Appendix OVQ3B-
Vehicle PCD Justification Requests

Within this document, we directly address each of Ofgem's requests for further detail on:

- Vehicle Categorisation
- Purchasing and Leasing Volumes
- Unit Costs and Comparisons
- Justification of Costs
- Operational Viability
- Flexibility and Output Definition
- GDN EV Charging Strategy

Vehicle Categorisation: *Provide a clear breakdown of vehicle types, models, and weights as requested (small panel, medium panel, large panel, and other ZEVs).*

The details of our fleet breakdown can be found in Appendix OVQ3A – Operational Transport Data Request. However, the vehicle categories that were embedded in the RIIO-GD2 PCD are, when considered in retrospect, too broad – they do not adequately reflect the nuances of fleet structure, operational duty cycles and particularly the vehicle energy requirements. This meant that the various vehicle types and operational duties were aggregated into categories that did not reflect their true purpose. For example, 'Large Van,' could include flat bed, cab chassis vans, large team vans or large box vans.

While the published retail prices of specification-equivalent diesel and battery electric vans may be quite closely matched, the actual transaction price of BEVs is in our experience significantly higher. This cost is some £20k per unit more than standard fossil fuel equivalents, where they are available. The reason is discount rates applied by manufacturers to BEVs, are significantly lower than for cheaper-to-manufacture diesel vans, even after government grant support has been applied.

We would welcome the opportunity to work with Ofgem to create a vehicle categorisation matrix that suits all for RIIO-GD3. We propose that funding categories should be defined by permitted Gross Vehicle Weight (GVW) rather than by 'small', medium, or 'large' – there's too much room for cost variation within categories that are not well-defined by such terms.

Proposed categories: Vehicles GVW categories that have different meanings in road transport law, together with technical detail/justification:

1. LCV up to 2 tonne GVW – such vehicles can travel at the same speeds as a car and require a Class IV MoT like a car
2. LCV > 2t GVW but < 3.0t GVW - such vehicles must have a Class IV MoT test, like a car, but must operate at restricted speeds
3. LCV >/= 3.0t GVW and </= 3.5t GVW - such vehicles require a Class VII MoT test – more tested items. Same speed restrictions as group 2 above. In practice, a ZEV at 3.5t GVW operated by a GDN will probably fall into the group below, because it will be a lot heavier unladen than an ICE meaning the payload is inadequate and so the greater payload afforded by the Alternatively Fuelled Vehicle (AFV) Derogation will be necessary (see below)

4. **Zero emission LCV > 3.5t GVW and </= 4.25t GVW - LCV operated under the UK-only AFV derogation (electric and hydrogen vehicles only)** - Note: an ICE-powered vehicle in this GVW range requires a driver with a C1 vocational driving licence entitlement. The Derogation allows electric and hydrogen vehicles in this GVW range to be driven by a Category B (car/light commercial vehicle) licence holder, and permits towing (from 10.06.2025) at a Gross Train Weight (GTW) of up to 7.0t. However, ZEV's in this group currently require a tachograph, driver compliance with EU hours rules when > 62 miles from base and an HGV type MoT at an Authorised Testing Facility, a speed limiter set at 56mph – and other compliance requirements that may or may not be amended in future by government. However, a ZEV in this category may be the only way of getting an operationally useful payload for many GDN operating cases.
5. **4 x 4 </= 3.5t GVW** – a 'pick-up' truck, with genuine off-road driving capability, normally supplied with open steel sided cargo body with tail gate.
6. **HGV's**

Purchasing and Leasing Volumes: Can be found in Appendix OVQ3A – Operational Transport Data Request.

Unit Costs and Comparisons: Can be found in Appendix OVQ3A – Operational Transport Data Request. Please note, the uncertainty around the continuation of the plug-in van grant (recently extended only for a year, to April 2026) means that the actual transaction cost for ZEV cannot be estimated with certainty for RIIO-GD3.

Justification of Costs: All costs provided in Appendix OVQ3A – Operational Transport Data Requests are based on the contracted rates we have in place with our suppliers. This includes the LCVs with Ford and Toyota, the HGVs with 'Euro Commercials', and all the associated fit-out costs (racking, on-board power, livery, etc.) with our partner for vehicle fit out, 'Modul Systems'. Prices are net of all discounts negotiated. The contracts in place with the above providers were all subject to Utilites Contract Regulations 2015 compliant tender events and WWU policies and governance. This has ensured that the gas consumer is achieving the best possible value for money.

Operational Viability: *For any vehicle categories where ZEVs are considered not operationally viable, provide supporting commentary and evidence.*

Compared with their diesel equivalents, all currently available zero-emission vans (ZEV) are plug-in. These models bring a combination of the following drawbacks:

- Significantly inferior payload - a critical factor for a commercial vehicle
- Significantly inferior range with a further unpredictable reduction in cold weather
- Limited or no towing capacity
- Time consuming to recharge (a heightened challenge in rural areas)
- Not available in a variant with sufficient headroom to allow the operative to stand inside
- There are also VOR (vehicle off-road) impacts; as ZEVs require specifically qualified technicians and lifts with capacity for their greater weight
- In addition, the supply chain for parts is significantly longer than that of diesel equivalents.

Further, the ZEV mandate implemented in 2024 is already having a significant impact on our ability to replace our current diesel fuel fleet. This will progressively restrict the supply of diesel vans at a time when a suitable zero-emissions alternative does not exist for most of our fleet.

The ZEV mandate therefore poses risks to potential business continuity, operational efficiency, and costs for us at WWU - in addition to other operators of diesel vans that are high energy consumers or cover long distances daily, especially those that are not depot-based. Consequently, we see hydrogen-fuelled vehicles (whether fuel cell or combustion engine) as a vital 'and' technological alternative to BEV, allowing us to start replacing our current Internal Combustion Engines (ICE) diesel fleet with an operationally efficient, zero-emissions alternative before 2030.

Section 4.18 of the Operational Transport Emissions Reduction PCD (Overview Document) assumes that all ZEVs will in future be BEV, i.e. plug-in. There is no current commercial case for us to invest in new BEVs that are more costly to purchase while delivering significantly reduced operational efficiency than the diesel vans they replace.

In 2021, an Innovation-funded Cenex study concluded that less than 50% of our duty cycles at WWU could be met by a BEV, while more than 95% could be completed by a hydrogen fuel cell electric vehicle. The study was conducted jointly with Northern Gas Network (NGN), for which the results were very similar.

Our current diesel ICE vans and other ICE light commercial vehicles:

- Routinely operate close to, or at, Gross Vehicle Weight (GVW) for most or all the time – this is particularly the case for vehicles used in below-ground maintenance and repair activities - and/or
- Frequently tow trailers (e.g., carrying a mini digger or coils of pipe), at a Gross Train Weight (GTW) of up to 6.5 tonnes (75% of all WWU commercial vehicles are equipped to tow) and/or
- 29% of our LCV fleet is equipped with vehicle engine-driven 'on-board power' systems, e.g., for air compression and generation of mains-voltage electric power to power portable equipment on site - a continuous power demand of up to 30kW – and/or
- Are based at the driver's home address (not at a central depot) to minimise driven mileage and deliver greatest operational efficiency and
- Our drivers may not have access to off-street parking and therefore cannot charge a BEV when off-duty.

Compared with the diesel ICE vans currently used by us at WWU, BEVs:

- Are significantly heavier ('unladen weight') than their diesel counterparts, significantly reducing available payload within the 3.5t Gross Vehicle Weight legal limit and operational effectiveness (an expected reduction of 25% is typical). This is a fundamental disadvantage for a commercial vehicle.
- Are (mostly) unable to tow a trailer with an operationally effective payload (2 tonnes plus - or at all)
- Have a significantly shorter effective range than a diesel van (a reduction of 65% is typical) - this has an impact on the number of recharging events and their duration, especially where the driver cannot charge the vehicle at home overnight. A study we commissioned by Costain indicates that diesel vehicles with 'on-board power' ([c] above) which currently refuel every 2-3 days would, if replaced by a BEV, require rapid charging once or even twice daily, negatively impacting productivity.
- A 'rapid charging' event takes ~34 minutes to recharge a Ford e-Transit from 15% to 80% State of Charge [SoC] whereas fully refuelling an ICE takes c.10 minutes. This also assumes access to rapid chargers, that in some parts of the network simply don't exist. Where rapid chargers do exist, many are old-generation 50kW units that are incapable of meeting the vehicle charge rate capability (Ford eTransit – 115kW) which means that in practice, charging can take much longer than the manufacturers stated time. We have also investigated installing rapid chargers at depots and offices, but the local electricity networks cannot provide sufficient capacity to support.

That are rapid charged may incur a higher energy cost per mile than diesel fuel – see Rapid Charging Prices for Electric Vehicles I Zapmap EV Stats - Zapmap. The Ford e-Transit example stated above would typically require at least three rapid charge events compared to a single diesel vehicle refuelling event. Each 15% to 80% rapid charge would require 44kWh - a total of 132kWh - which could exceed the cost of a single diesel refuel; to cover an equivalent distance, such a vehicle might spend 90 minutes longer recharging than a single diesel refuelling event – which would negatively impact engineer productivity.Suffer from a further significant range reduction in cold ambient temperatures (c. 30%)

- Cannot provide an 'on-board power' option equivalent to 30kW provided by ICE, with BEVs typically being limited to < 3kW and a major manufacturer suggesting that only 6.5kW will become available in 2028.
- Are unable to meet the published range of a full battery. The BEVs we purchased in RIIO-GD2 have a published range of 120 miles. Through 'light use' duties in our workshops department, we rarely get any more than 90 miles before running out of charge.

Key vehicle category example

The cohort of our LCV fleet used to support below-ground maintenance and repair activities and equipped with vehicle engine-driven 'on-board power' systems, i.e. air compression and mains-voltage power generation to support portable equipment on site, represents a vehicle configuration that has been used by all GDNs and their predecessor organisations for at least four decades, as it offers the most operationally cost-effective compromise. Further, air compression allows the use of pneumatic tools that are intrinsically safe (they do not contain an internal source of ignition).

In WWU, this operationally critical category represents 29% of our light commercial vehicle fleet; but represents 41% of the fuel consumed in 2024 by the entire light commercial vehicle cohort.

The base vehicle for this category has for many years been a diesel-engined Ford Transit 350 'L2H3' (short wheelbase, high roof) panel van with rear wheel drive; of 3.5 tonne Gross Vehicle Weight (GVW); and a Gross Train Weight (GTW) of at least 6 tonnes. This became 6.5 tonnes from 2021, to allow [heavier] electric mini diggers to be towed legally.

Other manufacturers – e.g. Iveco, Mercedes-Benz, Volkswagen – offer the same rear wheel drive configuration, which is critical to enable the installation of 'on board power' - i.e. an air compressor and generator.

Front wheel drive vehicles – e.g. those provided by Stellantis brands (Vauxhall, Citroen, Peugeot, Fiat) are completely unsuitable for this application, as the base vehicle configuration cannot support an 'on-board power' installation of sufficient capability.

While the equivalent battery-electric Ford e-Transit is also rear-wheel drive, it has the following disadvantages:

- The unladen weight is significantly greater, reducing payload by c. 400kg/31% (such vehicles invariably operate close to, or at, GVW)
- The effective range is insufficient (WLTP - 'official' - figures apply only to specific drive cycles at 20 deg. C ambient temperature, i.e. unrepresentative of GDN operations)
- Battery chemistry means that there is a further, unpredictable range reduction in low (or very high) ambient temperatures which may be as much as 40%
- The electric drive unit cannot be decoupled to operate a compressor
- The high-voltage battery power supply (which might otherwise replace the generator provided on diesel vans) is limited to only 2.3kW, less than half of the minimum electrical output needed.

- The GTW capability is limited to only 750kg – the lightest trailer of the c.750 units operated by WWU is 1200kg, with the majority being > 1500kg (of which 120 are 3000kg).

Individually, each of these vehicle limitations is a showstopper.

BEVs provided by other manufacturers exhibit the same issues; only Iveco offers a BEV with an effective GTW and a greater but still insufficient power offtake capability. However, that vehicle also has all the other limitations described.

At the time of writing, our direct engagement with vehicle manufacturers suggests that no significant improvement in BEV technology is considered likely in RIIO-GD3.

Flexibility and Output Definition: Position on how the PCD outputs can be defined to allow for flexibility. *Answered in detail below.*

There is no commercial case for any GDN to purchase a ZEV that is simultaneously more costly to buy and less efficient to operate than the diesel it replaces. Doing so would place an operating cost burden on the gas consumer. A mechanistic PCD solely deals with the up-front cost; not the long-lasting operational inefficiency element, which may be difficult to precisely define. The ZE van market is less advanced than the ZE car market, but we continue to engage with manufacturers so that we're up to date with the latest industry developments and therefore the future possibilities for WWU.

GDN EV Charging Strategy: We believe that our GDN EV charging strategy submitted in the Business Plan is sufficient to support our conversion of 30% of our fleet to ULEV. We welcome discussions with Ofgem if they are concerned about a perceived lack of investment in EV charging infrastructure

In our plan;

- We have included the cost of the charging infrastructure (land, charging points and electricity infrastructure). This enables us to build charging infrastructure during the control, at strategic locations (including already owned land and at depots), that enables a ZEV roll out when vehicles become operationally supportable with no detriment to Operational efficiency.
- Our plan includes £5.6m for the charging infrastructure to accommodate the switch to electric vehicles as early as possible, when suitable.

Appendix OVQ3B-
Vehicle PCD Justification Requests

Depot Locations

Site	Owned or Lease?	Alternate Site		Land Purchase(&Connection)	Feed Size	Additional Chargers
Collumpton	Owned	N/A			£ [redacted]	£ [redacted]
Plymouth	Owned	Yes				£ [redacted]
Evesham	Owned	No		£ [redacted]		
Bideford	Owned	N/A			£ [redacted]	£ [redacted]
Newtown	Owned	Yes	Wrexham	£ [redacted]		
Cardiff Grangetown	Owned	No			£ [redacted]	£ [redacted]
Torquay	Owned	No		£ [redacted]		£ [redacted]
Cinderford	Leased	No		£ [redacted]		£ [redacted]
Weston Super Mare	Owned	No		£ [redacted]	[redacted]	£ [redacted]
Swindon	Owned	No			£ [redacted]	£ [redacted]
Westbury	Leased	No		£ [redacted]	£ [redacted]	£ [redacted]
Bridgwater	Owned	No		£ [redacted]	£ [redacted]	£ [redacted]
Carmarthen	Owned	No			£ [redacted]	£ [redacted]
Wrexham	Owned	No		£ [redacted]	£ [redacted]	£ [redacted]
Panteg	Owned	Yes	Cwmbran		£ [redacted]	£ [redacted]
Treforest	Owned	No		£ [redacted]		£ [redacted]
Minehead	Leased	No		£ [redacted]	£ [redacted]	£ [redacted]
Bristol	Owned	Yes	Olddepot		£ [redacted]	£ [redacted]
Llandarcy	Owned	No		£ [redacted]	£ [redacted]	£ [redacted]
Redruth	Owned	No		£ [redacted]		£ [redacted]
Celtic Springs	Owned	No			£ [redacted]	£ [redacted]
Newport Stores	Owned	No		£ [redacted]	£ [redacted]	£ [redacted]
Gloucester	Owned	Yes	Cheltenham	£ [redacted]	£ [redacted]	£ [redacted]
Colwyn Bay	Owned	Yes	Olddepot			£ [redacted]
				£ [redacted]	**£** [redacted]	**£** [redacted]

WALES&WEST UTILITIES

Landholdings

Cwmbran	Owned	N/A	£ [redacted]	£ [redacted]
Colwyn Bay (Old)	Owned	N/A	£ [redacted]	£ [redacted]
Bristol (old)	Owned	N/A	£ [redacted]	£ [redacted]
Porthcawl	Owned	N/A	£ [redacted]	£ [redacted]
Haverford West	Owned	N/A	£ [redacted]	£ [redacted]
Plymouth Ford	Owned	N/A	£ [redacted]	£ [redacted]
Aberystwyth	Owned	N/A	£ [redacted]	£ [redacted]
Bangor	Owned	N/A	£ [redacted]	£ [redacted]
Bath	Owned	N/A	£ [redacted]	£ [redacted]
Bridgend	Leased	N/A	£ [redacted]	£ [redacted]
Caernarfon	Owned	N/A	£ [redacted]	£ [redacted]
Cheltenham	Owned	N/A	£ [redacted]	£ [redacted]
Colwyn Bay	Owned	N/A	£ [redacted]	£ [redacted]
Haverford West	Owned	N/A	£ [redacted]	£ [redacted]
Indian Queens	Owned	N/A	£ [redacted]	£ [redacted]
Keynsham	Owned	N/A	£ [redacted]	£ [redacted]
Llanelli	Owned	N/A	£ [redacted]	£ [redacted]
Maelor	Owned	N/A	£ [redacted]	£ [redacted]
Plymouth (Coxside)	Owned	N/A	£ [redacted]	£ [redacted]
Plymouth (Ford)	Owned	N/A	£ [redacted]	£ [redacted]
Stroud	Owned	N/A	£ [redacted]	£ [redacted]
Trowbridge	Owned	N/A	£ [redacted]	£ [redacted]
Yeovil	Owned	N/A	£ [redacted]	£ [redacted]
			£ [redacted]	£ [redacted]
				£