the clean air Roadshows SCOTLAND

Speaker Presentations

Headline Partner:

VOLVO

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MotorTransport

Transport News

www.lowemissionzones.scot

Low Emission Zones in Scotland

Vincent McInally
vincent.mcinally@transport.gov.scot

Air quality in Scotland /Health

- Air quality in Scotland is generally good – amongst the best in Europe
- But – hot spots in city centres – caused by diesel vehicles and canyon effects – air quality objectives failed for years
- Poor air quality detrimental to everyone's health – but particularly the old, very young and those with underlying health conditions
- Apart from recent Euro VI/6 vehicles diesels are by far the worst polluters

Low Emission Zones in Scotland

- PfG Commitment – Aberdeen, Dundee Edinburgh and Glasgow (Scotland's first - 2018 – bus only using TRC) and others by 2020
- Following the Covid-19 pandemic – LEZ introduction dates in all 4 major cities moved to – May 2022.
- All other authorities with AQMAs by 2023 where assessed required.

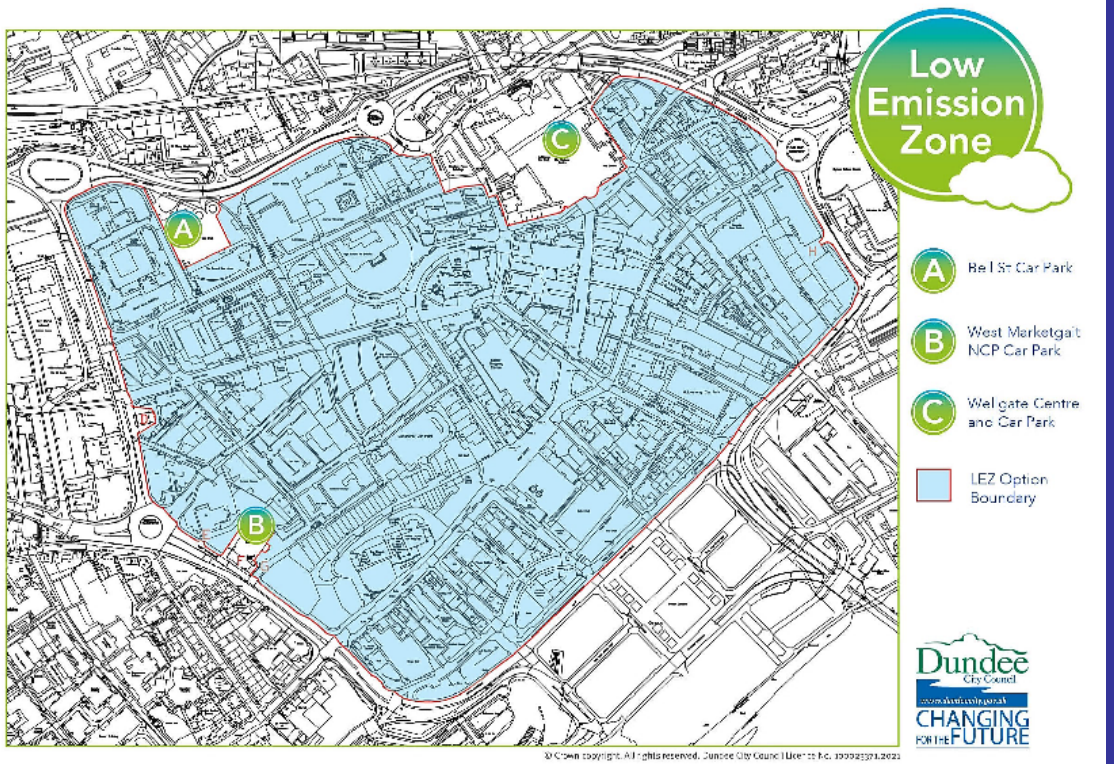
LEZ launch

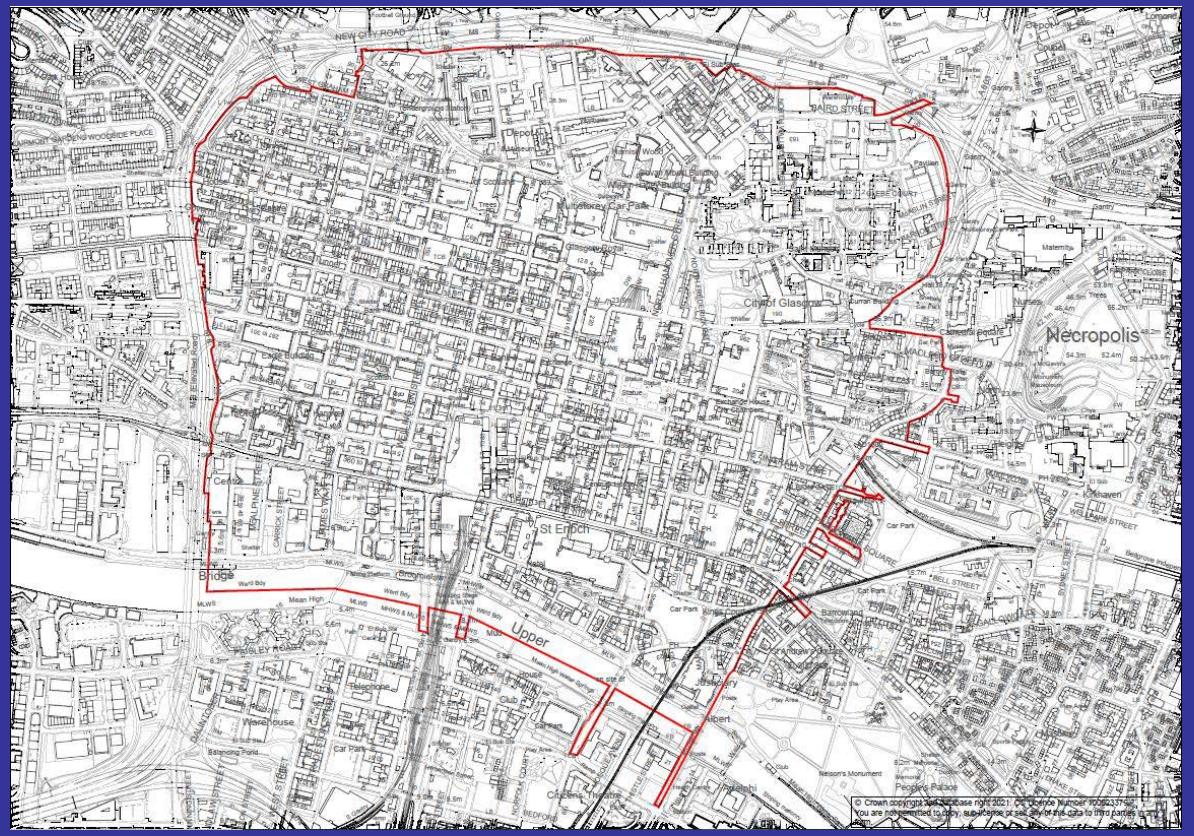
- LEZs for Aberdeen, Dundee, Edinburgh and Glasgow formally launched 31 May 2022
- Following stakeholder and public consultations – ongoing since 2018

Legislation

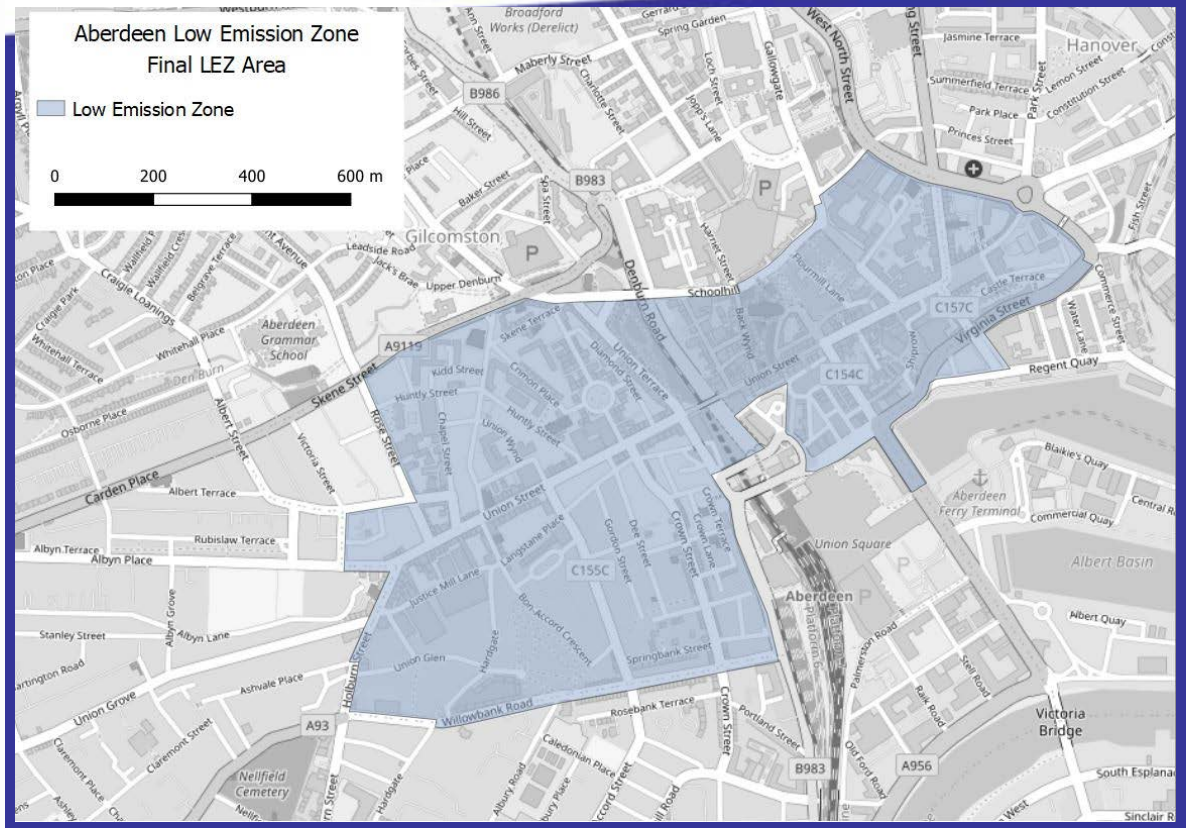
- Transport Scotland Act 2019
- Supporting regulations:
  - The Low Emission Zones (Emission Standards, Exemptions and Enforcement) (Scotland) Regulations 2021.
  - The Low Emission Zones (Scotland) Regulations 2021.

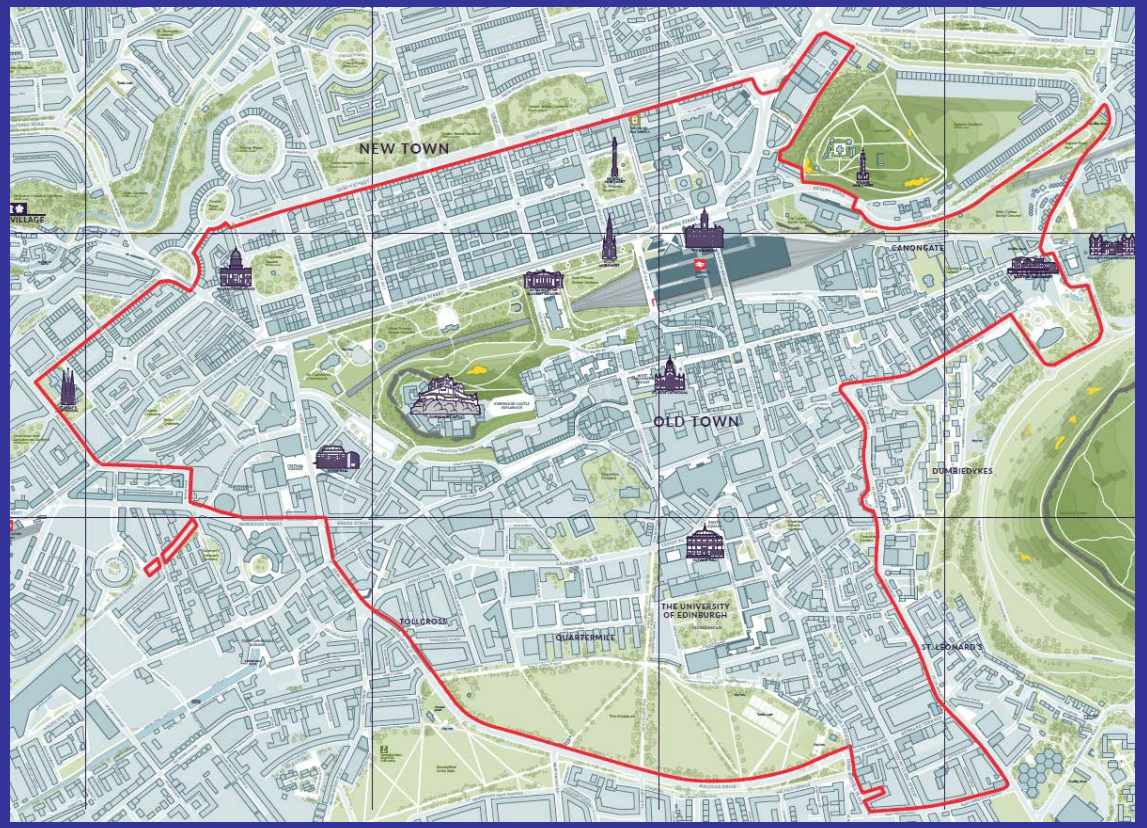
LEZ areas – Dundee and Glasgow





LEZ areas – Aberdeen and Edinburgh



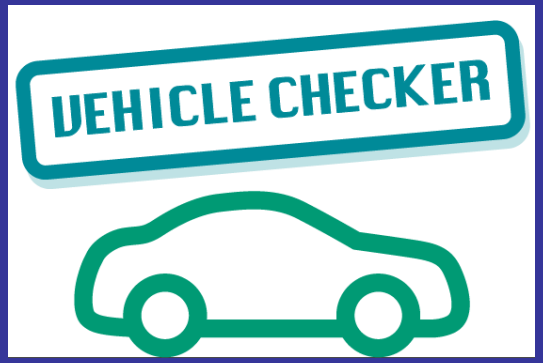


Emissions, Enforcement and Exemptions

- Euro 6/VI for diesel and Euro 4/IV for petrol/gas.
- ANPR camera enforcement
- No option to pay to enter – deterrent rather than revenue raising .
- Penalty rates set at £60 for first offence - doubles for each subsequent time caught within same zone – max £480 car/van and £960 for HGV/bus.
- Very limited exemptions – emergency services – showman's vehicles and vehicles for the disabled + local time limited.

Communications

- **www.lowemissionzones.scot**
- Information on the reasons for, and benefits of LEZs – how they work
- Messaging and awareness



- Working with local authorities
- Promotion of support funding

Funding Support

- Bus Emissions Abatement Retrofit (BEAR) programme - converted over 1000 bus/coaches
- Low Emission Zone Support Fund - £5 million for micro businesses and for households in most in need
- LPG/SCR retrofitting - over 100 taxis so far
- Grants of up to £3000 to support households struggling the most to meet the LEZ requirements

LEZ Retrofit Funding

- HGVs – funding available for retrofitting to Euro VI emission standard
- Micro-businesses based within 20km of LEZ eligible
- Grants for up to £16,000 per HGV
- Apply through Energy Saving Trust LEZfund@est.org.uk
- There are a number of CVRAS approved retrofit systems for HGVs.
- Solutions consist of a DPF and SCR and are specific to the make and model of a vehicle. Check your HGV has a CVRAS approved solution available. https://energysavingtrust.org.uk/wp-content/uploads/2020/10/Breathe-new-life-into-your-old-vehicle-KLE020-02-0522-.pdf

Timelines 2022-24

- Mandatory grace period
- Enforcement commences Glasgow 1st June 2023 for all vehicles (residents within the zone 12 months later)
- Dundee – 30th May 2024
- Aberdeen and Edinburgh 1st June 2024

Delivering Edinburgh's Low Emission Zone

Cllr Scott Arthur
Transport & Environment Committee Convener

Clean Air Roadshow

18 October 2022

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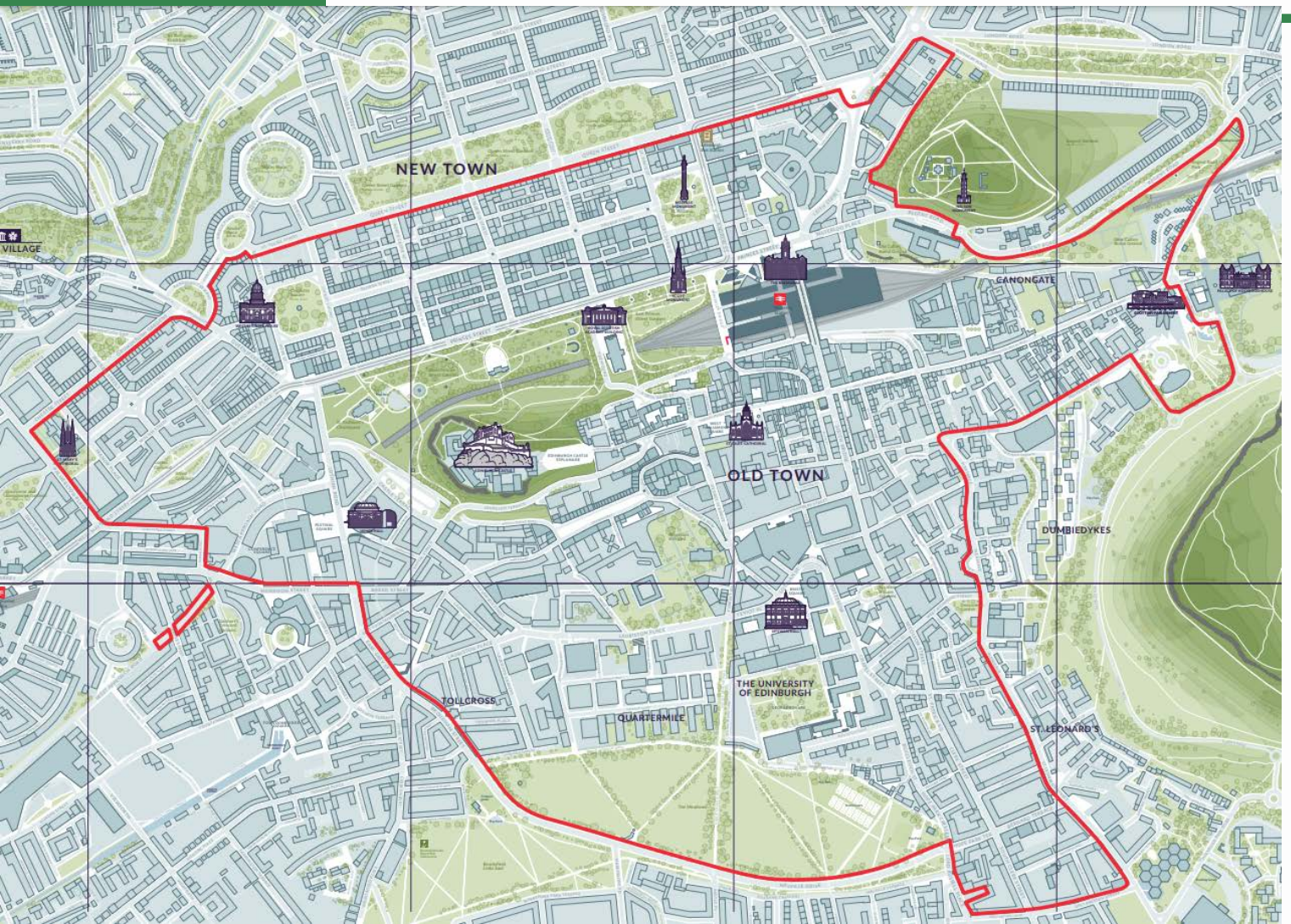
LOW
EMISSION
ZONES
SCOTLAND
Low Emission Zones have been introduced in Scotland
Find out more at: lowemissionzones.scot
Lothian
Lothian
Let's turn over a new Leith
ZERO WASTE LEITH
www.vehiclerepowering.com

LEZ development

- Legal exceedances in AQMAs → need for further action
- LEZ as key action to accelerate air quality improvements
- Ongoing engagement with key stakeholders → improvements via licensing (taxis), Lothian Buses, ECO Stars members
- Partnership working → development and funding support from Scot Gov across 4 largest cities. Evidence-led, via SEPA, NHS.
- City Mobility Plan → Edinburgh's transport strategy identified need for LEZ, to reduce harmful emissions directly and via modal shift


vodafone
Lothian
Low Emission Zones have been introduced in Scotland
Now in Aberdeen, Dundee, Edinburgh and Glasgow.
Find out more at: lowemissionzones.scot
LOW EMISSION ZONES SCOTLAND
Protecting public health and improving air quality
www.vehiclerepowering.com
Let's turn over a new Leith
ZERO WASTE LEITH

About the LEZ



- Introduced **31 May 2022**
- **City centre** boundary
- PCN fines for **most polluting vehicles only**
- 2 year grace period for all – enforcement from **1 June 2024**
- National exemptions only - **no local exemptions**
- Network challenges and **mitigations** (west, east)

Observations

NOx & PM10 Focus

Boundary Impact

The minimum criteria are:

- Euro 4 for petrol cars and vans (generally vehicles registered from 2006)
- Euro 6 for diesel cars and vans (generally vehicles registered from September 2015)
- Euro VI for buses, coaches and HGVs

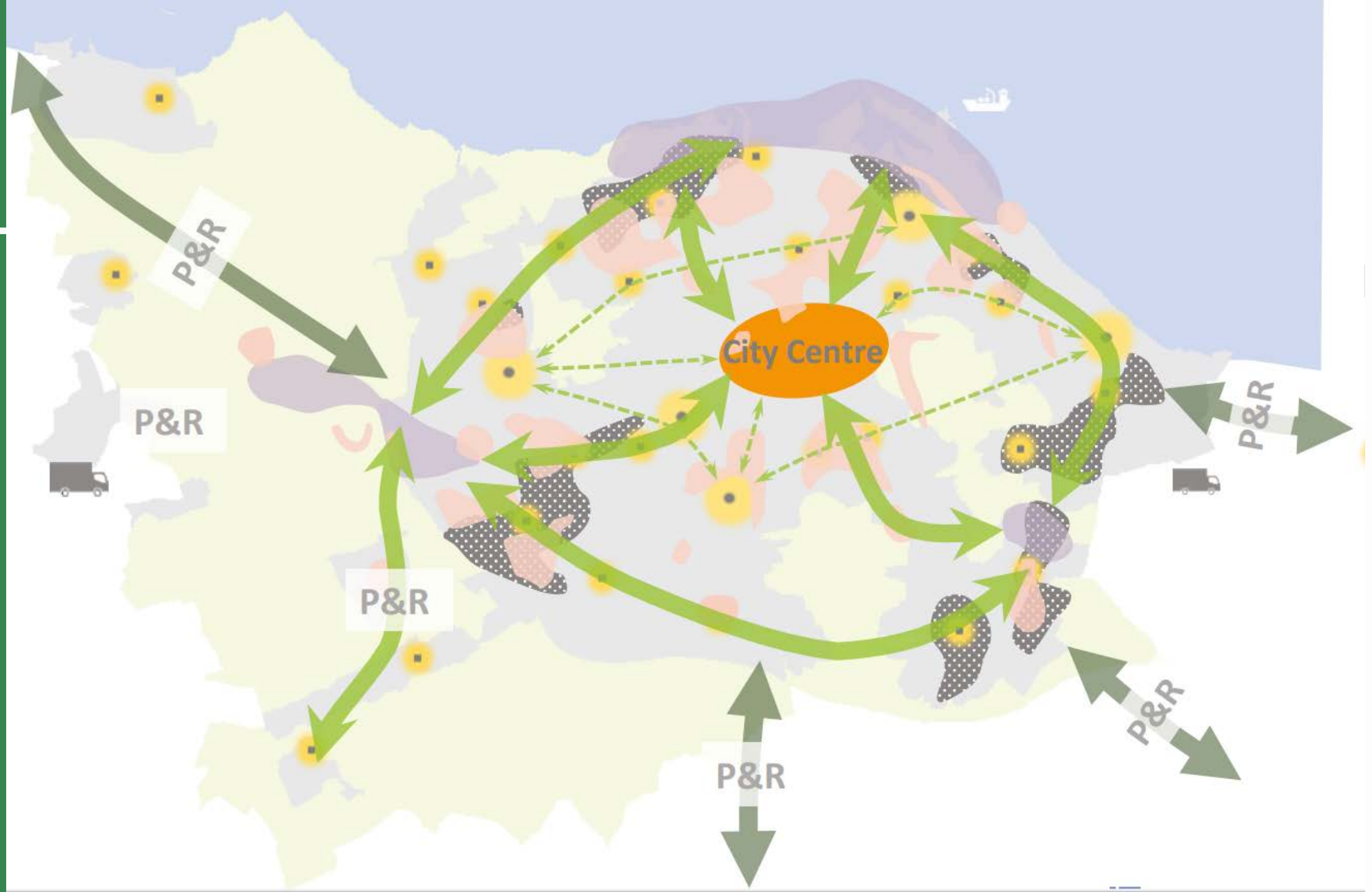
Funded LPG Conversions

Scheme Income

Climate Emergency

- Transport → **25% total emissions** across Scotland and Edinburgh
- Net Zero 2030 target is ambitious → requires **action from all** citizens and organisations across the City, and nationally
- Delivering City Mobility Plan 2030 via action plans:
  - Air quality
  - Network, active travel and public transport
  - City centre transformation and operations
  - Road safety
  - Parking
  - Zero emission vehicles strategies

Flooding at Chesser, Edinburgh in July 2020 following heavy rainfall


P&R
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City Centre
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P&R

Next steps

Monitoring and evaluation

- Study suggests most Edinburgh drivers (75-81%)* consider it important to:
  - Protect public health and reduce air pollution from vehicles
  - Reduce carbon emissions from vehicles
  - And that most support LEZ (66%)*
- Developing plan to assess LEZ impact on emissions → partnership with SEPA
- Support funding → local comms targeting micro-businesses in logistics

Policy development

- Future uses of ANPR, Smart Cities and IoT
- Zero emission zones? Oxford, Netherlands examples
- Freight, servicing/loading and zero emission Last Mile Deliveries strategies

*of 600 drivers in face-to-face interviews, LEZ awareness and understanding report, June 2022

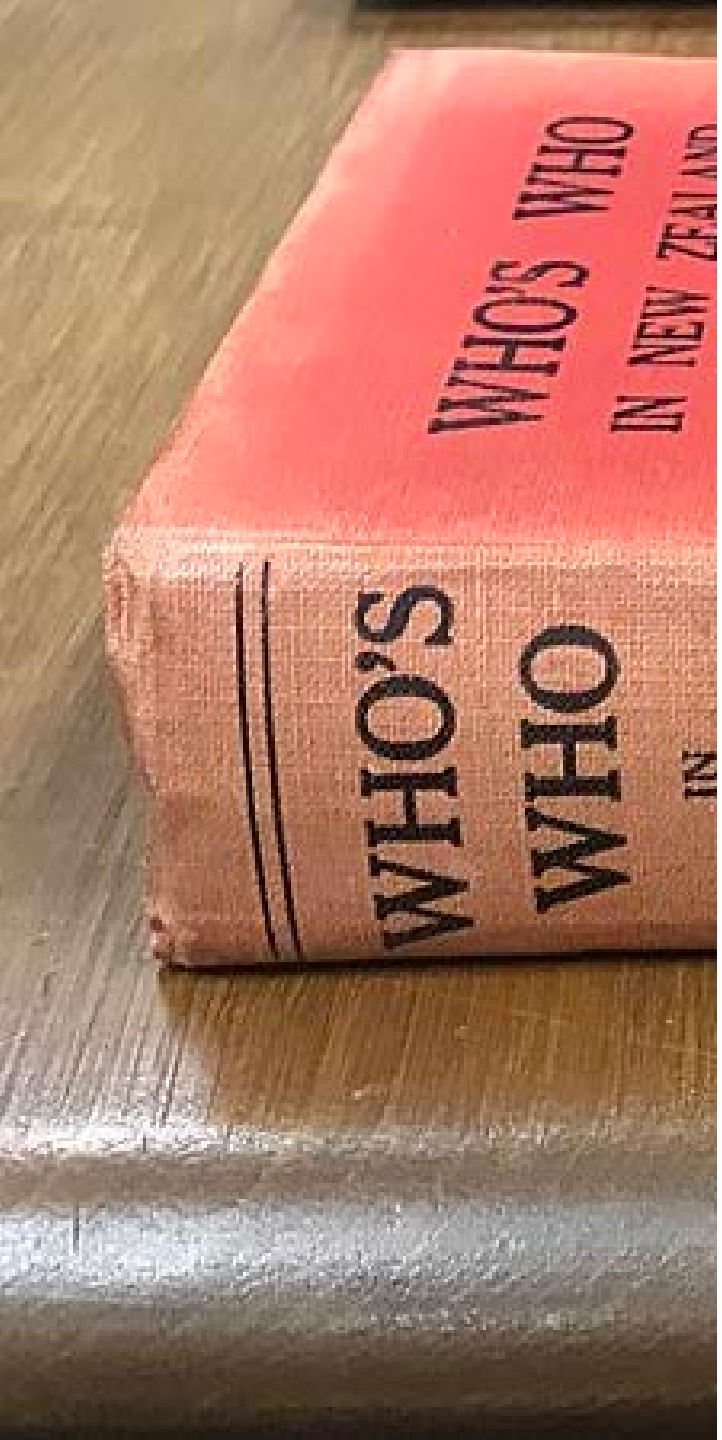
Karen Geekie

Zero Emission Truck Taskforce

EDINBVRGH
THE CITY OF EDINBURGH COUNCIL

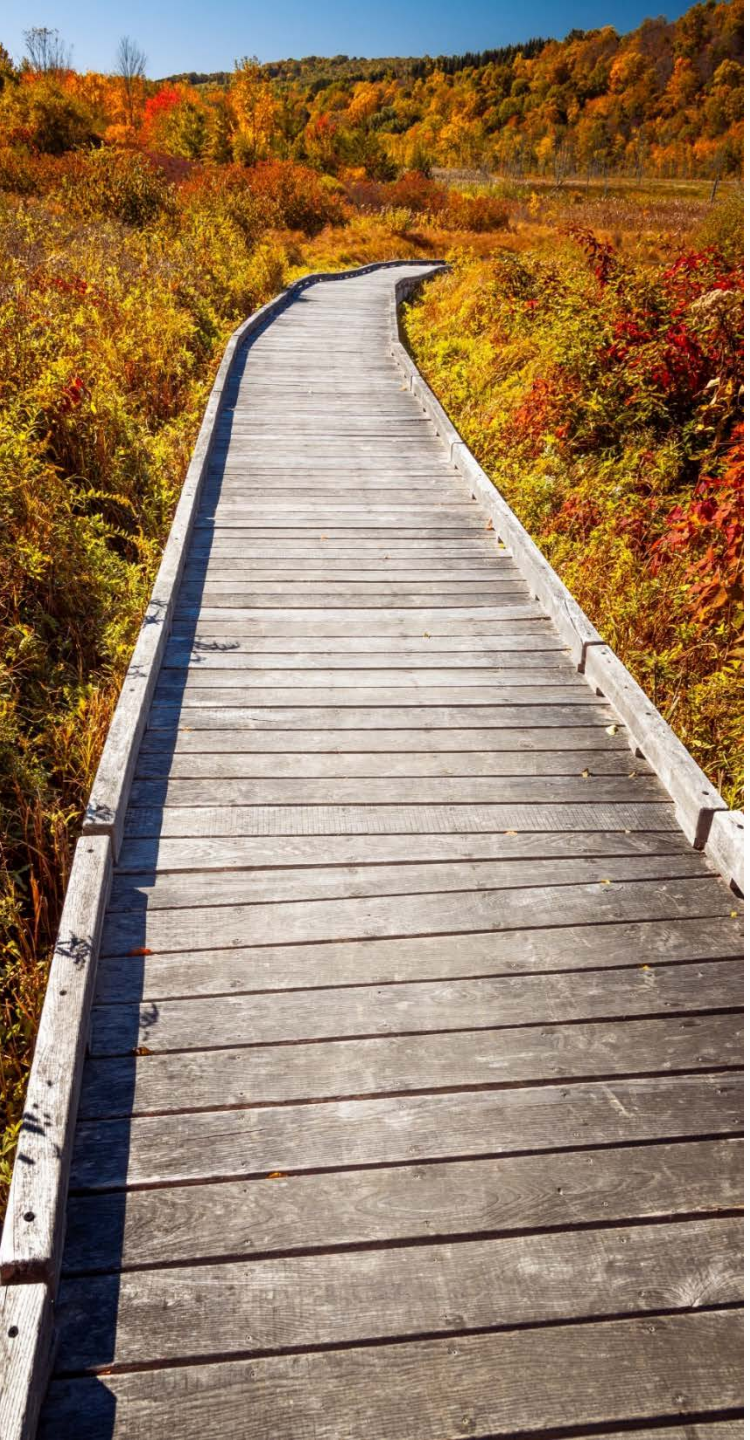
Why now?

- The movement of goods is vital for our economy and society
- Logistics customers are seeking reductions in greenhouse gases
- UK government has set phase out dates for new ICE HGVs
- Vehicles are coming to market now, but it’s a complex change with many aspects
- Numerous small operators



Taskforce members

- Haulage operators/ trade bodies
- Energy infrastructure: electricity
  hydrogen
- Manufacturers
- Commercial finance
- Trade unions
- Scottish Government



The task at hand

- Identify hurdles and opportunities
- Co-design a pathway to a swift and just transition with clear actions
- Build confidence in partners

Likely focuses:

- Energy infrastructure
- Vehicle trials
- Financing and business models
- Skills

Want to know more?

Karen.Geekie@transport.gov.scot

RHA

LOGISTICS UK

BVRLA

SMMT
DRIVING THE
MOTOR INDUSTRY

SWA
SCOTTISH WHOLESALE ASSOCIATION
The voice of the Scottish Food, Drink and Allied Trades

A new launch from Road Transport Media!

Tracking the journey to decarbonisation…

Powered by

MotorTransport

Commercial Motor

Transport News

TRUCK & DRIVER

Helping to solve the BIG industry issue

Dedicated to aiding the journey to a carbon zero commercial vehicle and road freight sector

INDUSTRY BIG ISSUE

By the middle of the century the commercial vehicle and road freight sector will have had to wean itself off diesel power.

The freight and logistics industry is faced with a massive period of change and uncertainty.

FreightCarbonZero will plan an important part assisting with decision making:

- Business development
- Competitor information
- Vehicle/product procurement
- Infrastructure needs
- Operating model shifts
- Investment strategies
- Legislative changes

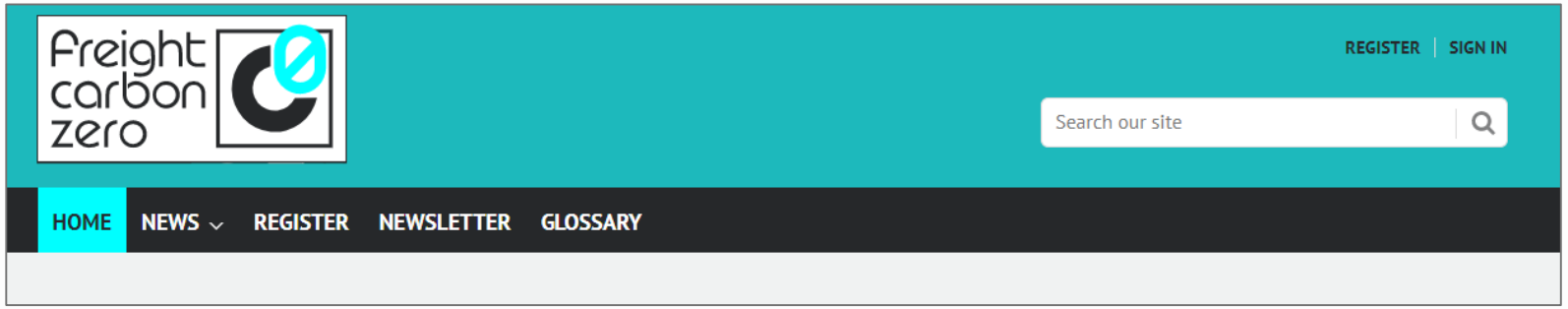
Today's launch

Newsletter and website

Freight Carbon Zero Briefings

- **What is it?** Free to access news service to bring you all the information on the decarbonisation of the road freight and commercial vehicle sector
  - Vehicles
  - Energy
  - Infrastructure
  - Projects & Developments

- **Newsletter:** Weekly plus bulletin issued if anything big happens
- **Website:** Regular updates as new information released



With more to follow...

Pipeline of new tools and resources

Decarbonisation Tracker

- **What is it:**
  - **Vehicle Updates:** All the information from the truck builders as they unveil their carbon zero plans
  - **Product Information:** Resource for all relevant product suppliers active in decarbonisation technologies – batteries, axles, bodybuilders, trailers, services, consultancies
  - **Infrastructure Tracker:** Database of technical and service developments around new fuelling solutions
    - Heavy duty charging/fuelling point developments and location service
    - Developments in smart charging and fuelling
    - Battery storage technology developments
    - On-site renewable fuels
  - **Projects and orders**: We'll track the new projects, trials and orders of the carbon zero technologies as they go into real-life operation
  - **Power Players**: We celebrate the industry trailblazers

Carbon monitor

- **What is it**: Tool for commercial vehicle operators to record and report their vehicle carbon emissions, facilitating measurable carbon reduction strategies

Thanks for listening

RHA

Driving business on our roads

Ensuring your fleet is ready to meet clean air rules

Clean Air Roadshow (Murrayfield)
18th October 2022

Chris Ashley Twitter - @ChrisAshley1

RHA – who do we represent?

Representing Commercial Road Operators for over 75 years

80% of
lorry members have
1 to 15 vehicles
(avg 9 lorries)

+ 70,000
Goods Operator
Licences
in the UK

+1.5 million
Vans registered to companies,
+4.5 million vans in total

+ 6,600
Coach & Bus
Operator Licences
in GB

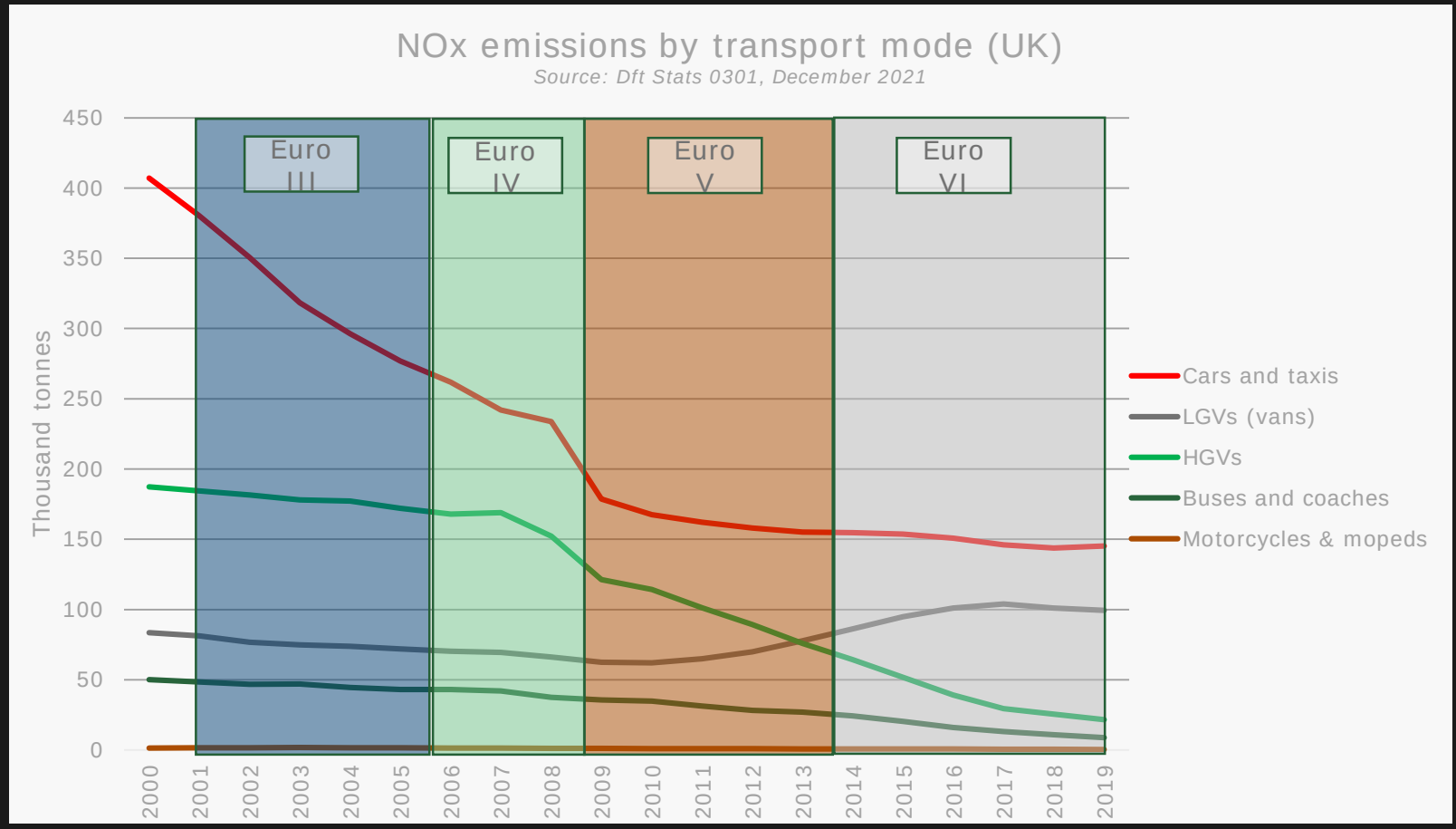
We represent 90%
Of the Motor Transport
Top 100

Low Emission Zones in Scotland

- Located in Edinburgh, Glasgow, Dundee and Aberdeen
- Introduced from May 2022; enforced from 30 May 2024
- Applies to all vehicles *(except motorcycles & mopeds)*

Compliance standards	Incremental penalties *(if subsequent entries occur within 90 days of first entry)*
Petrol cars and vans: Euro 4 Diesel cars and vans: Euro 6 HGVs, buses and coaches: Euro VI	1st time - £60 *(reduced by 50% if paid within 14 days)* 2nd time - £120 3rd time - £240 4th time - £480 5th time - £960 *(HGVs, buses and coaches only)*

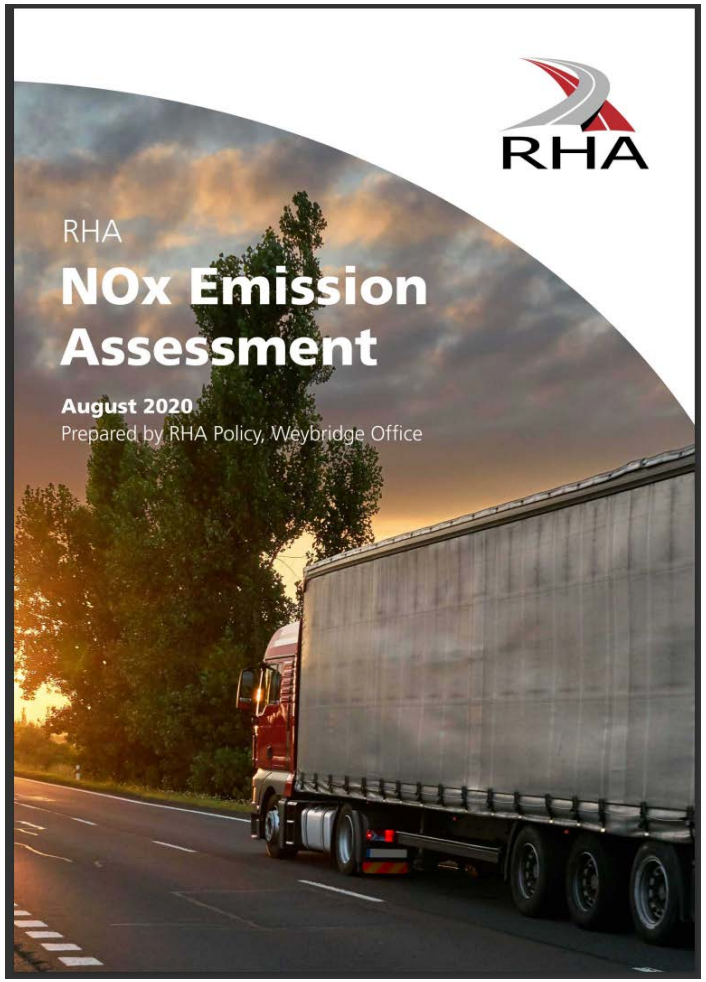
The extent of the air quality problem

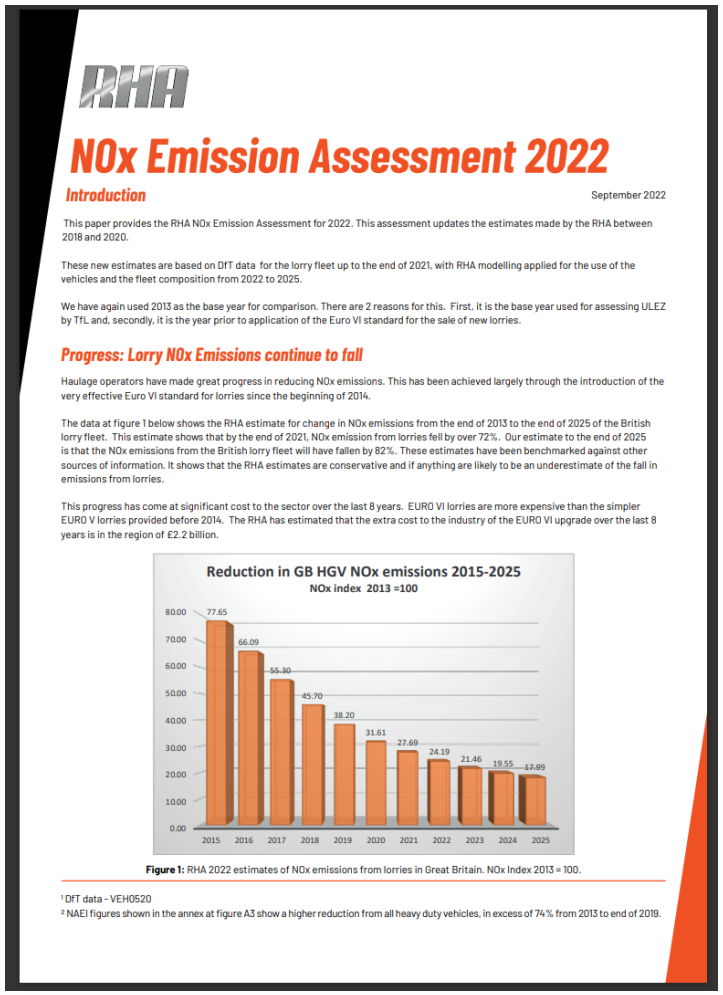


Preparing your fleets

- Place your order for a compliant vehicle now
- Look at CVRAS list for (limited) retrofitting options
- Other measures to improve air quality:
  - efficient driving
  - efficient loading
  - streamlining vehicles

Our NOx Emission Assessment papers





RHA

NOx Emission Assessment 2022

Introduction

September 2022

This paper provides the RHA NOx Emission Assessment for 2022. This assessment updates the estimates made by the RHA between 2018 and 2020.

These new estimates are based on DfT data[1] for the lorry fleet up to the end of 2021, with RHA modelling applied for the use of the vehicles and the fleet composition from 2022 to 2025.

We have again used 2013 as the base year for comparison. There are 2 reasons for this. First, it is the base year used for assessing ULEZ by TfL and, secondly, it is the year prior to application of the Euro VI standard for the sale of new lorries.

Progress: Lorry NOx Emissions continue to fall

Haulage operators have made great progress in reducing NOx emissions. This has been achieved largely through the introduction of the very effective Euro VI standard for lorries since the beginning of 2014.

The data at figure 1 below shows the RHA estimate for change in NOx emissions from the end of 2013 to the end of 2025 of the British lorry fleet. This estimate shows that by the end of 2021, NOx emission from lorries fell by over 72%. Our estimate to the end of 2025 is that the NOx emissions from the British lorry fleet will have fallen by 82%. These estimates have been benchmarked against other sources of information. It shows that the RHA estimates are conservative and if anything are likely to be an underestimate of the fall in emissions from lorries.

This progress has come at significant cost to the sector over the last 8 years. EURO VI lorries are more expensive than the simpler EURO V lorries provided before 2014. The RHA has estimated that the extra cost to the industry of the EURO VI upgrade over the last 8 years is in the region of £2.2 billion.

Figure 1: RHA 2022 estimates of NOx emissions from lorries in Great Britain. NOx Index 2013 = 100.

[1] DfT data - VEH0520

[2] NAEI figures shown in the annex at figure A3 show a higher reduction from all heavy duty vehicles, in excess of 74% from 2013 to end of 2019.

Get involved

RHA has launched an environment campaign:
www.rha.uk.net/Campaigns/Environment

RHA

Driving business on our roads

Thank you for listening

Chris Ashley
Twitter - @ChrisAshley1

Complying with a Low Emission Zone (LEZ)

Clean Vehicle Retrofit Accreditation Scheme (CVRAS)

Decarbonising road freight

Freight Portal - an information hub to help road freight operators

Road Transport's Scotland Clean Air Roadshow
BT Murrayfield Stadium, Edinburgh
18 October 2022

Colin Smith, Programme Manager, Energy Saving Trust

Two emissions related challenges in transport….

Fuel efficiency and **G**reen**H**ouse **G**as emissions

Some consider this to be a “longer term issue”

Air quality impact of Particulate Matter (PM) and NO_2 (NOx)

Some consider this to be “here & now”

Aberdeen, Dundee, Edinburgh, Glasgow

Outside Scotland
Active Clean Air Zones – London (LEZ/ULEZ), Bath, Birmingham, Portsmouth, Bradford
Coming soon – Bristol (late November), Tyneside (Winter 2022/23), Sheffield (Spring 2023) Still under review - Manchester

Both are “here & now” and commercial issues

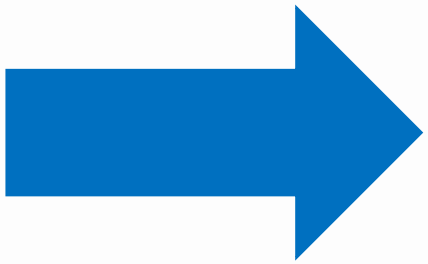
- Reducing fuel consumption will save money
- Running cleaner vehicles will save money

Options to comply with a LEZ

- Avoid the zone
- Accept & pay the charge
- Re-arrange fleet
- Buy “new” compliant vehicles
- Retrofit

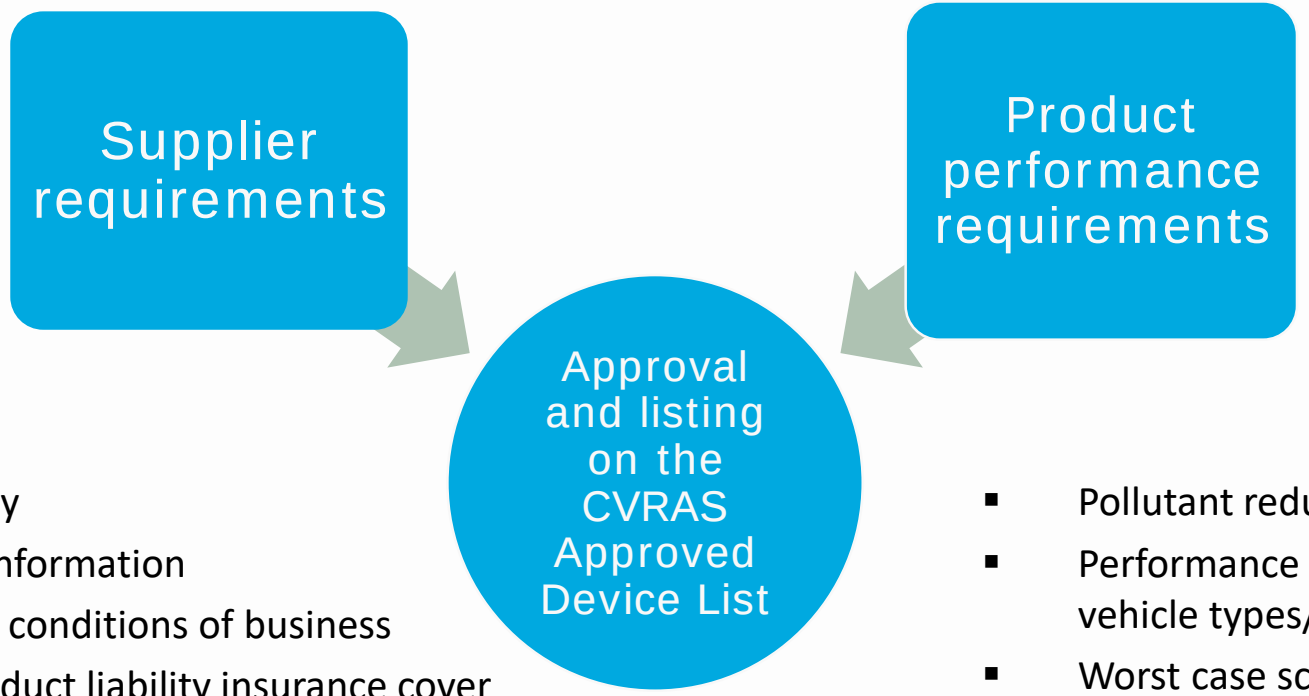
“Ripe for retrofit”

- Replacement cost
- Service life remaining
- LEZ non-compliant fees
- Retrofit cost
- Resale value



Replace the vehicle
or
Retrofit the vehicle

Clean Vehicle Retrofit Accreditation Scheme (CVRAS)

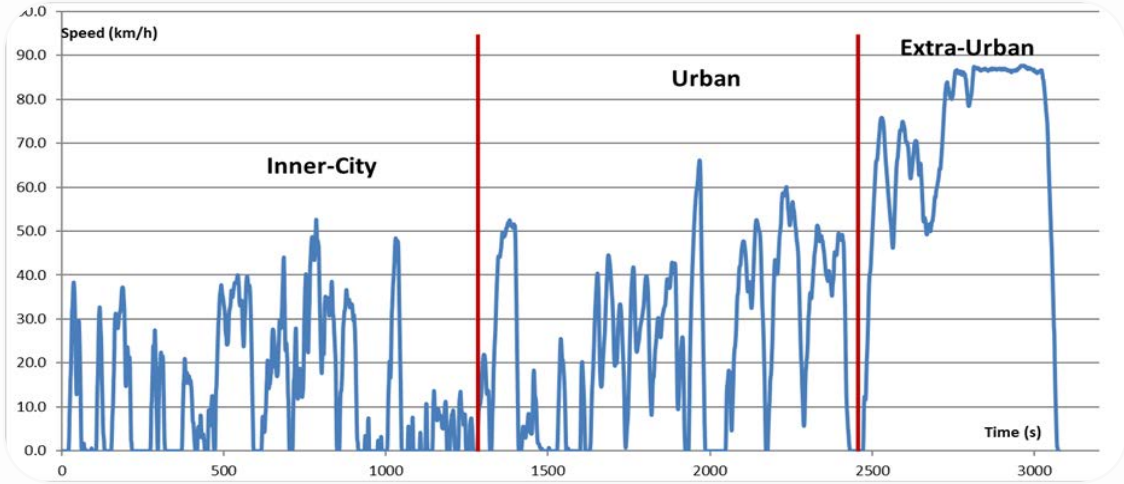


- Legal entity
- Financial information
- Terms and conditions of business
- Public/Product liability insurance cover
- Employer liability insurance
- Warranty provision
- Quality management system

- Pollutant reduction performance and limits
- Performance over representative test cycles for vehicle types/categories
- Worst case scenario setting
- Installation and component conformance
- In-service performance and data capture
- In-service durability
- Conformity of production
- System information

HGV and van approvals

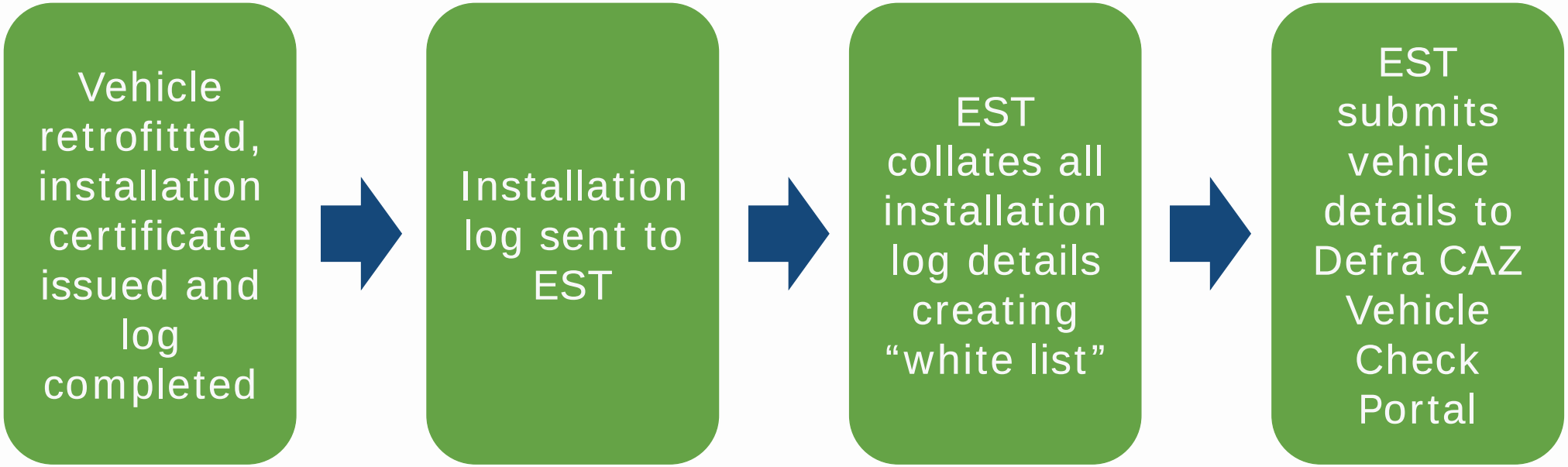
- CVRAS approved retrofit supplier needs to test an example vehicle over the CVRAS truck or van test cycle
- Approval extensions possible for base vehicle re-badged models



Approved supplier	Make	Van and truck models
Eminox	Volvo, Renault, Dennis Eagle, Scania, Mercedes Benz	Volvo FM, FH, FMX, Renault, Premium, Magnum, Kerax, Scania P Series, Dennis Eagle Elite II, Mercedes Benz Econic
PROVENTIA	Volvo, Renault, DAF, Mercedes Benz, Dennis Eagle	Volvo FL, FE, FM, FH, FMX, Renault Midlum, Premium, Kerax, Magnum, DAF LF, CF, LF, XF, Mercedes Benz Atego, Axor, Econic, Unimog
HJS Emission Technology	Mercedes, Peugeot, Citroen, Fiat, Renault, Nissan, Vauxhall, VW, Ford	MB Vito/Viano, Renault Master, Vauxhall Movano, Nissan NV400, Peugeot Partner, Citroen Dispatch, Fiat Scudo, Toyota Proace, Land Rover Defender, MB Sprinter, Ford Transit/Tourneo, VW Crafter

Reminder of post fitment vehicle registration process

The data flow process in absence of DVSA vehicle inspection regime



energy saving trust

FREIGHT PORTAL

Freight Portal

Supporting road operators address decarbonisation

www.thefreightportal.org

FREIGHT PORTAL

energy saving trust

- Freight Portal initially launched in 2018 and refreshed in 2021
- Funded and supported by Department for Transport
- Delivered by Energy Saving Trust in collaboration with the Zemo Partnership
- Raising the profile of freight transport decarbonisation to operators
- Supporting road freight operators reduce fuel costs and emissions
- Promoted by trade bodies

Department for Transport

energy saving trust

LOGISTICS UK

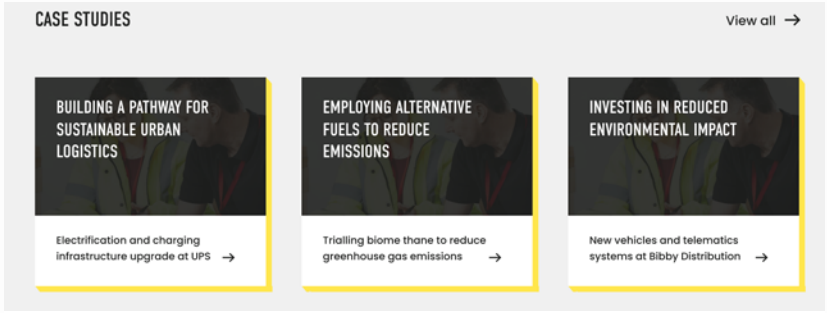
RHA

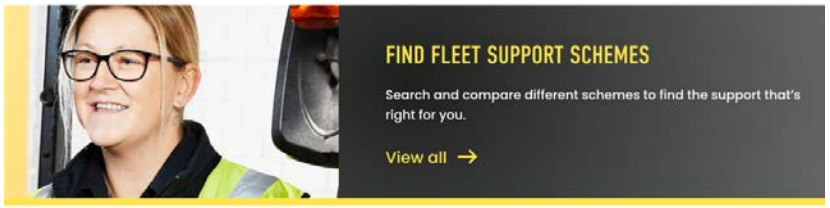
The Chartered Institute of Logistics and Transport

SMMT DRIVING THE MOTOR INDUSTRY

Zemo Partnership
Accelerating Transport to Zero Emissions

Freight Portal content



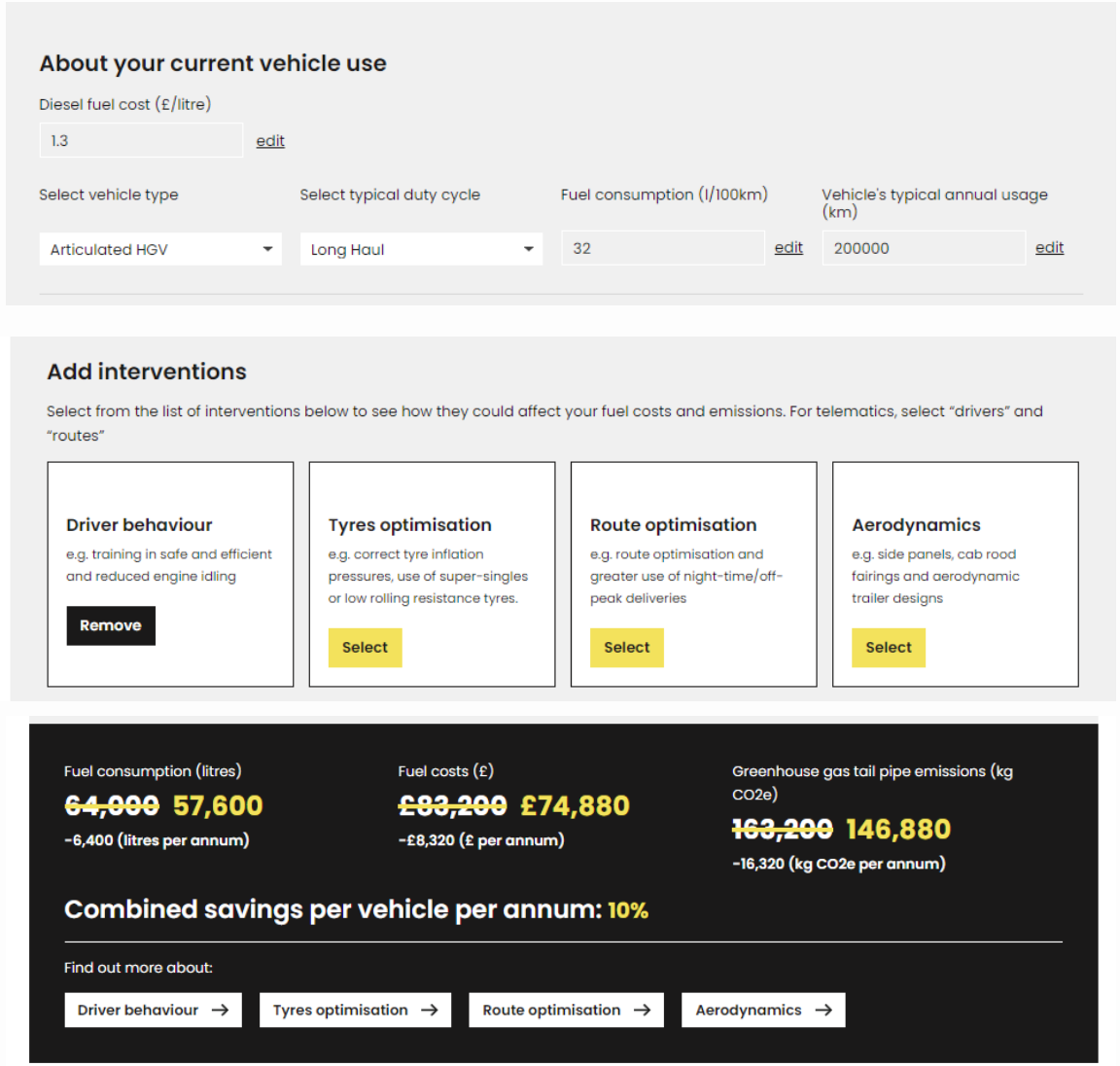


- **Information on actions to help reduce cost** and emissions with links to guides
- **Case studies** – aspiration to have a good library of relevant case studies that demonstrate the benefits of taking action – if you have a good story to tell please get in touch
- Links to **fleet support schemes** and useful resources
- Ability to **register for updates**
- A new **Fuel Cost Cutter** to indicate potential savings and emissions reduction associated with quick win actions
- Ability to **submit feedback**

Six quick wins

- **Driver behaviour**
  - Anticipation, smooth driving style, reduce idling, speed
  - Driver training and regular feedback on performance
- **Fuel management**
  - You cannot manage what you don't measure
- **Tyre management**
  - Correct pressures and use of low rolling resistance tyres
- **Planning**
  - Both route and load scheduling, maximising loads and work with clients to limit empty trips
- **Aerodynamics**
  - Fit where appropriate and optimise to best effect
- **Telematics**
  - Understand the data available and use to reduce fuel consumption and improve freight efficiency

Freight Portal – Fuel Cost Cutter



Enter data about current vehicle and use (annual distance)

Pick an intervention

See the estimated fuel, cost and emissions reductions

Zero and low emission vehicles

- **Zero emission (no tailpipe emissions)**
  - Battery electric
  - Battery Electric with Hydrogen Fuel Cell range extender
  - Hydrogen Fuel Cell

- **Transition technologies (lower GHG emissions but still tailpipe emissions)**
  - Diesel-electric hybrid vehicles (including plug-in)
  - Biomethane (CNG) vehicles
  - Other biogas technology (LNG or LPG)
  - Sustainable liquid biofuels



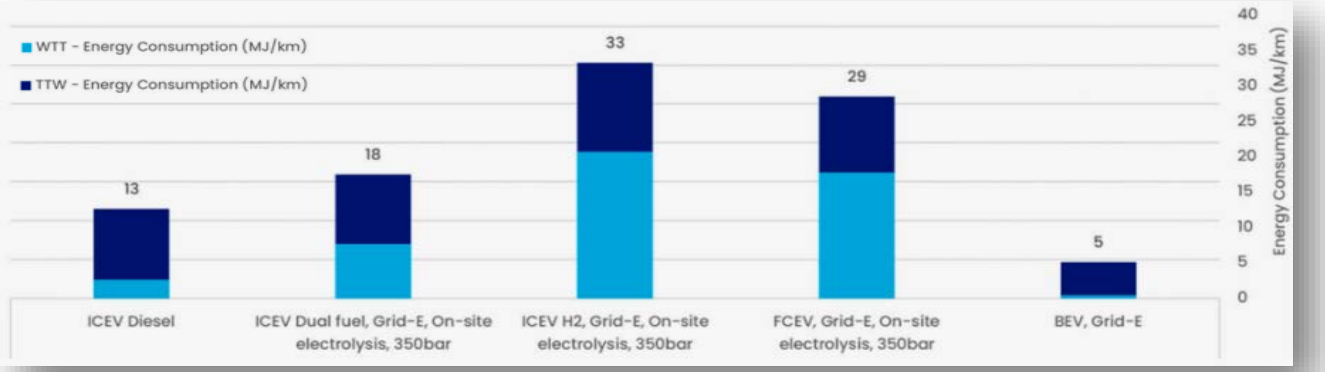




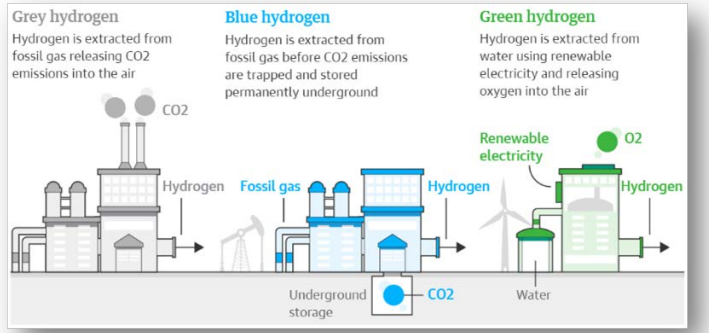
Future truck drivetrains

- **Battery electric (BEV)**
  - Available to order
  - Vehicle price 3 x diesel
  - Energy efficient
  - Charging infrastructure needed
  - TCO and TEO can be good/lower compared to diesel
  - GHG emissions very low when

- **Hydrogen fuel cell (HFCEV)**
  - Still generally prototype vehicles
  - Very expensive to purchase
  - Energy inefficient will require 3 x more renewable electricity
  - Refuelling infrastructure needed
  - Currently high GHGs as majority of H_2 from SMR of fossil methane



Source: Hydrogen Vehicle Well-to-Wheel GHG and Energy Study - Zemo, 2021



Graphic source: Guardian, 2022

HVO (Hydrotreated Vegetable Oil) *- a word of caution*

- Benefits
  - It is a drop in fuel, no modifications needed to current diesel fleet
  - Potential reduction in GHG emissions on a "well to wheel" basis if produced from truly sustainable and local feedstocks
  - Potential to help Euro VI exhaust after-treatment systems perform better (fewer DPF regens and lower Adblue consumption) – needs to be evidenced with robust testing

HVO can be a **very unsustainable, high carbon** fuel
When derived from virgin palm oil and when ILUC accounted

HVO

'HVO' is an umbrella, just like electricity, hydrogen and biomethane
The umbrella tells us nothing on its own of its sustainability…

HVO can be a **very sustainable, low carbon** fuel
When derived from locally sourced genuine waste cooking oil

- Concerns
  - Using HVO will **not** get a Euro 5/V vehicle to Euro 6/VI levels of regulated pollutants
  - Still emits CO_2e from tailpipe so outside of scopes reporting needed for a full picture.
  - Level of GHG reduction depends on feedstock and production process of HVO
  - Emission reductions are variable and better more transparent data may lead to lower reductions
  - If "waste" UCO is used it must really be a waste – needs robust verification
  - Full account of hydrogen used in production needs to be included GHG emissions factors
  - Robust certification must ensure that land use change is taken in to account
  - Food crops or fuel crops at a time of food shortages globally
  - Potential to increase deforestation if feedstock not a truly waste stream
  - Limited retail outlets generally requires bunkered refuelling

energy saving trust

Thanks for your attention!

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