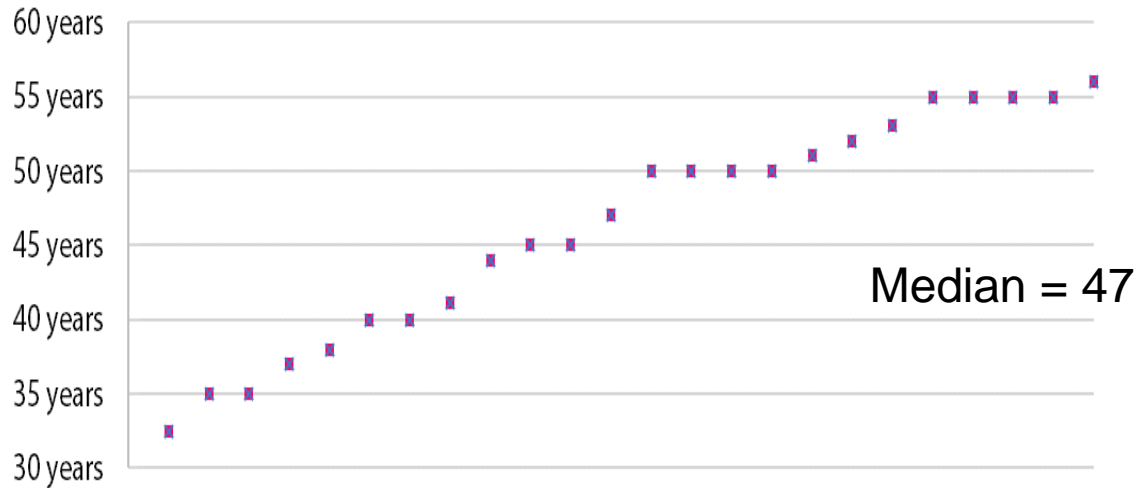


## Technical staff



# Average Age of

# Open



# Do you have an apprentice scheme



- Open discussion forum

- Action plan

**Thank you**

**Good luck in tonight's awards!**

**Keep performing!**

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# Contact details

## Name, Position

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**telephone:** 0161 772 1810

**web:** [www.apse.org.uk](http://www.apse.org.uk)



**GB 11409**

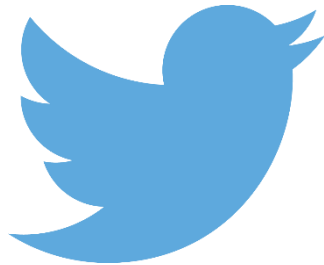


**GB 11132**



**GB 14074**

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## **APSE Performance networks seminar 2021**

# **Transport workshop**

**Is electric the solution for all vehicles?**

Pete Johnson, APSE Solutions Associate

# The Headline

**Government takes historic step towards net-zero with end of sale of new petrol and diesel cars by 2030**

The end of sales of new petrol and diesel vehicles to start in the UK by 2030.

# These are The Targets

Phase out dates for new non-zero emission Light Goods Vehicles (LGVs) and Heavy Goods Vehicles (HGVs):



**LGVs (under 3.5t)**  
all new vehicles required to have significant zero emissions capability

and 100% zero emissions at the tailpipe **from 2035**

zero



**HGVs (above 3.5t and up to and including 26t)** End the sale of new non-zero emission HGVs in this category **by 2035**, or earlier if a faster transition seems feasible\*

**HGVs (above 26t)**  
End the sale of all new non-zero emission HGVs **by 2040**, or earlier if a faster transition seems feasible\*



\*Subject to consultation

## Are They:-

- The Start Line?
- Finish Line?
- Goal?

## Council Priorities

- Must Achieve By?
- Replace From?
- Resources (financial, Physical)?
- Other competing factors (i.e. Heating of Council Buildings/Housing Stock)

## **Can you still drive a diesel / petrol car (vehicle) after 2030?**

Ministers are keen to stress that motorists will still be able to drive conventional cars after 2030.

**It is only the sale of new ones that will be banned.**

This means

- The existing infrastructure, including filling stations, will also continue for many years.
- Possible offering alternative fuels in addition to Petrol/Diesel

Current Expected life spans for council fleets range from 5 to 10 years

This could push full fleet replacement to between 2035 and 2050 – or beyond

# Current Alternatives to Electric

- Hydrogen
- Gas
- Steam
- Biodiesel
- HVO

**Lets look at One**

# Hydrotreated Vegetable Oil Fuel (HVO)

## What is HVO?

HVO stands for hydrogenated or hydrotreated vegetable oil. It is made by reacting vegetable or other oils with hydrogen at high temperature and pressure.

The process itself is fairly energy intensive and currently the hydrogen comes from natural gas. In future it might come from biogas or via electrolysis.

HVO is not necessarily new: it has been around as a 'concept' fuel for more than 15 years.



# Hydrotreated Vegetable Oil Fuel

## Is HVO a good fuel?

The short answer is 'yes'. It is made up of straight chained molecules, contains few impurities and burns very cleanly.

It is made from renewable resources but does not contain FAME (Fatty Acid Methyl Ester) – the root cause of many of the fuel storage problems and fuel filter blocking issues.

It has a naturally high cetane number meaning that ignition is easy and combustion is complete.

It is a drop-in replacement for many distillate fossil fuel grades such as diesel, gas oil and kerosene.

It also has good cold weather properties and good long-term storage stability.

# Hydrotreated Vegetable Oil Fuel

## Why is it being considered as a alternative?

The fuel industry is under pressure to come up with a low carbon liquid alternative to diesel, gas oil and kerosene.

The decarbonisation of the transport sector as well as the home heating oil sector is seen as having a major impact on the need to address climate change and reduce greenhouse gas emissions.

HVO offers an immediate and fungible alternative to fossil fuels **without any need for vehicle modification** or changes to supply infrastructure.

# Hydrotreated Vegetable Oil Fuel

## Are there any downsides?

Current availability. The world has woken up to the possibilities for HVO and demand is increasing therefore, supply is limited, and not matching demand.

Production plants scheduled to come online are still some way off. As a result, finished fuel is having to be shipped long distances.

As a result prices will remain at a premium compared to regular diesel, gas oil, ~20 pence per litre extra as a ball-park figure.

A 90% cradle-to-grave reduction in greenhouse gas emissions is claimed, but this is a controversial number: using land to grow fuel rather than food is leading to deforestation and the forest/trees that help absorb CO<sub>2</sub>.

# Hydrotreated Vegetable Oil Fuel

## Is there an alternative?

Biofuels are being promoted as a likely although small part of the long-term solution to our energy requirements.

HVO is probably a very good short-term alternative, but the urgency is hindered by a lack of immediate availability.

Fuel specialists cannot and will not make any claims that remotely approach those made for HVO in terms of emissions reduction.

# Pros and Cons of HVO

## The Pros

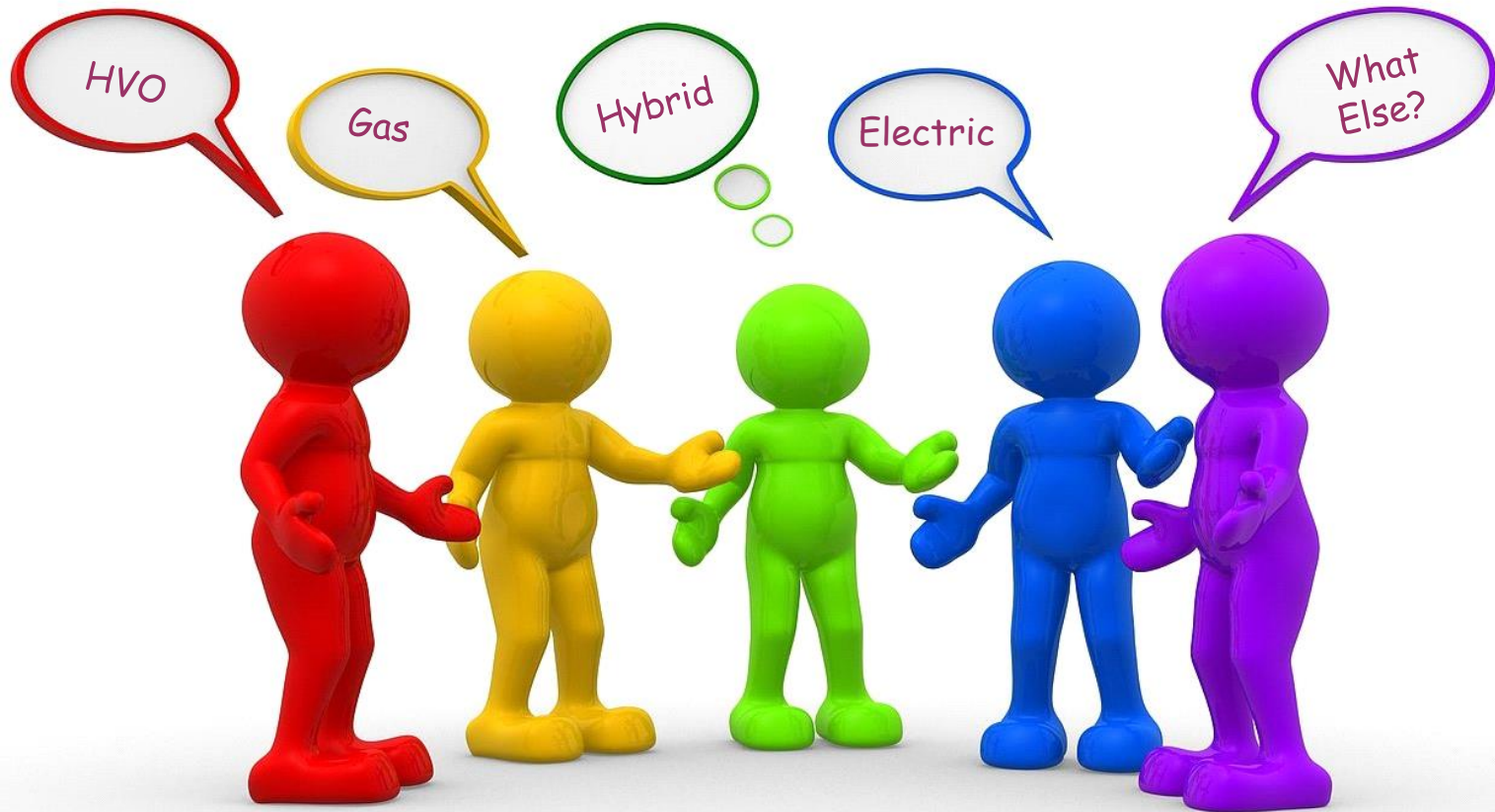
- Tailpipe emissions of CO and CO<sub>2</sub> are reduced due to the high hydrogen to carbon ratio and some reduction in NO<sub>x</sub> is claimed, although this is usually a function of engine set-up and combustion temperature compared to traditional diesel.
- Drop-in fuel – Unlike other eco-friendly alternatives, there is no need to change the current infrastructure. Fuelling time as per now.
- Current skill sets will be able to maintain
- HVO has a longer shelf life which overcomes the problem of a short shelf life faced by regular biodiesel.

# Pros and Cons of HVO

## The Cons

- Inconsistent – The quality can vary when producers add palm oil into the mix and using these unsustainable oils like this can reduce the positive environmental effects.
- More expensive – The cost of HVO is higher than standard diesel, but not as costly as updating your infrastructure.
- Limited availability – Compared to the rest of the EU, the UK's supply of HVO is underdeveloped.
- Carbon savings suggested; are already accounted for in the supply chain (offsetting); so to you are savings being double accounting.

# So is electric the solution for all vehicles?



**Discussion?**

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