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# FLEET DECARBONSIATION IN LOCAL AUTHORITIES

# Session 1 : FLEET DECARBONSIATION IN LOCAL AUTHORITIES

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- Pathways to Decarbonisation
- Donegal's Carbon Reduction Requirement
- Delivery through "Avoid / Shift / Improve"
- Avoid
- Shift
- Improve
- Home Charging Trial

# Session 1 : FLEET DECARBONSIATION IN LOCAL AUTHORITIES

## PATHWAYS TO DECARBONISATION

**Early Interventions Report** on Decarbonising LA Fleets published by CCMA in June 2022 with actions for LA's to achieve short term decarbonisation results including :

- Establishing dedicated teams with responsibility and oversight of decarbonisation efforts
- Adopting management systems including fuel management and telemetry
- Training for fleet managers / drivers / operatives
- Deployment of :
  - light commercial EV
  - alternative fuels


CCMA then developed the **Strategy to Decarbonisation** for LA fleets which built on the *Early Interventions* and recommended an approach to achieve long term results

- The strategy encourages adoption of the **Avoid | Shift | Improve** $_{\text{fuel}}$ **(A-S-I)** model to achieve the required $CO_2$ reductions
- Model focuses on the mobility needs of organisations rather than on vehicle infrastructure

| Avoid | Shift | Improve |
|---|---|---|
| Reduce or avoid the need to travel | Shift to alternative modes | Improve vehicle / fuel technologies |

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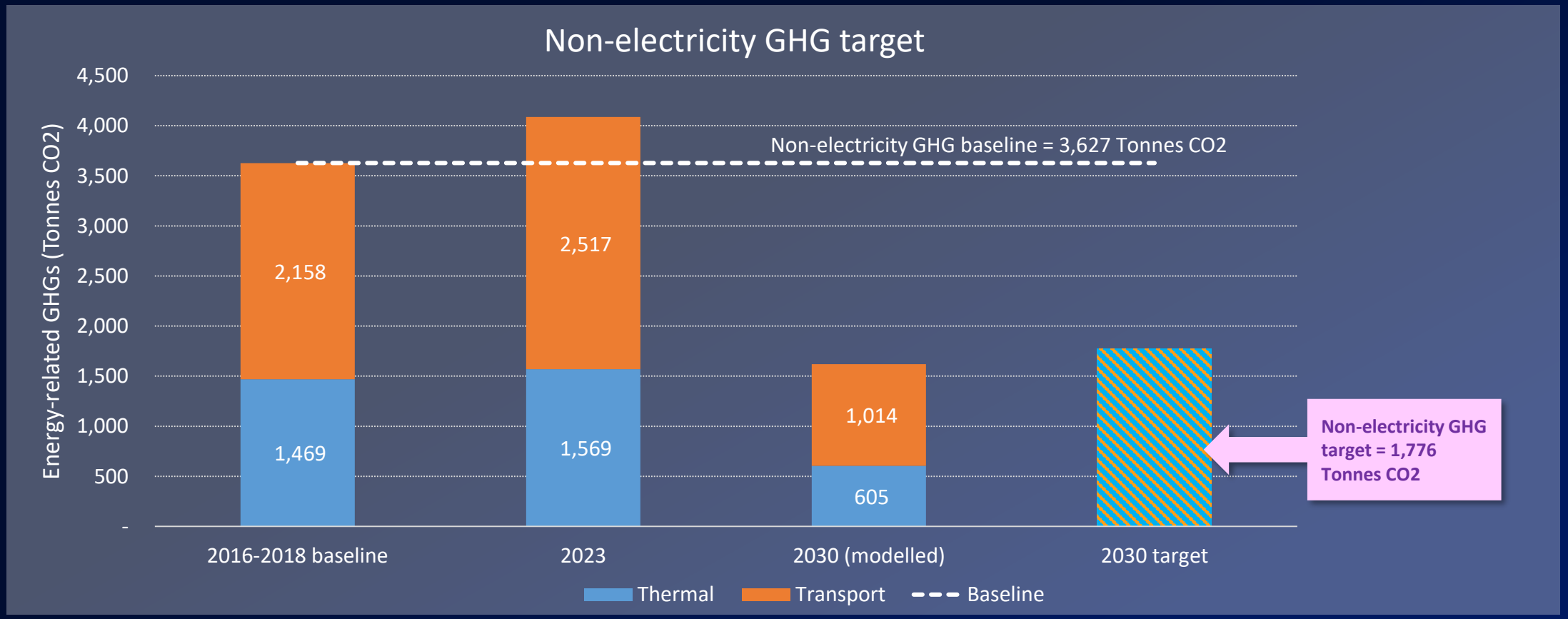
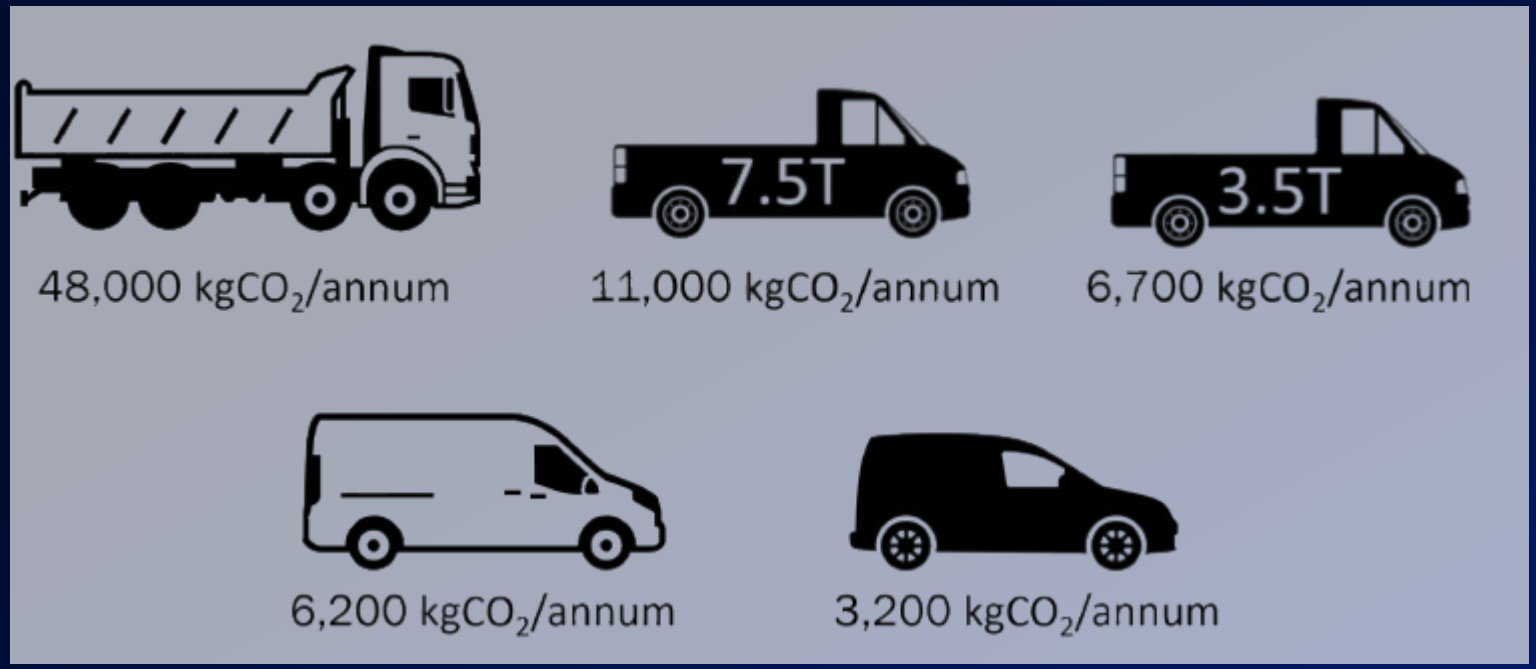
# DONEGAL'S CARBON REDUCTION REQUIREMENT



# DONEGAL'S CARBON REDUCTION REQUIREMENT

- Reduction of **1,200,000 kg$CO_2$** required from transport from 2023 levels to meet our 2030 obligations
- For context, vehicles individually produced the following $CO_2$ annually



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## DELIVERY THROUGH “AVOID / SHIFT / IMPROVE

In 2023, Donegal County Council commenced preparation of its Decarbonisation Plan :

- Research
- Attendance SEAI seminars
- Engaged with other LAs
- Fleet assessment – owned / hired / site plant
- Data gathering from SEAI M&R returns
- Preparation of DRAFT Decarbonisation Plan
- Workshops with Donegal County Council Fleet User Groups
- Submission of Final Plan to SMT

In 2024, Donegal commenced the implementation of various elements of the Decarb Plan and undertook some trials to evidence base and support decisions.

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## DELIVERY THROUGH "AVOID / SHIFT / IMPROVE"

- **Avoid**
  - Fleet Optimisation
  - Fleet Efficiency
  - Depot-based Parking
  - Reduce Unnecessary Journeys
  - Reorganise teams and work zones
- **Shift**
  - Move to Lower Carbon Transport Modes
- **Improve**
  - Fleet Electrification
  - Alternative Fuels

# Session 1 : FLEET DECARBONSIATION IN LOCAL AUTHORITIES

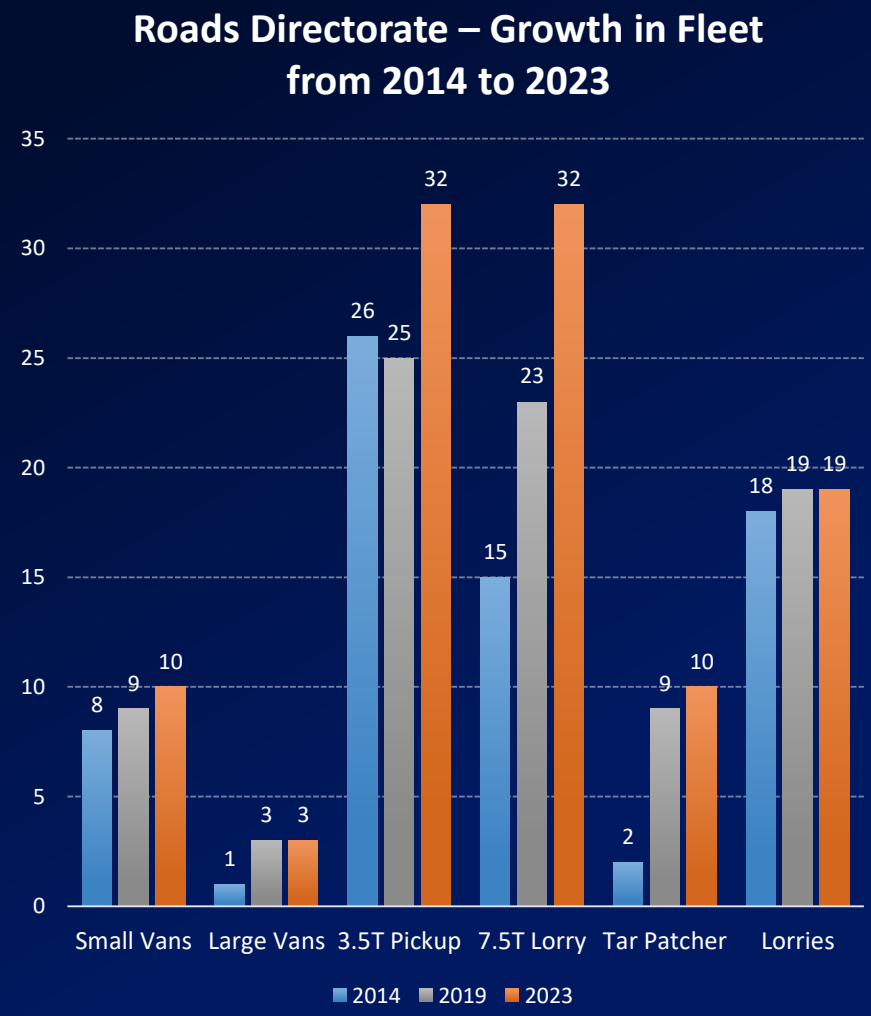
## AVOID | SHIFT | IMPROVE

### OPTION 1: FLEET OPTIMISATION

- Review carried out of number of vehicles in Roads Directorate fleet over past 10 years
- > 50% increase in fleet size
- Significant variation in fleet composition between Municipal Districts

Example: Pothole Repair

- Decarb Plan proposed 2 No. Velocity Patchers to complete countywide pothole repairs in lieu of existing 7.5T Tar Patchers
- 1 No. Velocity Patchers equates to approx. 3 - 4 No. 7.5T Tar Patchers in $CO_2$ emissions (33,000 – 44,000 kg$CO_2$)
- Breakeven on carbon but reduced fleet size and improved efficiency of operation
- Removes second crew for traffic management and associated pickups thus facilitating reassignment of crew/vehicle to other tasks



# AVOID | SHIFT | IMPROVE

## OPTION 2: OPTIMISE EFFICIENCY OF EXISTING FLEET

- Idling is an identified problem within 3.5T Pickups, 7.5T Lorries and 26T Lorries
- Data for telematics reports idling of 7% for 26T Lorry group (30 lorries)
- Equivalent to 24,000 litres of diesel per annum or 65,000 kg$CO_2$ for this group @ €42,000 current diesel costs

Suite of complementary measures to improve performance (litre/100km) through reduced idling and reduced consumption

- Installation of auto start/stop devices – on new vehicles
- Expanded use of speed limiters – may need new hardware on older vehicles
- Expansion of eco-driver training through HR section
- Procure new telemetry system for monitoring and feedback – tender assessment stage
- Driver Incentive Scheme to support behavioural change (once new telematics system in place)

# AVOID | SHIFT | IMPROVE

## OPTION 3 : DEPOT BASED PARKING

- Current practice in Donegal permits drivers to park Council vehicles at home for operational purposes
- Primarily to facilitate :
  - out-of-hour call outs in response to road traffic accidents, oil spills, fallen trees, etc.
  - for direct access from home to site for surface dressing / winter maintenance operations
- Telemetry snapshot of 3.5t pickups in February 2023 indicated ~30% of journeys between home and base Indications that fleetwide this is closer to 15%
- Proposed that all fleet be required to park overnight at Council depots, which will require:
  - Improved security (at some sites)
  - On-call system for responding to out-of-hour events
  - IR discussions required

# Session 1 : FLEET DECARBONSIATION IN LOCAL AUTHORITIES

## AVOID | SHIFT | IMPROVE

### OPTION 4 : REDUCE UNNECESSARY JOURNEYS

- Donegal County Council operates a County Stores service from Lifford
- Traditionally customers placed order and then collected orders on an ad hoc basis
- Decarb Plan proposed the introduction of a Stores Delivery Service using large electric van
- Deliveries scheduled to 1 MD per day - introduced in October 2024 to :
  - Reduce need for drop in collections
  - Reduce number of journeys and associated emissions
  - Reduce lost person-hours associated with collections
- While an enhanced ordering system was not ready for the roll-out we proceeded with the delivery element for the carbon benefits and improved general organizational efficiency
  - Orders are received by email / phone call
  - APP development well advanced to provide improved customer service & awareness of product availability
  - While some complaints around loss of travel claims and desire to collect, no justifiable IR matters arose

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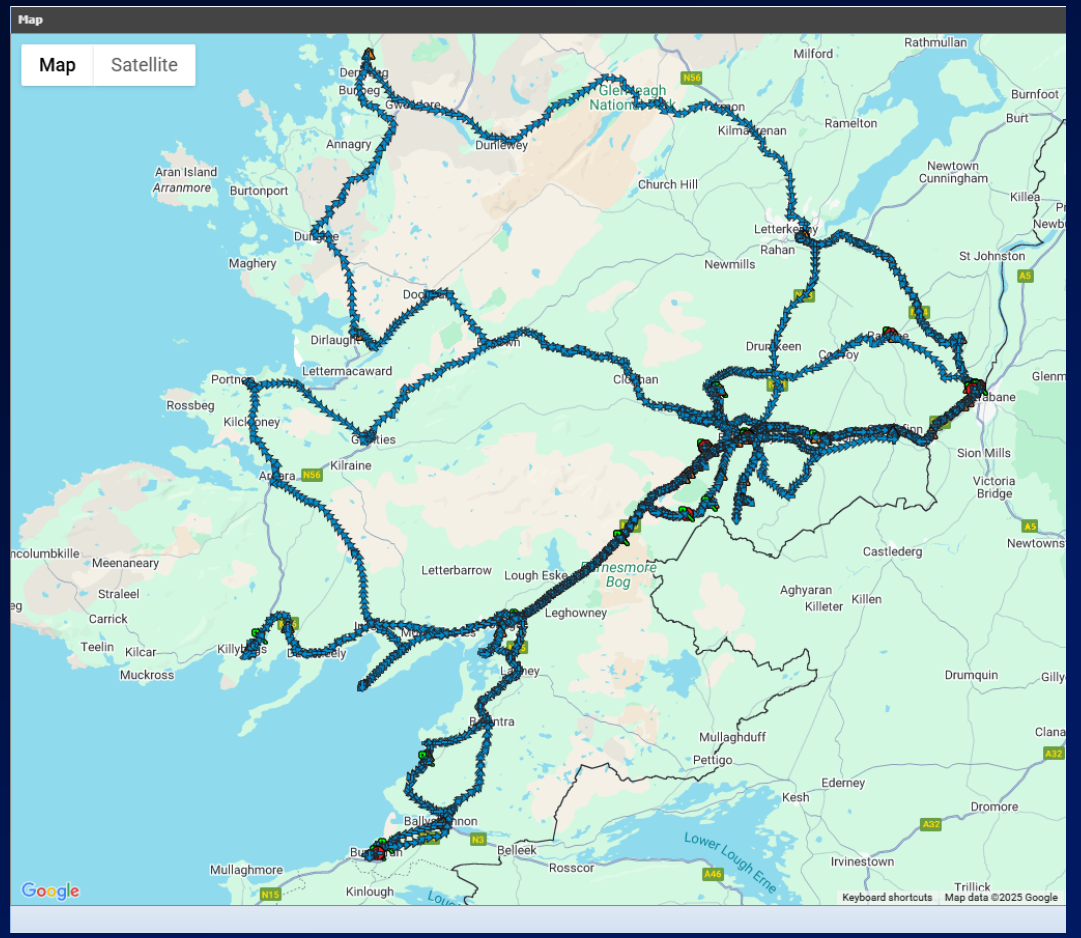
## AVOID | SHIFT | IMPROVE

### OPTION 5 : REORGANISE TEAMS / WORKZONES

- Opportunities to further reduce journeys through the re-organisation of teams and work zones thus :
  - ➢ Reducing carbon omissions
  - ➢ Increasing opportunity for EV introduction with reduce range requirement
  - ➢ Better use of resources as less journey time
- Mileage for those covering large geographic areas could be reduced through:
  - ➢ Reassessment of work zones and / or activities to reduce geographic area covered by each operator
  - ➢ Additional work crews
- Assessment underway by Environment Team



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## AVOID | SHIFT | IMPROVE


### OPTION 6 : MOVE TO LOWER CARBON MODES

- 3.5T pickups make up approximately 30% of Roads fleet
- Effectiveness of these vehicles as a ‘workhorse’ is limited given the payload is typically between 500 – 1,000kg.
- Often used in:
  - Transport of traffic management appliances between sites
  - Collection of municipal waste
  - Maintenance of parks
- Many of these tasks could be achieved by small vans
- Some of these tasks could be achieved by municipal eCargo bikes or Utility Vehicles
- Trial undertaken on Utility Vehicles and no operational reason identified to prohibit the transition – Users did not support the change

# AVOID | SHIFT | IMPROVE

## OPTION 7: FLEET ELECTRIFICATION

- Public sector required to procure (purchase/lease) only zero-emission vehicles from end of 2022, where available and practicable
- Electric vehicles options are available for Small Vans, Large Vans and 3.5T Pickups
- Enabling works will be required to facilitate Council wide use of EVs :
  - Depot upgrades including enhanced parking areas with electrical supply upgrades
  - Charger installations and management system for O&M of Chargers
- Challenges
  - Land availability at depots
  - Capital costs
  - Concerns over reduced range & reduced payload capabilities
  - Vehicle availability
- Proposed to replace 16 No. large vans, 25 No. small vans and 20 No. 3.5T pickups with equivalent electric vehicles with electric equivalents by end of 2027

# Session 1 : FLEET DECARBONSIATION IN LOCAL AUTHORITIES

## AVOID | SHIFT | IMPROVE

### OPTION 8 : TRANSITION FROM VANS/EV VANS TO EV CARS

- Assessment completed on vehicle needs with Environment Team
- 50% of users had limited need for storage/load capacity
- Work practices demonstrated high km range and countywide scope
- Range anxiety due to scale of county and remit of operative
- Reviewed options of EV VAN vs EV CAR @ ~330km vs ~500 km
- Reviewed usage – sporadic per week with office / site mix
- Assessment demonstrated opportunity for :
  - Depot Based Parking
  - With per operative EV car to commence (for 50%)
  - Transition to Carpooling subject to management / booking system for team based at Letterkenny PSC
- Change in work practices discussed with Team and no objections

# AVOID | SHIFT | IMPROVE

**OPTION 9 : ALTERNATIVE FUELS – HVO (Does not help in achieving energy efficiency targets)**

- Decarbonisation of our HGV fleet remains difficult to achieve
- Alternative technologies either unproven, impractical or too expensive
- Use of HVO (Hydrotreated Vegetable Oil) most likely short-term solution to bridge gap to our 2030 targets
  - Drop-in replacement for diesel in Euro VI engines
  - Can be used on own or blended with diesel – not suited to all models of vehicle / check with manufacturer
  - Considered zero emissions for SEAI reporting
- Donegal's approach
  - Maximise implementation of Avoid-Shift options
  - Focus on fleet electrification
  - Minimise over-reliance on HVO - Security of fuel supply is questionable as is HVO Sustainability
  - Envisaged that 33% of 6x4 Lorry fleet will be fueled by 100% HVO
  - Limited locations for pump service
  - Trial ongoing with 1 lorry and 1 Artic currently fueling from Letterkenny

# IMPROVE: TRIAL ON EV CHARGING

**Suitability**

- Consider whether EVs are a suitable alternative to diesel fuelled vehicles in Donegal
- Establish if a sustainable and cost-effective way forward to facilitate the roll out of electric vehicles of all sizes and the appropriate charging mechanism for same could be identified

**Options under EV Charging**

- Charge at Home (retains existing operational situation)
- Depot Charge (changes existing but potential for reduction in journeys @ 15% & vehicle pooling)

**Home Charging Trial 2024**

- Home charging trial undertaken during 2023/2024 to evidence base decision on way forward
- Trial was undertaken on 2 small EV Vans with home charging provision (most likely to succeed)
- Assessment and measure of impacts of EV home charging, challenges faced and solutions to address, consideration of suitability for all Council Fleet

# IMPROVE: TRIAL ON EV CHARGING

**Home charging was considered with respect to :**

1. Selection of Participants
2. EV Home Charger Installation
    1) Selection of Equipment
    2) Legal requirements
    3) Procurement and Installation
    4) Operation OHME Cable
    5) Energy Efficiency / $CO_2$ emissions reductions
    6) Range limitations
3. Financial
    1) Energy Cost Recoupment
    2) Tariff Considerations and Energy Costs
    3) Benefit in Kind Implications
    4) Comparative Costs
    5) User Experience
    6) Technological Developments
4. Conclusion
5. Recommendation
6. Next Steps
7. Funding

# Session 1 : FLEET DECARBONSIATION IN LOCAL AUTHORITIES

## IMPROVE: TRIAL ON EV CHARGING

**Conclusion 1:** Home-based charging of small EV vans is feasible but complex:

- charging regimes and tariffs
- load balancing/power management issue
- maintenance and management of Council owned chargers on private property
- potential BIK liabilities
- employee compliance with legal agreement
- lack of flexibility or redundancy for charging of other Council owned vehicles
- technical limitations in only being suited to smaller EV types i.e. small vans/cars

**Conclusion 2:** Home-based charging is not suited to larger EV types:

- Charging time required for large vans, 3.5T pickups, 7.5T pickups impractical
- Larger charging infrastructure not practical in domestic setting

To ensure fair and equitable treatment of staff regardless of vehicle assignment, and to reduce/remove IR issues relating to same, the charging of smaller EV types should also be depot-based.

**1,650 kg$CO_2$**

EVs in the trial emitted 1,650 kg less $CO_2$ than comparable ICE small vans

**60%**

Electric vehicles in the trial consumed 60% less fuel than the average ICE small van in the Council's fleet.

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## IMPROVE: TRIAL ON EV CHARGING

**Conclusion 3:** Competitive energy pricing is essential for cost-effective EV operation:

- Managing electricity tariffs for employees is complex
- Need to ensure employees are on suitable time-of-use tariffs
- Separate procurement procedure required

Depot-based charging avoids this by enabling of off-peak ToU tariffs and uses existing centrally procured electricity supply contracts.

**Conclusion 4:** The transition to EVs can be supported with telemetry data:

- Develop improved route options and amend work patterns
- Depot-based parking and charging simplifies and streamlines this process as journey start point is constant irrespective of employee home location, avoiding need to re-assess routes and work patterns where staff are redeployed.

**Conclusion 5:** Targeted training for staff is key to unlocking benefits of EVs:

- EV range management
- Best charging practices
- Route optimisation

Employees equipped with skills in journey planning and energy-efficient driving, will help achieve maximise vehicle range, reduce need for mid-day charging and ensure operational requirements of the services are met.

# Session : FLEET DECARBONSIATION IN LOCAL AUTHORITIES

Cliodhna Campbell & John Grennan

# THANK YOU

Gareth McMahon, Director of Service, Transportation, Monaghan Co Council

# HVO – A Case Study, Monaghan Co Council

# Session 1: HVO – A Case Study, Monaghan Co Council

## Contents

- Monaghan's HVO Journey
- Alternative Fuels Strategy and Roadmap
- Why HVO?
- Risks?
- Monaghan's Fleet
- The path to Carbon Neutral
- Conclusion

# Session 1: HVO – A Case Study, Monaghan Co Council

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# Monaghan's HVO Journey

In 2022 a Cross-Border Consortium was Established to Investigate Alternative Fuel Options for LA Fleets.
Fehily Timoney were Commissioned to Conduct the Study.
The Output was an Alternative Fuel Strategy & Roadmap to Net-Zero

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# Session 1: HVO – A Case Study, Monaghan Co Council

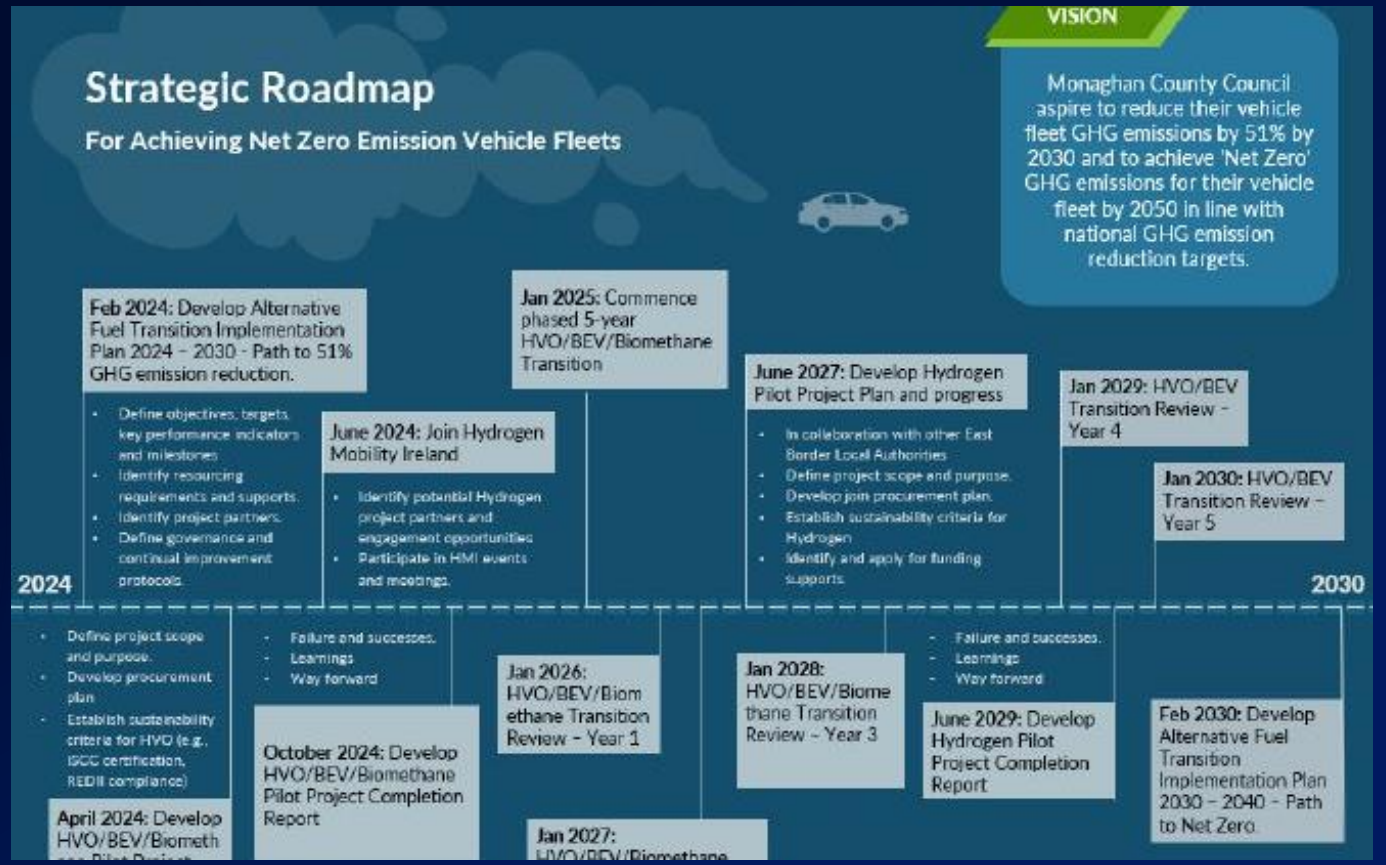
## Strategy Findings:

Short-Term Options Considered:

- Hydrotreated Vegetable Oil (HVO)
- Biodiesel, Bioethanol & Bio Gases
- Battery Electric Vehicle(BEV)

Long Term Option Proposed:

- Green Hydrogen

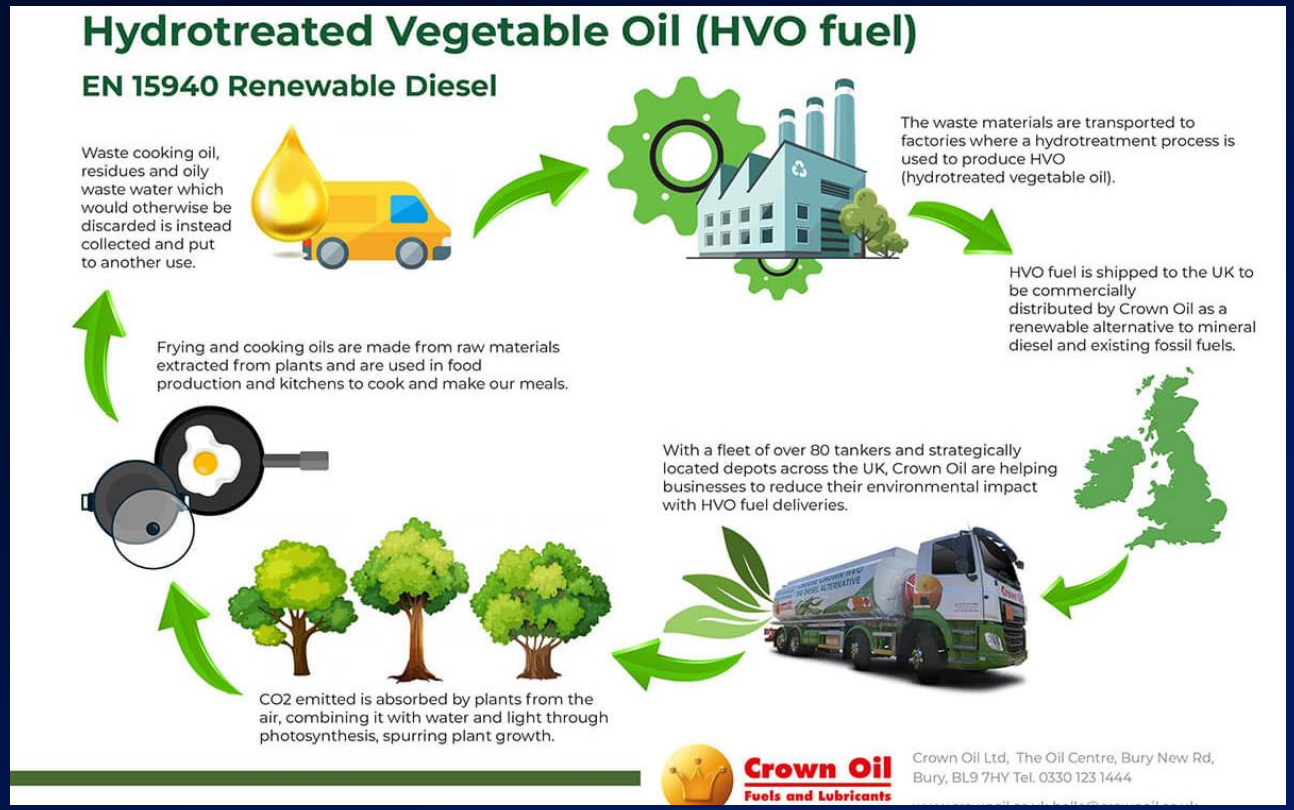


# Session 1: HVO – A Case Study, Monaghan Co Council

## Why HVO?

Sustainably produced HVO is considered Carbon Neutral by the SEAI -

"The net emission of CO2 from the combustion of biogenic carbon in sustainable biomass fuel (incl. solid biomass, biofuel, bioliquid and biogas) is considered to be zero, as it is assumed that the biomass itself absorbs an equal amount of CO2 during growth as is emitted during combustion.



# What are the Risks?

Feedstock Sustainability – Especially post 2030

Greenwashing and Traceability

Biomass as the Source

Compatibility & Performance

Lock-in Effect

Cost

# Session 1: HVO – A Case Study, Monaghan Co Council

## Monaghan's Fleet

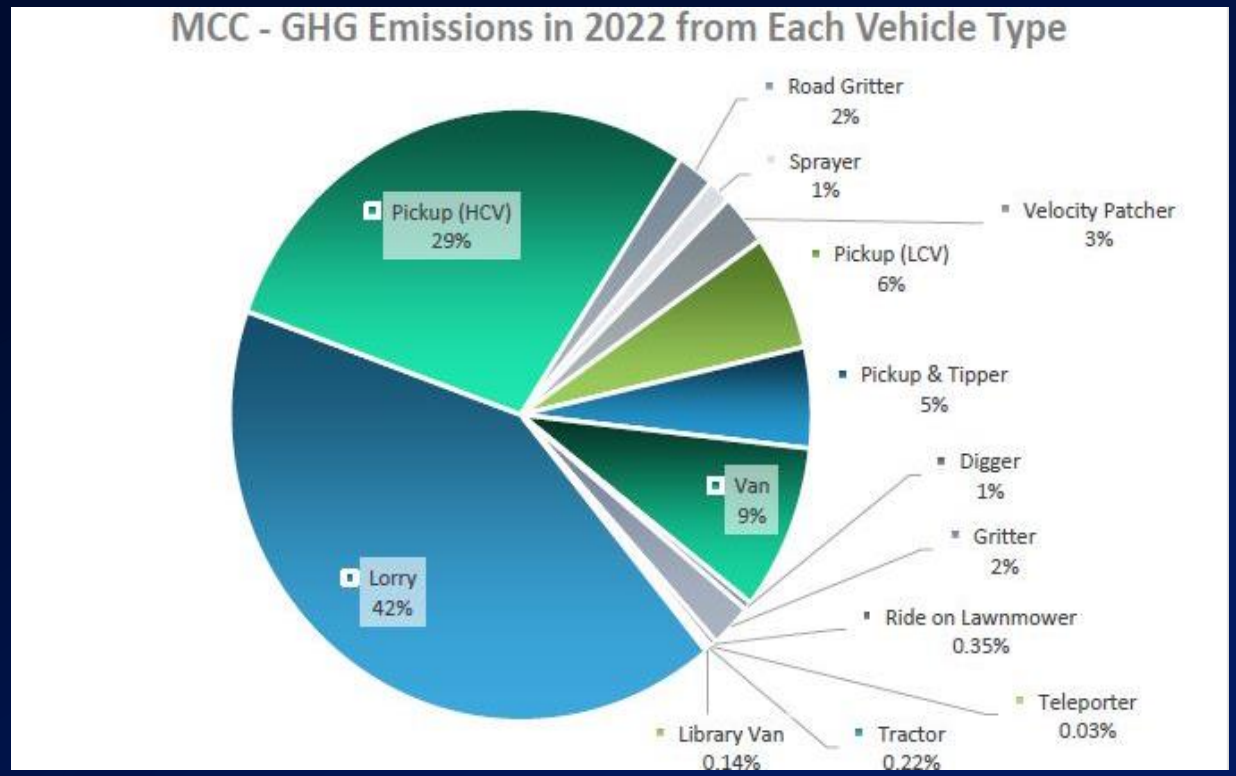
48 Diesel Vehicles in MCC Fleet

5 EV Vans – purchased in 2024

12 diesel vehicles currently on HVO

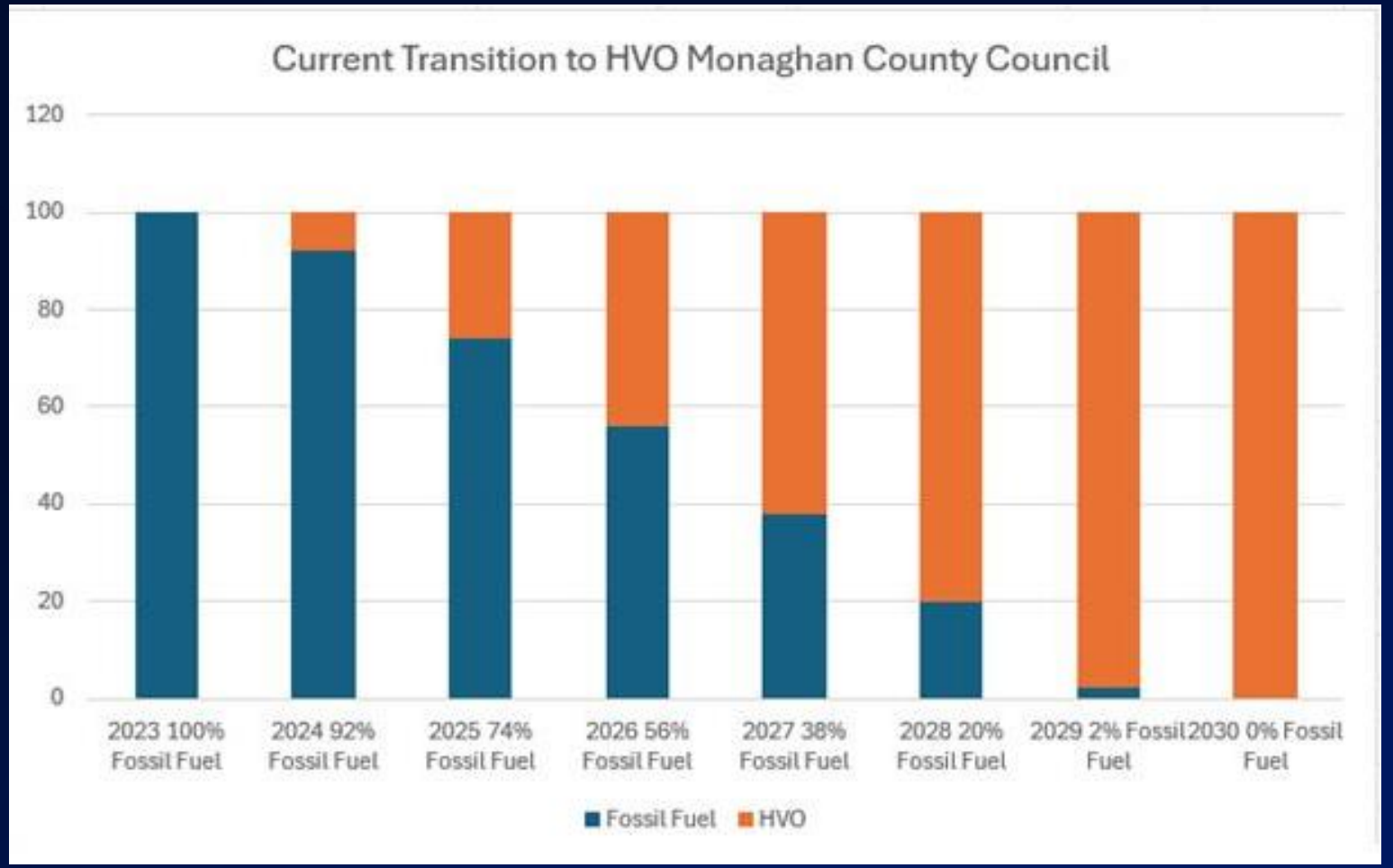
11 vehicles to be switched to HVO in 2026

16 on-hire Diesel Engines will convert to HVO in future contracts



# HVO Path to Carbon Targets

Based on current fleet replacement plans and conversion to HVO, Monaghan's fleet will achieve the 2050 target of becoming carbon-neutral by 2030.



# In Conclusion

HVO is available and viable now however there is a risk that as demand grows supply will not be able to keep pace and other industries – such as aviation – may pay more and further reduce availability and push up costs.

Fleet managers should act now to take advantage of the carbon savings but not lose sight that this is very much a transitional fuel source.

# Session 1: HVO – A Case Study, Monaghan Co Council

Gareth McMahon, Director of Service,
Transportation, Monaghan Co Council

# THANK YOU

**Join the Q&A session at Slido.com and enter 3873601 or via the QR Code.**
**Questions must include name and associated Local Authority to be considered by the panel.**

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