



Gloucestershire Fire and Rescue Service

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GFRS Carbon Reduction Plan Update Feb 2023

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Euro 6 vehicles within GFRS has increased by 3 vehicles since May 2022 with 4th due in February. Euro 6 engines are cleaner than the previous vehicles they will replace. This will increase during 2023-24 with more vehicles being replaced with newer / greener vehicles.

Euro 6

The sixth and current incarnation of the Euro emissions standard was introduced on most new registrations in September 2015. For diesels

A focus on diesel NOx was the direct result of studies connecting these emissions with respiratory problems.

To meet the new targets, some manufactures have introduced Selective Catalytic Reduction (SCR), in which a liquid-reductant agent (AdBlue) is injected through a catalyst into the exhaust of a diesel vehicle. A chemical reaction converts the nitrogen oxide into harmless water and nitrogen, which are expelled through the exhaust pipe.

The alternative method of meeting Euro 6 standards is Exhaust Gas Recirculation (EGR). A portion of the exhaust gas is mixed with intake air to lower the burning temperature. The vehicle's ECU controls the EGR in accordance with the engine load or speed.

New Pumping Appliances

Ten new Pumping Appliances out for tender in the 1st Quarter of 2023, these vehicles will replace more polluting Euro 3 & 4 engine vehicles. The Tender is due to conclude at the end of April. Vehicles will be received in Q3 2024

Solar

The 12-month Solar Panel trial on a Pumping Appliance has produced the below results on cost benefits and CO2 reduction.

- 2022 Fuel Savings for BX17CYS – 118 Litres / £200 / 350Kg CO2
- £3,000 fuel saving over 15 years.
- >5000Kg CO2 reduction over 15 years
- Additional operational monetary savings from better battery health, less battery swaps, less call outs etc.

Off the back of this Solar trail all new vehicles over 3.5t will be fitted with Solar panels including the ten new pumping Appliances as per trial, this will include in the coming year.



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- 10x new Pumping Appliances
- 1x 5t Workshop Vehicle
- 1x 3.5t BA Support Vehicle (arranged to be fitted in March)
- 1x 3.5t Community Safety Vehicle (arranged to be fitted in March)

New EV Vans

Following Cabinet approval in September 2022, 26x New EV Combi Vehicles are due to go to tender in next financial year 2023-24. These will replace older petrol and diesel engine vehicles. The vehicles will be standardised for multi-use functionally rather than having several type vehicles with smaller tasks. These vehicles will need to rely on a new EV ChargePoint Infrastructure program at all stations.

EV ChargePoints

EV ChargePoint Locations for all stations identified, and surveys undertaken by Connected Kerb (approved Contractor for EV ChargePoint's)

Property Estates carrying out required checks on stations for ownerships/permissions etc prior to any fitment.

Load testing by property for all sites to confirm EV ChargePoint loads thresholds.

Aim is to install 22kwh ChargePoint with load balancing as required.

The aim is to install in phases through 2023/2024, starting at Newent, Dursley and Stroud

HVO Fuel

HVO Fuel is best suited to Euro 6 engines as most Euro 5 or lower will not work effectively. This will be explored once there is a better ratio of Euro 6 vehicles at stations, to consider swapping fuel type.

Offsetting

Offsetting with fuel providers is still to be explored.

Hydrogen

Hydrogen Power is still to be explored; initial results suggest infrastructure issues for provision fuel with the nearest fuel station in Abergavenny.

EV Pumping Appliance

New Electric Powered Pumping Appliances have been released into the market, with London Fire Brigade taking delivery of one. However, for GFRS it is still too costly for the vehicle and infrastructure, waiting on results from London Fire Brigade on its Electric Pumping Appliance

Building Infrastructure Upgrades

Upgrades to premises regarding adding Solar panels and other efficiency measures etc is not underway yet, as the scoping of this as a project is still to be undertaken involving AMPS.



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Equipment

A project will be scoped in 2023 from with the Fleet and Logistics team to review all items that are used, from fleet appliance equipment through to PPE etc, and how often this equipment is used before its replaced. To ensure use is maximised correctly before being replaced, how it is cared for through the life, and how its disposed.