

# Notice of Meeting

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## Environment Advisory Group Open Forum

**Thursday 28 September 2023 at 5.00pm**  
in the Council Chamber Council Offices  
Market Street Newbury

Date of despatch of Agenda: Monday 25 September 2023

For further information about this Agenda, or to inspect any background documents referred to in Part I reports, please contact Stephen Chard on (01635) 519462  
e-mail: [stephen.chard@westberks.gov.uk](mailto:stephen.chard@westberks.gov.uk)

Further information and Minutes are also available on the Council's website at  
[www.westberks.gov.uk](http://www.westberks.gov.uk)



**Agenda - Environment Advisory Group Open Forum to be held on Thursday, 28  
September 2023 (continued)**

**To:** Councillors Adrian Abbs (Chairman), Richard Somner (Vice-Chairman),  
Dennis Benneyworth, Nick Carter, Carlyne Culver, Stuart Gourley,  
Paul Kander, Geoff Mayes, Vicky Poole and Martha Vickers

**Substitutes:** Councillors Owen Jeffery, Janine Lewis, David Marsh, Jo Stewart and  
Tony Vickers

# Agenda

## Part I

- 1 **Chairman's Opening Remarks**  
Councillor Adrian Abbs, Portfolio Holder for Climate Action, Recycling  
and Biodiversity
- 2 **Apologies**  
To receive apologies for inability to attend the meeting (if any).
- 3 **Declarations of Interest**  
To remind Members and Officers of the need to record the existence and  
nature of any personal, disclosable pecuniary or other registrable  
interests in items on the agenda, in accordance with the Members' or  
Officers Code of Conduct.
- 4 **Update on Household Waste Collection Vehicle Replacement** 1 - 18  
Veolia Environmental Services
- 5 **Improving Local Electric Vehicle Infrastructure**  
Jenny Graham, Environment Delivery Manager
- 6 **Any Other Business**
- 7 **Future meeting date**
  - Monday 27 November 2023 at 5.00pm in the Market Street Council  
Offices

Sarah Clarke  
Service Director: Strategy and Governance

If you require this information in a different format or translation, please contact  
Stephen Chard on telephone (01635) 519462.

# West Berks Client Presentation

*Andrew Hope*  
*Fleet Development Manager*



**ONE  
WAY**



## Agenda:

- Latest Veolia UK Alternative Fuel Achievements
- Vehicle Decarbonisation Landscape
- BEV Vehicle Development
- Hydrogen Vehicle Development
- Proposed West Berkshire Fleet & Decarbonisation Options





## OEM Supplied BEV RCVs:

- 40 Operating in Westminster
- 27 to be Delivered to Kingston
- 1 to be Delivered to Brent
- Potentially 4 additional BEV RCVs to order for 2024



## Latest Veolia Alternative Fuel Achievements

A new depot and charging infrastructure has been opened at Landmann Way in South London to locate many of the Westminster BEVs. The site which cost approximately £3m can charge up to 54 vehicles at the same time, using electricity from the adjacent ERF, SELCHP.

The Kingston depot has been upgraded to allow for charging their 27 RCVs at the same time. This project is due to complete this month.



# Latest Veolia Alternative Fuel Achievements



## OEM Supplied BEV Sweepers on Order:

- 6 x Bucher V65e 16T Truckmount Sweepers
- 8 x Schmidt e Swingo Sweepers
- 20 x Boschung 2.0 Urban Sweepers/Washers
- 1 x Greenmachine 500ze Plus Sweeper





# Latest Veolia Alternative Fuel Achievements



## Other OEM Supplied BEVs in Operation:

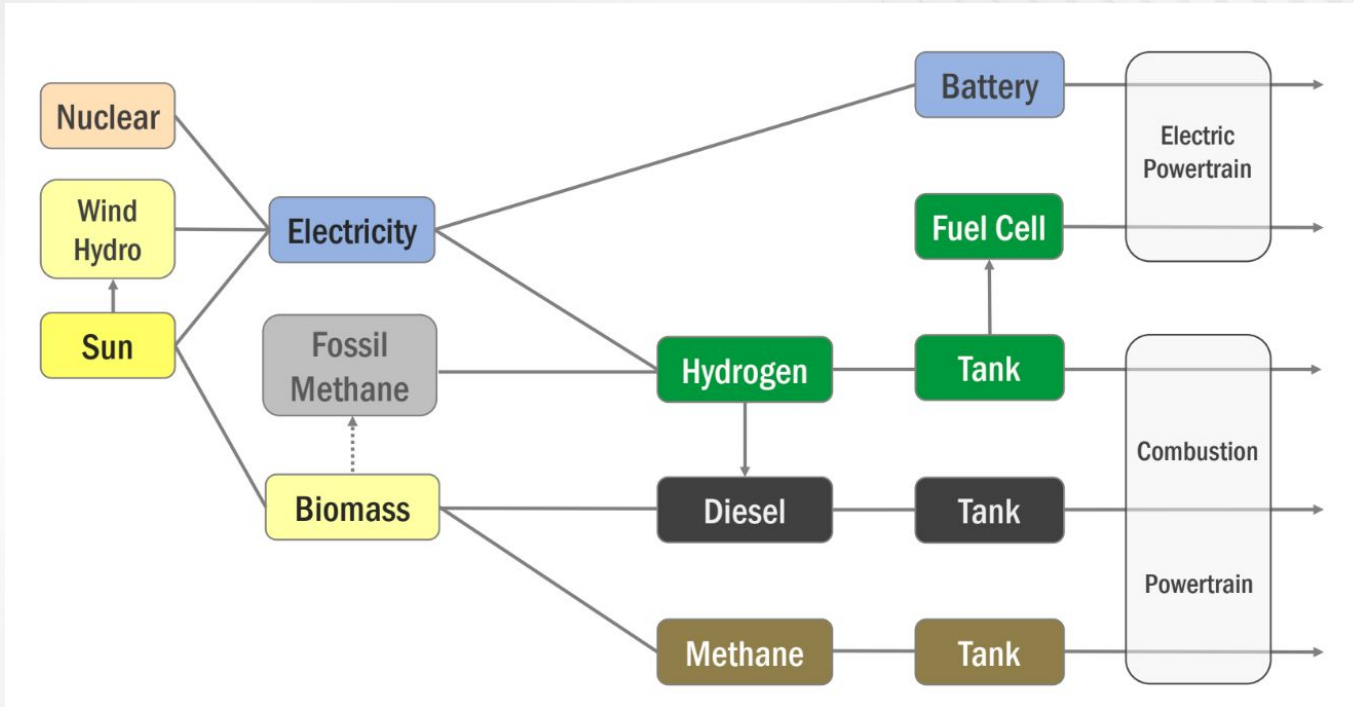
Vans, Cage Tipplers, Quad Cycles, Hybrid Dozer





# Vehicle Decarbonisation Landscape

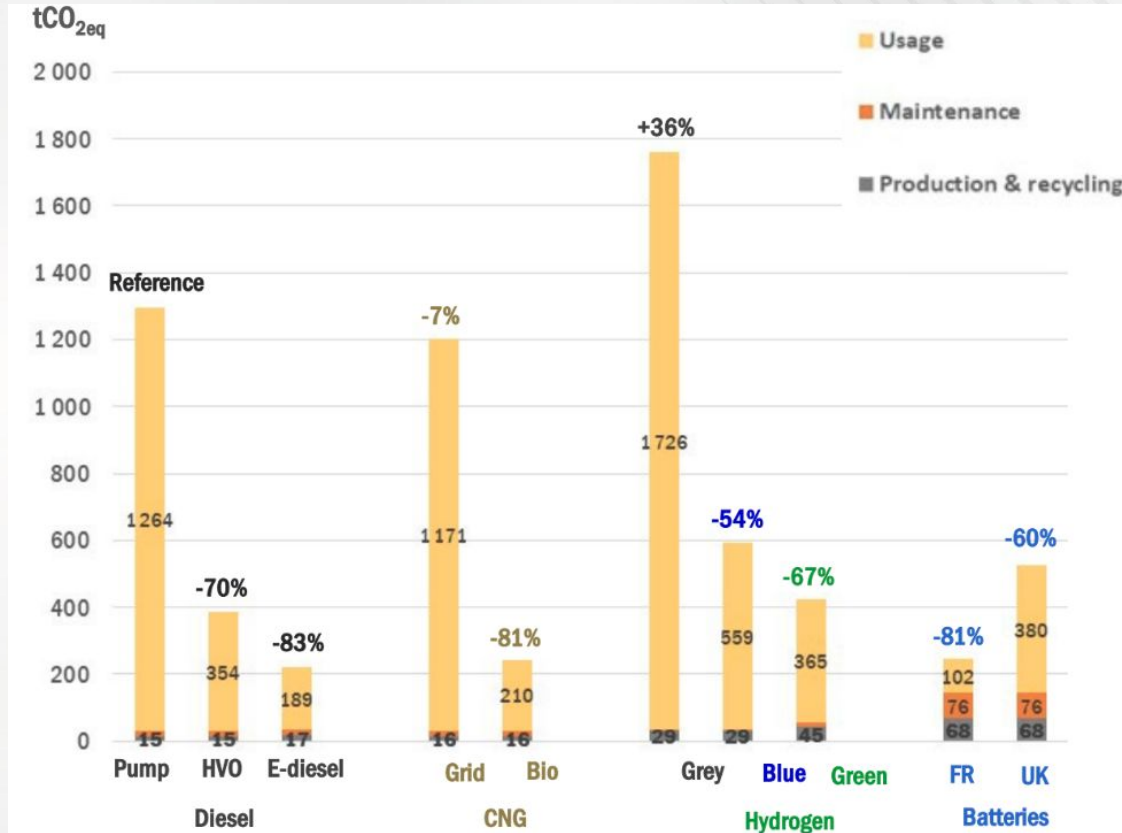
## Decarbonisation Options for Trucks:



# Vehicle Decarbonisation Landscape



## Global Warming Potential for Fuel Types



## The Case for ICE & Diesels:

~~Fossil Diesel~~

Bio oil

↓ Esterification  
or Hydrogenation

**Bio-diesel Gen 1**

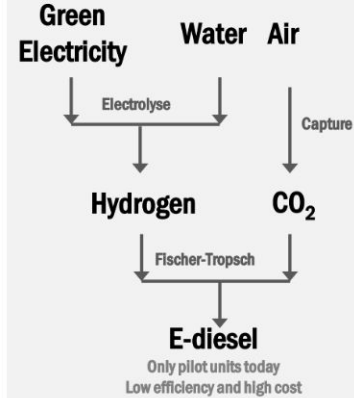
35 TWh/year available today in France  
Low cost

Bio waste

↓ Pyrolysis  
+ Fischer-Tropsch

**Bio-diesel Gen 2**

Only pilot units today  
High cost



■■■ Drop-in fuels in existing fleets

■■■ NOx emissions of combustion engines

Will likely ban those trucks from cities by 2030.  
Therefore only appropriate for long-haul trucks.

■■■ Limited quantity available

Due to biomass limitation and competition with other sectors  
(aviation...) → Max 10% of trucks fleet in 2050





## The Case for ICE Gas Vehicles:

~~Natural Gas~~

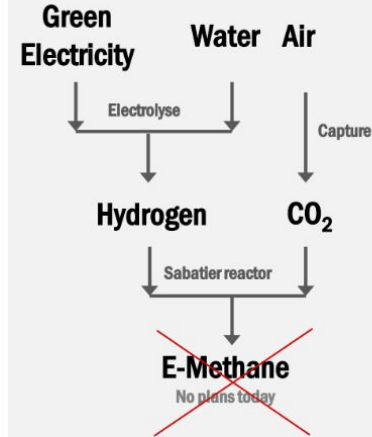
Bio waste

↓ Digestion or Pyrolysis

Bio-Gas

↓ Up-grading

Bio-Methane



### ■ ■ ■ NOx emissions of combustion engines

Will likely ban those trucks from cities by 2030.  
Therefore only appropriate for long-haul trucks.

### ■ ■ High Global Warming Potential of leaks

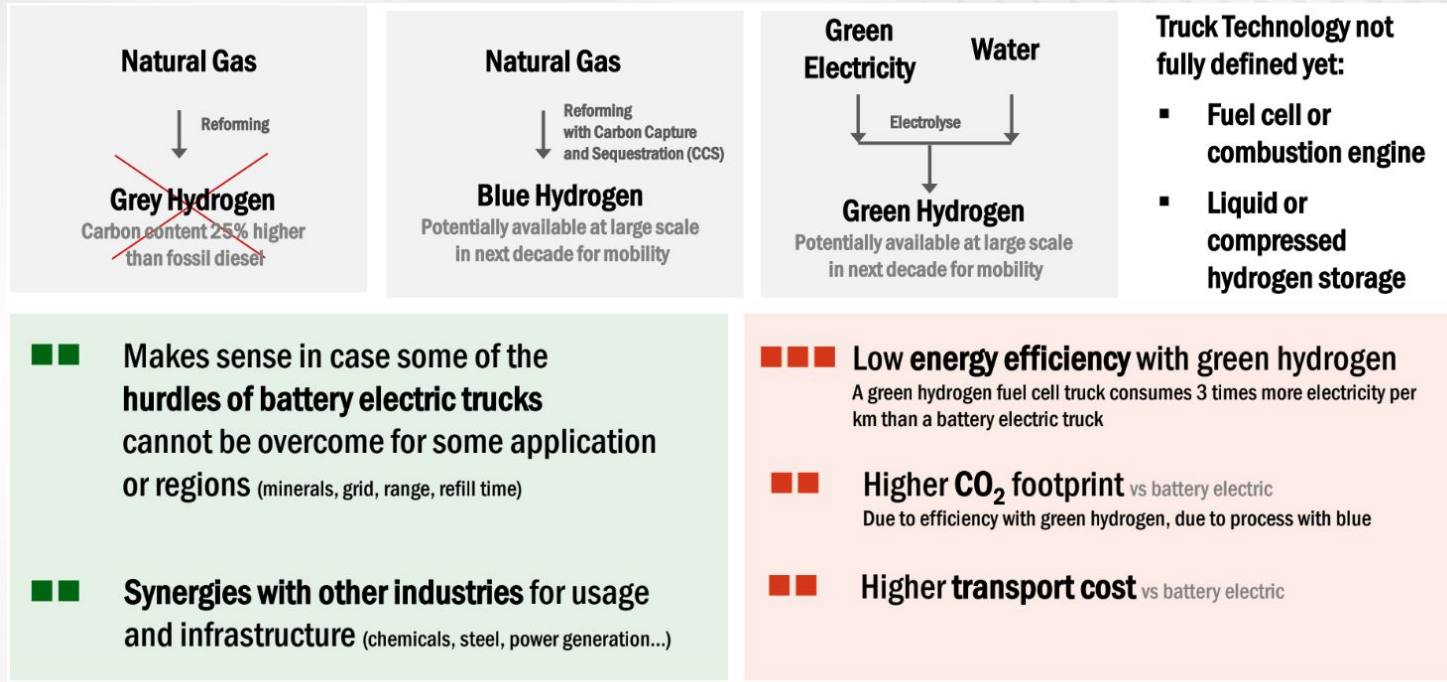
GWP per mass unit 86 times higher than CO<sub>2</sub> over 20 years

### ■ ■ ■ Limited quantity available

Due to biomass limitation, for instance for France, max 50 to 100 TWh can be produced in 2050.  
Due to competition with other sectors (industry, ships, power generation...), max 5 to 10 TWh might be used in trucks in 2050 in France (→ ≈ 10% of trucks fleet)



## The Case for ICE & Fuel Cell Hydrogen Vehicles:



## The Case for Battery Electric Vehicles:

### ■ ■ ■ Highest energy efficiency among all options

Well-to-wheel energy efficiency 3 to 6 times higher than any other option

### ■ ■ ■ Lowest CO<sub>2</sub> footprint among all options

Cradle-to-grave CO<sub>2</sub> emission reduced by 80% in France and 50% in Germany for a truck bought in 2022, and 80% by 2040 in all European countries

### ■ ■ ■ Lowest Transport Cost among all options

Forecast of lower transport cost than diesel after 2025 for city trucks and 2028 for long-haul trucks in France

### ■ ■ Zero NO<sub>x</sub> in cities

Cradle-to-grave NO<sub>x</sub> versus diesel reduced by 80% in Europe today

### ■ ■ Lowest Noise among all options

For today's D 16 tons electric versus diesel:  
Reduced external noise (- 8 dBA = -85% acoustic power)  
and internal noise (- 99% @ 0 km/h, - 70% @ 30 km/h,  
- 40% @ 50 km/h, similar @ 90 km/h)

### ■ ■ Battery minerals

E-mob market rapid take-off generates supply bottlenecks. Minimizing environmental footprint requires thorough supplier chain control.

### ■ ■ Thorough grid load management required

With enough power plant flexibility or storage capacity for daily variations. Smart charging management will mitigate this.

### ■ ■ Higher operational constraint vs diesel

Due to range, charging time (will ease as battery energy density and charging power continue to increase) and lower payload per truck (payload slightly reduced today, but not mid term, thanks to the +2 t GCW European allowance and possibly more axles)

### ■ Higher up-front investment vs diesel

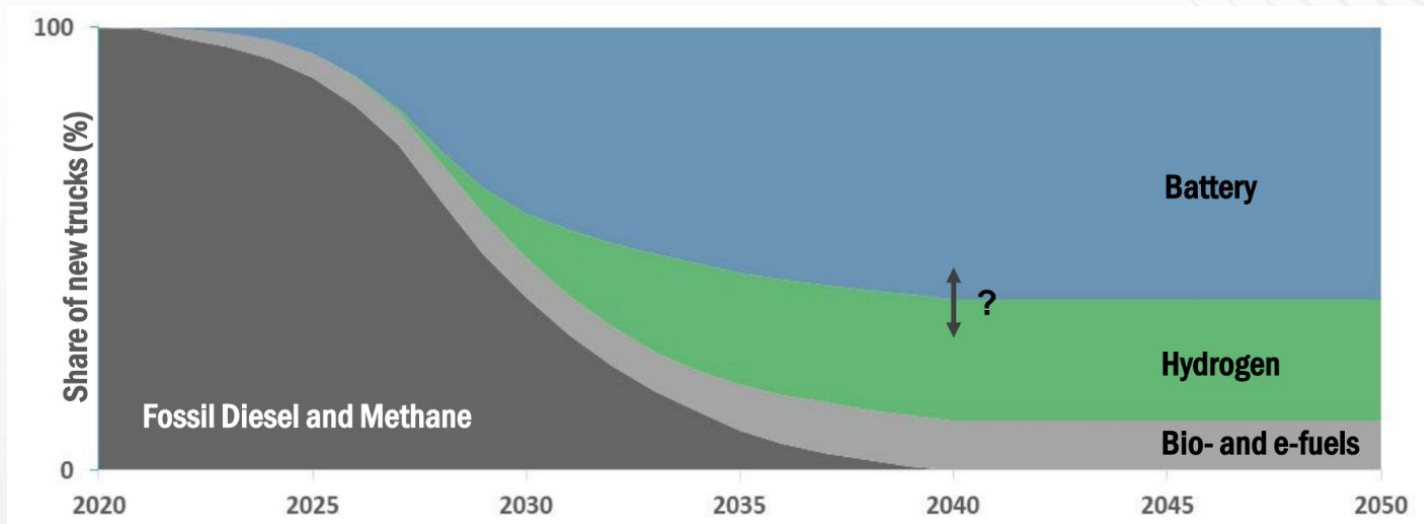
Truck purchase, charging infrastructure, grid strengthening





## Share of New Truck Sales:

- It is expected that battery and fuel cell vehicles will become the dominant powertrain before 2040 (when diesel will be completely phased out)
- For long range trucks hydrogen fuel cell or combustion engine vehicles are likely to be dominant
- Fewer internal combustion engine options will be produced and only for bio and e-fuels



# Battery Electric Vehicle Development Timeline:



7.5T, 18T & 26T  
Battery Electric



Series Production  
Now Available



Expanded Battery  
Electric Offering



Series Production  
2023/2024



# Fuel Cell Electric Technologies Development Timeline:



## 26T Full Cell



Retrofit Supplier  
Development/R&D  
Available Now



## Long Haul Hydrogen Fuel Cell



Series Production  
2028



## Expanded Hydrogen Fuel Cell Offering



Series Production  
2029/2030





## Additional Cost of Replacing Large Refuse and Garden Waste Vehicle Fleet with BEV RCVs

- 'One-Pass' Recycling Vehicles are only available with diesel drives
- Total Additional Cost for purchasing 14 refuse/garden waste collection vehicles would be £3.1M
- Additional cost for charging stations could be +£500K, plus circa +£250K if upgrades to the grid connection are required\*

an extensive site survey would be required to establish exact costs

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	Cost per Vehicle	Total Cost (14 Vehicles)
<b>Diesel</b>	£199,825	£2,797,550
<b>Electric</b>	£428,120	£5,993,680
<b>Cost Increase</b>	£228,295	£3,196,130



## Electric Bin lifts included on all large collections Vehicles:

- Bin lifting Equipment is driven by electricity, not vehicles engine
- 8-10% reduction in fuel consumption
- Potentially 40,000 litres of diesel saved per year \*
- Potentially 107 tons of Co2 saved per year \*
- Collections vehicles will be significantly quieter for residents

\* Based on estimated 2022 RCV fuel consumption



## HVO: Drop-in Transition Fuel in Municipal Contacts

- 100% HVO in use in Broadland
- 50-50 HVO/GTL blend in use in Solihull
- Currently 25% more expensive than diesel: £177K pa\*
- No other vehicle or infrastructure investment required
- Greenhouse Gases significantly reduced (up to 90%)
- Can be used to decarbonise **all** West Berkshire diesel vehicles, not just the collections trucks.
- No arrangements currently made between WBC and Veolia for HVO use.



Diesel

HVO

\* Based on 2022 diesel consumption and current diesel and HVO prices

