**RIIO-ED1 RIGs Environment and Innovation**

**Commentary, version 2.0**

**Year 2015/16**

**WPD Group**

**(West Midlands, East Midlands, South Wales, South West)**

### Contents

[Summary – Information Required 1](#_Toc421884595)

[Worksheet by worksheet commentary 1](#_Toc421884596)

[E1 – Visual Amenity 2](#_Toc421884597)

[E2 – Environmental Reporting 2](#_Toc421884598)

[E3 –BCF 3](#_Toc421884599)

[E4 – Losses Snapshot 28](#_Toc421884600)

[E5 – Smart Metering 31](#_Toc421884601)

[E6 – Innovative Solutions 32](#_Toc421884602)

[E7 – LCTs 35](#_Toc421884603)

# Summary – Information Required

One Commentary document is required per DNO Group. Respondents should ensure that comments are clearly marked to show whether they relate to all the DNOs in the group or to which DNO they relate.

Commentary is required in response to specific questions included in this document. DNO’s may include supporting documentation where they consider it necessary to support their comments or where it may aid Ofgem’s understanding. Please highlight in this document if additional information is provided.

The purpose of this commentary is to provide the opportunity for DNOs to set out further supporting information related to the data provided in the Environment and Innovation Reporting Pack. It also sets out supporting data submissions that DNOs must provide to us.

# Worksheet by worksheet commentary

At a worksheet by worksheet level there is one standard question to address, where appropriate, as follows:

* **Allocation and estimation methodologies**: DNOs should detail estimates, allocations or apportionments used in reaching the numbers submitted in the worksheets.

This is required for all individual worksheets (ie not an aggregate level), where relevant. Not all tables will have used allocation or estimation methods to reach the numbers. Where this is the case simply note “NA”.

Note: this concerns the methodology and assumptions and not about the systems in place to check their accuracy (that is for the NetDAR). This need to be completed for all worksheets, where an allocation or estimation technique was used.

In addition to the standard commentary questions, some questions specific to each worksheet are asked.

### E1 – Visual Amenity

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| **Allocation and estimation methodologies:** detail any estimations, allocations or apportionments to calculate the numbers submitted. |
| None. |

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| Explanation of the increase or decrease in the total length of OHL inside designated areas for reasons other than those recorded in worksheet E1. For example, due to the expansion of an existing, or creation of a new, Designated Area. |
| None. |

### E2 – Environmental Reporting

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| **Allocation and estimation methodologies:** detail any estimations, allocations or apportionments to calculate the numbers submitted. |
| None |

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| DNOs must provide some analysis of any emerging trends in the environmental data and any areas of trade-off in performance. |
| No comment. |

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| Where reported in the Regulatory Year under report, DNOs must provide discussion of the nature of any complaints relating to Noise Pollution and the nature of associated measures undertaken to resolve them. |
| None. |

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| Where reported in the Regulatory Year under report, DNOs must provide details of any Non-Undergrounding Visual Amenity Schemes undertaken. |
| None. |

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| Any Undergrounding for Visual Amenity should be identified including details of the activity location, including whether it falls within a Designated Area. |
| There is no Visual Amenity within a Designated Area reported in E2. Any undergrounding is reported in Table E1. |

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| Where reported in the Regulatory Year under report, DNOs must provide discussion of details of any reportable incidents or prosecutions associated with any of the activities reported in the worksheet. |
| WPD have received zero environmental prosecutions across all four licence areas for year April 2015 -16.  We have one Warning Letter issued by Stroud District Council regarding the storage of waste at an operational site.  We also have on ongoing investigation by the Environment Agency with regards to a fluid filled cable leak in the West Midlands. |

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| Where reported in the Regulatory Year under report, DNOs must provide discussion of details of any Environmental Management System (EMS) certified under ISO or other recognised accreditation scheme. |
| All four WPD licence areas are certified to ISO14001 (2004) our certification body are Lloyds Registry of Quality Assurance (LRQA) and our next certification visit will be in June 2017 to the new ISO14001 (2015) standard. |

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| DNOs must provide a brief description of any permitting, licencing, registrations and permissions, etc related to the activities reported in this worksheet that you have purchased or obtained during the Regulatory Year. |
| 23 depot Environmental permits for the storage of >3000 litres of used transformer oil have been put in place in England. One installation permit for the storage of >1000 litres and associated waste activites has been put place in Wales April 2015 – Mar 2016. |

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| DNOs must include a description of any SF6 and Oil Pollution Mitigation Schemes undertaken in the Regulatory Year including the cost and benefit implications and how these were assessed. |
| SF6 - Installation of two new protection panels at Bridgewater 132kV, refurbishment of circuit breakers at Builth Wells.  Oil Pollution – various schemes including refurbishment and installation of transformer bunds, site investigations and drainage improvements. |

### E3 –BCF

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| **Allocation and estimation methodologies:** detail any estimations, allocations or apportionments to calculate the numbers submitted. |
| A number of aspects of the BCF (as detailed below) have been apportioned according to the following allocation;   * West Midlands 30% * East Midlands 30% * South Wales 15% * South West 25% |

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| **BCF reporting boundary and apportionment factor**  DNOs that are part of a larger corporate group must provide a brief introduction outlining the structure of the group, detailing which organisations are considered within the reporting boundary for the purpose of BCF reporting.  Any apportionment of emissions across a corporate group to the DNO business units must be explained and, where the method for apportionment differs from the method proposed in the worksheet guidance, justified. |
| As required, and stated in the RIGs, the organisational boundary for this business carbon footprint has been defined using the operational control approach. |

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| **BCF process**  The reporting methodology for BCF must be compliant with the principles of the Greenhouse Gas Protocol.[[1]](#footnote-1) Accounting approaches, inventory boundary and calculation methodology must be applied consistently over time. Where any processes are improved with time, DNOs should provide an explanation and assessment of the potential impact of the changes. |
| The methodology utilised within the report follows UK Carbon Reporting guidance as provided by Defra / DECC and is compliant with the principles of the ‘Greenhouse Gas Protocol’ and the 2015 Guidelines to Defra / DECC’s GHG Conversion Factors for Company Reporting.  In line with these principles the data presented aims to meet the following criteria to ensure its continued validity and authenticity.   * Relevant: the report and commentary remains reflective of the substance and economic reality of the company’s business relationships. * Complete: all relevant emission sources are included (although in practice lack of data or cost of gathering must be noted as a limiting factor). * Consistent: accounting approaches, inventory boundary and calculation methodology have been applied consistently over the reporting period. * Transparent: information on the processes, procedures, assumptions and limitations of the BCF reporting are disclosed in a clear, factual, neutral and understandable manner, enabling internal and external verifiers to attest to its credibility. * Accurate: GHG measurements, estimates or calculations should be systematically neither over nor under the actual emissions value, as far as can be judged, and that uncertainties be reduced as far as practicable.   The latest (2015) Defra GHG conversion factors have been used throughout  in the calculation of WPD's 2015 - 2016 BCF. The E3 reporting summary sheet of  Ofgem's RIGs requires a single GHG conversion factor to be reported for each DNO GHG emission activity. In some cases, however, more than one GHG conversion factor was used for each GHG emission activity (e.g. for business air travel conversion factors for domestic, international short haul and international long haul were used). In these instances, a weighted mean average of the conversion factors for each GHG emission activity was reported in the E3 summary sheet. These averaged conversion factors are for reporting purposes only and are not used for any part of WPD's BCF calculation. **See data table below;**  **Weighted mean average conversion factors as reported on Table E3**   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | **WPD Licence Area** | | | | | **BCF Aspect** | **W Midlands** | **E Midlands** | **S Wales** | **S West** | | **Building Energy Use** |  |  |  |  | | Building Electricity | 0.000474117 | 0.000486847 | 0.000523088 | 0.000498349 | | Building – Other fuels | 0.000184550 | 0.000184550 | 0.000184550 | 0.000184550 | | Substations | 0.000462190 | 0.000462190 | 0.000462190 | 0.000462190 | | **Operational Transport** |  |  |  |  | | Road | 0.001000000 | 0.001000000 | 0.002583900 | 0.002583900 | | Rail | - | - | - | - | | Sea | - | - | - | 0.000051361 | | Air | 0.002663036 | 0.002660089 | 0.002607850 | 0.002613346 | | **Business Transport** |  |  |  |  | | Road | 0.000314345 | 0.000628689 | 0.000311774 | 0.000319146 | | Rail | 0.000045057 | 0.000045057 | 0.000045057 | 0.000045057 | | Sea | 0.000019272 | 0.000019272 | 0.000019272 | 0.000019272 | | Air | 0.000108228 | 0.000108228 | 0.000108228 | 0.000108228 | | **Fugitive Emissions** |  |  |  |  | | SF6 | 22.80 | 22.80 | 22.80 | 22.80 | | **Fuel Combustion** |  |  |  |  | | Diesel | 0.001012346 | 0.002898180 | 0.002875349 | 0.002350379 | | Gas Natural | - | - | - | - | | Other | - | - | - | - | | **Losses** | 462.19 | 462.19 | 462.19 | 462.19 | | **Contractor data** | **W Midlands** | **E Midlands** | **S Wales** | **S West** | | **Operational Transport** |  |  |  |  | | Road | 0.000293416 | 0.000293416 | 0.000293416 | 0.000293416 | | **Fuel combustion** | - | - | - | - | | Diesel | 0.002908840 | 0.002908840 | 0.002908840 | 436,525.00 | | Natural Gas | 0.002033200 | 0.002033200 | - | - | | Other | 0.002433155 | 0.002460509 | 0.002167411 | 16,648.00 |   The data has been reviewed internally by the WPD Environment Team and independently verified by an external consultancy. |

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| **Commentary required for each category of BCF**  For **each** category of BCF in the worksheet (ie Business Energy Usage, Operation Transport etc) DNOs must, where applicable, provide a description of the following information, ideally at the same level of granularity as the Defra conversion factors:   * the methodology used to calculate the values, outlining and explaining any specific assumptions or deviations from the Greenhouse Gas Protocol * the data source and collection process * the source of the emission conversion factor (this shall be Defra unless there is a compelling case for using another conversion factor. Justification should be included for any deviation from Defra factors. ) * the Scope of the emissions ie, Scope 1, 2 or 3 * whether the emissions have been measured or estimated and, if estimated the assumptions used and a description of the degree of estimation * any decisions to exclude any sources of emissions, including any fugitive emissions which have not been calculated or estimated * any tools used in the calculation * where multiple conversion factors are required to calculate BCF (eg, due to use of both diesel and petrol vehicles), DNOs should describe their methodology in commentary * where multiple units are required for calculation of volumes in a given BCF category (eg, a mixture of mileage and fuel volume for transport), DNOs should describe their methodology in commentary, including the relevant physical units, eg miles.   DNOs may provide any other relevant information here on BCF, such as commentary on the change in BCF, and should ensure the baseline year for reference in any description of targets or changes in BCF is the Regulatory Year 2014-15. DNOs should make clear any differences in the commentary that relate to DNO and contractor emissions. |
| **BUILDING ENERGY USE (SCOPE 1 & 2)**  Energy use for the following sites; WPD Avonbank, WPD Pegasus, WPD Lamby Way and WPD Tipton have been apportioned according to the following allocations;   * West Midlands 30% * East Midlands 30% * South Wales 15% * South West 25%   **Summary Statements – Buildings Energy Use (Scope 1 & 2)**   |  |  |  | | --- | --- | --- | | **WPD West Midlands** | |  | | Buildings – Electricity | 2508.08 | tCO2e | | Buildings – Other Fuels | 19.13 | tCO2e | | Substations usage | 8139.07 | tCO2e | | **Total tCO2e** | **10666.28** | **tCO2e** | |  | |  | | **WPD East Midlands** | |  | | Buildings – Electricity | 2867.79 | tCO2e | | Buildings – Other Fuels | 126.89 | tCO2e | | Substations usage | 10322.48 | tCO2e | | **Total tCO2e** | **13317.16** | **tCO2e** | |  | |  | | **WPD South Wales** | |  | | Buildings – Electricity | 1715.34 | tCO2e | | Buildings – Other Fuels | 28.54 | tCO2e | | Substations usage | 4214.58 | tCO2e | | **Total tCO2e** | **5958.46** | **tCO2e** | |  | |  | | **WPD South West** | |  | | Buildings – Electricity | 3841.75 | tCO2e | | Buildings – Other Fuels | 18.54 | tCO2e | | Substations usage | 3113.15 | tCO2e | | **Total tCO2e** | **6973.44** | **tCO2e** |   Detailed data tables are provided below.    **Buildings – Electricity (Scope 2)**  The 2015/16 data presented is based upon actual SMART meter downloads from the WPD depots. Energy usage from all WPD SURF Telecom sites has been included in the 2015/16 Buildings – Electricity data (all regionalised).  The tCO2e is determined using the current 2015 Guidelines to Defra/DECC GHG Conversion Factors for Company Reporting, Electricity one year grid rolling average 0.46219  **Buildings - Other Fuel (Scope 1)**  **Gas Usage**  2015/16 total tCO2e gas use data presented is determined using the DEFRA Guidelines published conversion factor of 0.18455 (Gross CV)  **Diesel Usage**  Diesel is not currently used for Buildings Energy Use within the WPD regions.  **LPG Usage**  LPG is not currently used for Buildings Energy Use within WPD regions  **Substation Usage (Scope 2)**  Lowest unit price from estimated bills provided by the supplier have been used to calculate the number of units used. The tCO2e is determined using the current 2015 Guidelines to Defra/DECC GHG Conversion Factors for Company Reporting, Electricity one year grid rolling average 0.46219***.*** |

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| **OPERATIONAL TRANSPORT (Scope 2)**  The following allocations have been used for WPD fleet emissions and helicopter charter and testing emissions;   * West Midlands 30% * East Midlands 30% * South Wales 15% * South West 25%   **Summary Statements – Operational Transport**   |  |  |  | | --- | --- | --- | | **WPD West Midlands** | | | | Road | 5994.64 | **tCO2e** | | Rail | 0.00 | **tCO2e** | | Sea | 0.00 | **tCO2e** | | Air | 429.03 | **tCO2e** | | **Total** | **6423.67** | **tCO2e** | |  | | | | **WPD East Midlands** | | | | Road | 5619.40 | **tCO2e** | | Rail | 0.00 | **tCO2e** | | Sea | 0.00 | **tCO2e** | | Air | 438.97 | **tCO2e** | | **Total** | **6058.37** | **tCO2e** | |  | | | | **WPD South Wales** | | | | Road | 3975.10 | **tCO2e** | | Rail | 0.00 | **tCO2e** | | Sea | 0.00 | **tCO2e** | | Air | 378.09 | **tCO2e** | | **Total** | **4353.19** | **tCO2e** | |  | | | | **WPD South West** | | | | Road | 5346.19 | **tCO2e** | | Rail | 0.00 | **tCO2e** | | Sea | 2.4 | **tCO2e** | | Air | 584.88 | **tCO2e** | | **Total** | **5933.47** | **tCO2e** |   Detailed data tables are provided below.  **Operational Transport – Road**  Operational road transport emissions currently take into account the following contributions:   * DNO own operational fleet vehicles.   **Assumptions used in calculating operational transport road tCO2e**  Reliable data were available for fuel used in company vehicles and were therefore used in preference to estimating fuel use based on vehicle type  and distance travelled. Fuel use was obtained through procurement records of fuel for onsite fuel pumps and fuel card data of fuel purchased from offsite fuel stations.  WPD fleet data based on actual fuel data analysis (fuel cards and on-site pumps) provided by the Transport Manager.   |  |  |  |  | | --- | --- | --- | --- | | Type | Unit | Conversion Factor | tCO2e | | Diesel | Litres | 2.67614 |  | | Petrol | Litres | 2.1944 |  | | Diesel (bio-blend) | Litres | 2.5839 |  |   The current 2015 DECC/DEFRA published conversion factors have been used to calculate the tCO2e; Diesel (litres)2.67614; Petrol (unleaded) (litres)2.1944; Diesel (bio-blend) 2.5839.  Please note operational transport is now split between DNO and Contractors.  **Operational Transport – Rail**  There were no rail operational transport uses within the WPD area.  **Operational Transport – Sea**  Operational sea transportation is limited to the shipment of diesel fuel from the UK mainline to the Isles of Scilly. The tCO2e has been determined using the current 2015 DECC/DEFRA published conversion factor for Freighting Goods -General Cargo - Average kg CO2 / unit – 0.051361  **Operational Transport – Air**  Data is provided on the volume of aviation turbine fuel purchased and charged to each distribution licence area.  The current 2015 DECC/DEFRA published conversion factor for aviation turbine fuel 2.53885 Kg/litre has been used to calculate the tCO2e. (Expiry 31/05/15)   * WPD usage extracted from Consortium usage figures. * The helicopters are owned / operated by a consortium of Scottish & Southern, UKPN, Midlands, South West and Wales. They are also used for a small percentage of charter work. * Figures include ‘testing’ and charter hours |
| **BUSINESS TRANSPORT (SCOPE 3)**  The following allocations have been used for WPD Business Mileage;   * West Midlands 30% * East Midlands 30% * South Wales 15% * South West 25%   **Summary Statement – Business Transport**   |  |  |  | | --- | --- | --- | | **WPD West Midlands** | | | | Road | 1572.0 | tCO2e | | Rail | 6.19 | tCO2e | | Sea | 0.007 | tCO2e | | Air | 12.45 | tCO2e | | **Total** | **1590.65** | **tCO2e** | |  | | | | **WPD East Midlands** | | | | Road | 1572.0 | tCO2e | | Rail | 6.19 | tCO2e | | Sea | 0.007 | tCO2e | | Air | 12.45 | tCO2e | | **Total** | **1590.65** | **tCO2e** | |  | | | | **WPD South Wales** | | | | Road | 779.60 | tCO2e | | Rail | 3.10 | tCO2e | | Sea | 0.004 | tCO2e | | Air | 6.23 | tCO2e | | **Total** | **788.93** | **tCO2e** | |  | | | | **WPD South West** | | | | Road | 1330.0 | tCO2e | | Rail | 5.16 | tCO2e | | Sea | 0.006 | tCO2e | | Air | 10.38 | tCO2e | | **Total** | **1345.55** | **tCO2e** |   Detailed data tables are provided below.  **Business Transport – Road**  Total mileage data presented includes all business mileage from company cars and private cars used on business based on mileage claims processed by Payroll.  The data does not include employee travel to and from work.  **Assumptions used in calculating business transport road tCO2e**  The mileage claims system is unable to record fuel type for the miles claimed, however the latest Dept for Transport: Transport Statistics Great Britain 2015 state 36:64 diesel to petrol use.  The following conversion factors have therefore been used:  Passenger Road transport – Average Car (Diesel) 0.293416 /km kgCO2e  Passenger Road transport – Average Car (Petrol) 0.307803 /km kgCO2e  **Business Transport – Rail**  Rail travel information has been provided by the travel booking company from their internal system. The current published DECC/DEFRA conversion factor– National Rail – 0.45057 KgCO2 / km has been used for the period 1 April 2015 to 31 March 2016.  London Underground transport has not been included as journey distances are not recorded on tickets purchased.  **Business Transport – Sea**  **Assumptions (Sea)**  The current published DECC/DEFRA conversion factor– Ferry Car Passenger 0.019272 kg CO2 / km has been used for the period 1 April 2015 to 31 March 2016.  **Business Transport – Air**  Data has been provided by Insurance and from the internal restricted card booking System for the procurement of air travel.  **Assumptions (Air)**  For 2015/16 ‘Without RF’ conversion factors have been used to calculate business air travel emissions. Without RF factors include the distance uplift of 8% to compensate for planes not flying using the most direct route i.e. flying around international air space, stacking etc.  From the current published DECC/DEFRA guidance;  Domestic UK flights conversion factor - Average domestic (passenger km) – KgCO2e- 0.15757  Short Haul European flights conversion factor - Average passenger (passenger km) – KgCO2e- 0.08974  Long haul international conversion factor – Business Class (passenger km) KgCO2e – 0.10477 |
| **FUGITIVE EMISSIONS (Scope 1)**  **SF6 – Sulphur Hexafluoride**  For the purposes of this report only SF6 fugitive emissions for the regulatory year (Apr 15 – Mar 16) have been included. These have been calculated by actual known occasions of topping up of equipment.   |  |  |  | | --- | --- | --- | | Gas lost to environment | Apr 15 – Mar 16  (kg) | tCO2e | | WPD West Midlands | 163.58 | **3729.62** | | WPD East Midlands | 45.17 | **1029.88** | | WPD South Wales | 88.35 | **2014.38** | | WPD South West | 99.65 | **2272.02** |   Above calculations based upon the global warming potential (GWP) of SF6 = 22800 (i.e. 1kg of SF6 is equivalent to 22800kg of CO2) as per the current published DECC/DEFRA conversion factors.  Whilst the RIGs requirements prescribe the use of SF6 global warming potentials (GWP) provided in the most up to date version of Defra conversion factors, it should be noted that these are not the latest GWP available from the Intergovernmental Panel on Climate Change (IPCC). The latest (2013) IPCC GWP for SF6 is 23,500, whereas the SF6 GWP reported in the latest Defra conversion factors is 22,800."  Approximately 56% (65.6kg) of the total West Midlands weight of SF6 lost is attributable to one site – Walsall 132kv switching site, a further 23% (27kg) relates to two sites at Bustleholm 132kv National Grid Site and Boughton Road 132/11kv, Kitts Green.  **Fugitive Emissions – Gases Other**  Emission data for operating air conditioning units has been omitted due to the relatively small volumes of tCO2e emitted from the units in comparison with the effort required to collect and collate the data accurately. |
| **FUEL COMBUSTION (SCOPE 1 & 3)**  **Summary Statements – Fuel Combustion**   |  |  |  | | --- | --- | --- | | **WPD West Midlands** | |  | | **Gas Oil** | 632.36 | tCO2e | | **Natural Gas** | 0.00 | tCO2e | | **Fuels Other** | 0.00 | tCO2e | | **Total** | **632.36** | **tCO2e** | |  | |  | | **WPD East Midlands** | |  | | **Gas Oil** | 424.16 | tCO2e | | **Natural Gas** | 0.00 | tCO2e | | **Fuels Other** | 0.00 | tCO2e | | **Total** | **424.16** | **tCO2e** | |  |  |  | | **WPD South Wales** | |  | | **Gas Oil** | 386.81 | tCO2e | | **Natural Gas** | 0.00 | tCO2e | | **Fuels Other** | 0.00 | tCO2e | | **Total** | **386.81** | **tCO2e** | |  |  |  | | **WPD South West** | | | | **Gas Oil** | 843.25\* | tCO2e | | **Natural Gas** | 0.00 | tCO2e | | **Fuels Other** | 0.00 | tCO2e | | **Total** | **843.25** | **tCO2e** |   Detailed data tables are provided below.  **Gas Oil (red diesel) Combustion**  Information is taken from gas oil delivery records and ESP fuel purchase information. The current published DECC/DEFRA conversion factor– Gas Oil (red diesel) 2.90884 ltr CO2 / km has been used for the period 1 April 2015 to 31 March 2016.  **Natural Gas Combustion**  No natural gas usage has been reported April 2015 – March 2016  **LPG**  No LPG gas usage has been reported April 2015 – March 2016  Please note Fuel Combustion is now split between DNO and Contractors. |

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| **CONTRACTORS**  When reporting BCF emissions due to contractors in the second half of the worksheet please:   * Explain, and justify, the exclusion of any contractors and any thresholds used for exclusion. * Provide an indication of what proportion of contractors have been excluded. This figure could be calculated based on contract value.   Please provide a description of contractors’ certified schemes for BCF where a breakdown of the calculation for their submitted values is not provided in the worksheet.  If a DNO’s accredited contractor is unable to provide a breakdown of the calculation and has entered a dummy volume unit of ‘1’ in the worksheet please provide details of the applicable accredited certification scheme which applies to the reported values. |
| The main contractors operating on the network have been included in the submission; these consist of the dig and lay contractors, tree trimming contractors, Major Projects' contractors, generator contractors, asset recovery contractors, logistics / transport contractors and waste management contractors. The approach was based on operational nature of the work performed on behalf of WPD and size of contract value.  Smaller value and services contracts have not been included in the submission, details of the contractors included can be found behind the E3 Table.  In terms of carbon emissions the contractors currently included within the BCF account for approximately 75% of all associated contracted emissions.  Additional contractors, approximately 25%, are currently excluded based on less significant emissions, current practicalities of gathering data and current expenditure.  Contractor data for the following aspects has been collected for the Business Carbon Footprint;   * Operational Transport * Fuel Combustion   **Summary Contractor data**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | **tCO2e** | | | | | |  | **East Mids** | **West Mids** | **South Wales** | **South West** | **Total** | | **Operational Transport** | 4859.62 | 5792.38 | 3421.89 | 3237.60 | 17311.49 | | **Combustion** | 1468.72 | 1407.05 | 711.06 | 1212.10 | 4798.94 | | **Total** | 6328.34 | 7199.43 | 4132.95 | 4449.7 | 22110.43 |   Detailed tables are provided below |

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| **DETAILED TABLES** |
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EMISSIONS**  **WPD West Midlands:**  **Buildings - Summary Statement**   |  |  | | --- | --- | | **Summary – Buildings Energy Use WPD West Mid** | | | **Buildings – Electricity** | **2508.08** | | **Buildings – Other Fuels** | **0.00** | | **Substations usage** | **8139.07** | | **Total tCO2e** | **10647.15** |   **Buildings – Electricity**   |  |  | | --- | --- | | Summary Statement – Buildings Electricity Use | | | WPD West Midlands Buildings | tCO2e | | Stoke | 222.19 | | Tipton 30% | 297.09 | | Gloucester | 214.13 | | Warstock Road | 123.60 | | Hednesford | 44.27 | | Hereford | 102.17 | | Hereford garage | 101.94 | | Worcester | 274.89 | | Ludlow | 117.39 | | Telford | 136.85 | | Tipton Toll End | 166.13 | | Avonbank 30% | 212.51 | | Pegasus 30% | 264.54 | | Lamby Way 30% | 167.31 | | Plus Surf Telecom | 63.09 | | Total tCO2e | 2508.08 |   **Substation Usage**   |  |  | | --- | --- | | Summary – Buildings Energy Use –Substations West Mid | | | Substations usage kWh | 17,609,790.0 | | Total tCO2e | 8139.07 |   **WPD East Midlands (EM):**  **Buildings - Summary Statement**   |  |  | | --- | --- | | **Summary – Buildings Energy Use WPD EM** | | | **Buildings – Electricity** | **2867.79** | | **Buildings – Other Fuels** | **126.89** | | **Substations usage** | **10322.48** | | **Total tCO2e** | **13,317.16** |   **Buildings – Electricity**   |  |  | | --- | --- | | Summary Statement – Buildings Electricity Use | | | WPD EM Buildings | tCO2e | | Nottingham | 121.69 | | Grantham | 169.58 | | Grantham garage | 10.30 | | Lincoln | 149.32 | | Lincoln garage | 15.44 | | Alfreton garage | 17.01 | | Boston | 45.36 | | Chesterfield | 96.50 | | Derby | 118.55 | | Hinckley DC | 130.61 | | Pegasus 30% | 264.54 | | Huthwaite | 435.19 | | Spilsby | 11.12 | | Stamford | 23.66 | | Kettering | 141.91 | | Kettering garage | 11.10 | | Milton Keynes | 56.07 | | Coventry | 35.58 | | Northampton | 114.10 | | Northampton garage | 21.40 | | Leicester | 56.64 | | Avonbank 30% | 212.51 | | Tipton 30% | 297.09 | | Lamby Way 30% | 167.31 | | Surf Telecom | 145.24 | | Total tCO2e | 2867.79 |   **Buildings - Other Fuels**  Gas is currently used for Buildings Energy Use at the newly constructed depots in the WPD EM area.   |  |  | | --- | --- | | Summary Statement – Buildings Gas Use | | | WPD EM Buildings | tCO2e | | Nottingham | 18.71 | | Alfreton | 22.43 | | Swadlincote | 8.49 | | Coventry | 4.52 | | Grantham | 30.55 | | Lincoln | 29.18 | | Milton Keynes | 13.00 | | Total tCO2e | 126.89 |   **Substation Usage**   |  |  | | --- | --- | | Summary – Buildings Energy Use –Substations EM | | | Substations usage kWh | 22,333,839.00 | | Total tCO2e | 10,322.48 |   **WPD South Wales:**  **Building - Summary Statement**   |  |  | | --- | --- | | **Summary** | | | **Buildings – Electricity** | **1715.34** | | **Buildings – Other Fuels** | **28.54** | | **Substations usage** | **4214.58** | | **Total tCO2e** | **5958.46** |   **Buildings – Electricity**   |  |  | | --- | --- | | Summary Statement – Buildings Electricity Use | | | WPD Wales Office | tCO2e | | Brackla | 35.39 | | Brecon | 85.52 | | Church Village | 274.93 | | Clydach | 13.65 | | Ffynnon Menter | 149.80 | | Lamby 15% | 83.65 | | Llandrindod Wells | 9.79 | | Llanfihangel-ar-arth | 134.39 | | Merthyr Tydfil | 40.56 | | Ty Coch | 170.41 | | Withybush | 130.49 | | Avonbank 15% | 106.25 | | Pegasus 15% | 132.27 | | Tipton 15% | 148.54 | | Surf Telecom | 199.70 | | Total tCO2e | 1715.34 |   **Buildings - Other Fuels**  **Gas Usage**   |  |  | | --- | --- | | WPD Wales Office Gas |  | | Brackla | 1.81 | | Ffynnon Menter | 26.73 | | Total tCO2e | 28.54 |   **Substation Usage**   |  |  | | --- | --- | | Summary – Buildings Energy Use –Substations | | | Substations usage kWh | 9,118,723.00 | | Total tCO2e | 4214.58 |   **WPD South West:**  **Summary Statement**   |  |  | | --- | --- | | **Summary** | | | **Buildings – Electricity** | **3787.09** | | **Buildings – Other Fuels** | **0.00** | | **Substations usage** | **3113.15** | | **Total tCO2e** | **6900.24** |   **Buildings – Electricity**   |  |  | | --- | --- | | Summary Statement – Buildings Electricity Use | | | WPD South West Office | tCO2e | | Avonbank 25% | 177.09 | | Barnstaple | 143.12 | | Barnstaple garage | 30.90 | | Bideford | 1.94 | | Bodmin | 242.69 | | Bristol Airport | 0.00 | | Bude | 21.81 | | Crewkerne | 56.18 | | Exeter | 555.09 | | Exeter Moor Lane | 44.10 | | Falmouth | 3.07 | | Isles of Scilly | 113.25 | | Liskeard (Trevecca) | 13.35 | | Midsomer Norton | 150.06 | | Pool | 162.04 | | Plymouth | 485.86 | | Tavistock | 8.67 | | Taunton | 431.67 | | Taunton garage | 9.99 | | Dunkeswell | 18.34 | | Torquay | 82.58 | | Torr Quarry | 6.18 | | Weston-Super-Mare | 164.64 | | Pegasus 25% | 220.45 | | Tipton 25% | 247.57 | | Lamby Way 25% | 139.42 | | Surf Telecom | 278.75 | | Total tCO2e | 3808.81 |   **Buildings - Other Fuels (Scope 1)**   |  |  | | --- | --- | | Summary Statement – Buildings Gas Use | | | WPD South West Office | tCO2e | | Weston-Super-Mare | 0.00 | | Total tCO2e | 0.00 |   **Substation Usage**   |  |  | | --- | --- | | Summary – Buildings Energy Use – Substations SW | | | Substations usage kWh | 6,735,650.00 | | Total tCO2e | 3113.15 |   **OPERATIONAL TRANSPORT**  **WPD West Midlands WM:**  **Summary Statement**   |  |  |  | | --- | --- | --- | | **Summary – Operational Transport WPD WM** | | | | **Road** | **5994.64** | **tCO2e** | | **Rail** | **0.00** | **tCO2e** | | **Sea** | **0.00** | **tCO2e** | | **Air** | **429.07** | **tCO2e** | | **Total** | **6423.71** | **tCO2e** |   **Operational Transport – Road**   |  |  | | --- | --- | | **Summary Statement - Operational Transport (Road)** | | |  | **tCO2e** | | WPD Diesel | 5053.13 | | WPD Petrol | 19.90 | | WPD Fuel card | 921.62 | | Contractors | 5694.69 | | **TOTAL** | **11,689.33** |   **Operational Transport – Air**  **West Midlands Helicopters**   |  |  |  |  | | --- | --- | --- | --- | | **Litres of fuel used** | **tCO2e** | **Test and Charter tCO2e** | **Total tCO2e** | | 161,106.00 | 409.02 | 20.05 | **429.07** |   **WPD East Midlands (EM):**  **Summary Statement**   |  |  |  | | --- | --- | --- | | **Summary – Operational Transport WPD EM** | | | | **Road** | **5619.40** | **tCO2e** | | **Rail** | **0.00** | **tCO2e** | | **Sea** | **0.00** | **tCO2e** | | **Air** | **439.01** | **tCO2e** | | **Total** | **6058.41** | **tCO2e** |   **Operational Transport – Road**   |  |  | | --- | --- | | **Summary Statement - Operational Transport (Road)** | | |  | **tCO2e** | | WPD Diesel | 4712.85 | | WPD Petrol | 23.44 | | WPD Fuel card | 883.10 | | Contractors | 4715.14 | | **Total tCO2e** | **10334.53** |   **Operational Transport – Air**  **East Midlands Helicopters**   |  |  |  |  | | --- | --- | --- | --- | | **Litres of fuel used** | **tCO2e** | **Test and Charter tCO2e** | **Total tCO2e** | | 165,022 | 418.97 | 20.05 | **439.01** |   **WPD South Wales Area:**  **Summary Statement**   |  |  |  | | --- | --- | --- | | **Summary** | | | | **Road** | **3975.10** | **tCO2e** | | **Rail** | **0.00** | **tCO2e** | | **Sea** | **0.00** | **tCO2e** | | **Air** | **378.11** | **tCO2e** | | **Total** |  | **tCO2e** |   **Operational Transport – Road**   |  |  | | --- | --- | | **Summary Statement Operational Transport - Road** | | |  | **tCO2e** | | WPD Diesel | **3892.94** | | WPD Petrol | **10.21** | | WPD Fuel card | **71.95** | | Contractors | 3374.43 | | **Total tCO2e** | **7349.53** |   **Operational Transport – Air**  **South Wales Helicopters**   |  |  |  |  | | --- | --- | --- | --- | | **Litres of fuel used** | **tCO2e** | **Test and Charter tCO2e** | **Total tCO2e** | | 144,980 | 368.08 | 10.02 | **378.11** |   **WPD South West Area:**  **Summary Statement**   |  |  |  | | --- | --- | --- | | **Summary** | | | | **Road** | **5289.95** | **tCO2e** | | **Rail** | **0.00** | **tCO2e** | | **Sea** | **0.24** | **tCO2e** | | **Air** | **584.91** | **tCO2e** | | **Total** | **5875.10** | **tCO2e** |   **Operational Transport – Road**   |  |  | | --- | --- | | **Summary Statement Operational Transport - Road** | | |  | **tCO2e** | | WPD Diesel | **5121.85** | | WPD Petrol | **26.59** | | WPD Fuel card | **141.51** | | Contractors | **3285.06** | | **Total tCO2e** | **8575.01** |   **Operational Transport – Sea**   |  |  | | --- | --- | | **South West Summary Statement – Sea** | | | **Total Distance (km)** | **Total tCO2e** | | 4672.8 | **0.24** |   **Operational Transport – Air**  **South West Helicopters**   |  |  |  |  | | --- | --- | --- | --- | | **Litres of fuel used** | **tCO2e** | **Test and Charter tCO2e** | **Total tCO2e** | | 223,806 | 568.21 | 16.70 | **584.91** |   **BUSINESS TRANSPORT**  **WPD West Midlands:**  **Summary Statement**   |  |  |  | | --- | --- | --- | | **Summary – Business Transport WPD WM** | | | | **Road** | **1710.70** | **tCO2e** | | **Rail** | **6.19** | **tCO2e** | | **Sea** | **0.007** | **tCO2e** | | **Air** | **12.45** | **tCO2e** | | **Total – Business Transport** | **1728.96** | **tCO2e** |   **Business Transport – Road**   |  |  | | --- | --- | | **WM Summary Statement – Road** | | | Total WPD diesel km | 1,965,323.91 | | Total WPD diesel CO2e | 576.7 | | Total WPD petrol km | 3,493,909.71 | | Total WPD petrol CO2e | 1075.40 | | Hire Car usage tCO2e | 58.6 | | **Total tCO2e** | **1710.70** |   **Business Transport – Rail**   |  |  |  | | --- | --- | --- | | **Business Transport – Rail WPD WM** | | **tCO2e** | | Rail km travelled | 137 446 | **6.19** | |  | |  |   **Business Transport – Sea**   |  |  |  | | --- | --- | --- | | **Business Transport – Sea WPD WM** | | **tCO2e** | | Sea km travelled | 376.92 | **0.007** | |  | |  |   **Business Transport – Air**   |  |  |  | | --- | --- | --- | |  | **Total Distance travelled (km)** | **tCO2e** | | Domestic Flights | 13184.7 | 2.08 | | Short Haul | 19845.9 | 1.78 | | Long Haul | 82039.8 | 8.60 | | **Total tCO2e** |  | **12.45** |   **WPD East Midlands:**  **Summary Statement**   |  |  |  | | --- | --- | --- | | **Summary – Business Transport WPD EM** | | | | **Road** | 1710.70 | **tCO2e** | | **Rail** | 6.19 | **tCO2e** | | **Sea** | 0.007 | **tCO2e** | | **Air** | 12.45 | **tCO2e** | | **Total – Business Transport** | 1728.96 | **tCO2e** |   **Business Transport – Road**   |  |  | | --- | --- | | **EM Summary Statement – Road** | | | Total WPD diesel km | 1,965,323.91 | | Total WPD diesel CO2e | 576.7 | | Total WPD petrol km | 3,493,909.71 | | Total WPD petrol CO2e | 1075.40 | | Hire Car usage tCO2e | 58.6 | | **Total tCO2e** | 1710.70 |   **Business Transport – Rail**   |  |  |  | | --- | --- | --- | | **Business Transport – Rail WPD EM** | | **tCO2e** | | Rail km travelled | 137 466 | 6.19 | |  | |  |   **Business Transport – Sea**   |  |  |  | | --- | --- | --- | | **Business Transport – Sea WPD EM** | | **tCO2e** | | Sea km travelled | 376.92 | 0.007 | |  | |  |   **Business Transport – Air**   |  |  |  | | --- | --- | --- | |  | **Total Distance travelled (km)** | **tCO2e** | | Domestic Flights | 13184.7 | 2.08 | | Short Haul | 19845.9 | 1.78 | | Long Haul | 82039.8 | 8.60 | | **Total tCO2e** |  | **12.45** |   **WPD South Wales:**  **Summary Statement**   |  |  |  | | --- | --- | --- | | **Summary** | | | | **Road** | **871.90** | **tCO2e** | | **Rail** | **3.10** | **tCO2e** | | **Sea** | **0.004** | **tCO2e** | | **Air** | **6.23** | **tCO2e** | | **Total** | **881.03** | **tCO2e** |   **Business Transport – Road**   |  |  | | --- | --- | | **S Wales Summary Statement – Road** | | | Total WPD diesel km | 982,661.95 | | Total WPD diesel CO2e | 288.3 | | Total WPD petrol km | 1,746,954.59 | | Total WPD petrol CO2e | 537.7 | | Hire Car usage tCO2e | 45.9 | | **Total tCO2e** | **871.90** |   **Business Transport – Rail**   |  |  |  | | --- | --- | --- | | **Business Transport – Rail WPD South Wales** | | **tCO2e** | | Rail km travelled | 68733 | **3.10** | |  | |  |   **Business Transport – Sea**   |  |  |  | | --- | --- | --- | | **Business Transport – Sea WPD South Wales** | | **tCO2e** | | Sea km travelled | 188.46 | **0.004** | |  | |  |   **Business Transport – Air**   |  |  |  | | --- | --- | --- | | **South Wales** | **Total Distance travelled (km)** | **tCO2e** | | Domestic Flights | 6592.4 | 1.04 | | Short Haul | 9922.95 | 0.89 | | Long Haul | 41019.9 | 4.30 | | **Total** |  | **6.23** |   **WPD South West:**  **Summary Statement**   |  |  |  | | --- | --- | --- | | **Summary** | | | | **Road** | **1445.6** | **tCO2e** | | **Rail** | **5.16** | **tCO2e** | | **Sea** | **0.006** | **tCO2e** | | **Air** | **10.38** | **tCO2e** | | **Total – Business Transport** | **1460.82** | **tCO2e** |   **Business Transport – Road**   |  |  | | --- | --- | | **SW Summary Statement – Road** | | | Total WPD diesel km | 1,637,769.92 | | Total WPD diesel CO2e | 480.5 | | Total WPD petrol km | 2,911,590.98 | | Total WPD petrol CO2e | 896.2 | | Hire Car usage tCO2e | 68.9 | | **Total tCO2e** | **1445.6** |   **Business Transport – Rail**   |  |  |  | | --- | --- | --- | | **Business Transport – Rail WPD South West** | | **tCO2e** | | Rail km travelled | 114555.2 | **5.16** | |  | |  |   **Business Transport – Sea**   |  |  |  | | --- | --- | --- | | **Business Transport – Sea WPD South West** | | **tCO2e** | | Sea km travelled | 314.1 | **0.006** | |  | |  |   **Business Transport – Air**   |  |  |  | | --- | --- | --- | | **South West** | **Total Distance travelled (km)** | **tCO2e** | | Domestic Flights | 10987.3 | 1.73 | | Short Haul | 16538.25 | 1.48 | | Long Haul | 68366.5 | 7.16 | | **Total** |  | **10.38** |   **FUGITIVE EMISSIONS**  **SF6 – Sulphur Hexafluoride**   |  |  |  | | --- | --- | --- | | **SF6 lost to environment** | Apr 11 – Mar 12 (kg) | tCO2e | | WPD WM Area | 163.58 | **3729.62** | |  |  |  | | WPD EM Area | 45.17 | **1029.88** | |  |  |  | | WPD South Wales | 88.35 | **2014.38** | |  |  |  | | WPD South West | 99.65 | **2272.02** | |  |  |  |   **FUEL COMBUSTION**  **WPD West Midlands:**  **Summary Statement**   |  |  |  | | --- | --- | --- | | **Summary – Fuel Combustion WPD West Midlands** | | | |  | **WPD WM** | **Contractors** | | **Gas Oil (red diesel)** | **582.76** | **1502.82** | | **Natural Gas (LPG)** | **0.00** | **18.81** | | **Fuels Other** | **0.00** | **14.25** | | **Total** | **582.76** | **1535.88** |   **Gas Oil Combustion**   |  |  |  | | --- | --- | --- | | Gas Oil (red diesel) Combustion | | | |  | Litres Used | tCO2e | | WPD WM area | 217,761 | 582.76 | | Contractors | 516639.35 | 1502.82 | | Total | 734400.35 | 2085.58 |   **Natural Gas (LPG)**   |  |  |  | | --- | --- | --- | | Natural Gas Combustion | | | |  | Litres Used | tCO2e | | WPD WM area | 0.00 | 0.00 | | Contractors | 9251.54 | 18.81 | | Total | 9251.54 | 18.81 |   **Fuels Other (Kerosene and petrol)**   |  |  |  | | --- | --- | --- | | Fuels Other Combustion | | | |  | Litres Used | tCO2e | | WPD WM area | 0.00 | 0.00 | | Contractors | 5855.93 | 14.25 | | Total | 5855.93 | 14.25 |   **WPD East Midlands:**  **Summary Statement**   |  |  |  | | --- | --- | --- | | **Summary – Fuel Combustion WPD East Midlands** | | | |  | **WPD EM** | **Contractors** | | **Gas Oil (red diesel)** | **424.16** | **1518.15** | | **Natural Gas (LPG)** | **0.00** | **75.24** | | **Fuels Other** | **0.00** | **19.91** | | **Total** | **424.16** | **1613.3** |   **Diesel Combustion**   |  |  |  | | --- | --- | --- | | Gas Oil (red diesel) Combustion | | | |  | Litres Used | tCO2e | | WPD EM area | 146,352.69 | 424.16 | | Contractors | 521910.28 | 1518.15 | | Total | 668262.97 | 1942.31 |   **Natural Gas (LPG)**   |  |  |  | | --- | --- | --- | | Natural Gas Combustion | | | |  | Litres Used | tCO2e | | WPD WM area | 0.00 | 0.00 | | Contractors | 37006.16 | 75.24 | | Total | 37006.16 | 75.24 |   **Other Fuels (Kerosene and petrol)**   |  |  |  | | --- | --- | --- | | Fuels Other Combustion | | | |  | Litres Used | tCO2e | | WPD EM area | 0.00 | 0.00 | | Contractors | 8090.56 | 19.91 | | Total | 8090.56 | 19.91 |   **WPD South Wales:**  **Summary Statement**   |  |  |  | | --- | --- | --- | | **Summary – Fuel Combustion WPD South Wales** | | | |  | **WPD S Wales** | **Contractors** | | **Gas Oil (red diesel)** | **386.81** | **727.13** | | **Natural Gas (LPG)** | **0.00** | **0.00** | | **Fuels Other** | **0.00** | **37.93** | | **Total** | **386.81** | **765.06** |   **Diesel Combustion**   |  |  |  | | --- | --- | --- | | Gas Oil (red diesel) Combustion | | | |  | Litres Used | tCO2e | | WPD S Wales area | 134,525.32 | 386.81 | | Contractors | 249972.00 | 727.13 | | Total | 384497.32 | **1113.94** |   **Natural Gas (LPG)**   |  |  |  | | --- | --- | --- | | Natural Gas Combustion | | | |  | Litres Used | tCO2e | | WPD S Wales area | 0.00 | 0.00 | | Contractors | 0.00 | 0.00 | | Total | 0.00 | 0.00 |   **Other Fuels (Kerosene and petrol)**   |  |  |  | | --- | --- | --- | | Fuels Other Combustion | | | |  | Litres Used | tCO2e | | WPD S Wales area | 0.00 | 0.00 | | Contractors | 17501.17 | 37.93 | | Total | 17501.17 | 37.93 |   **WPD South West:**  **Summary Statement**   |  |  |  | | --- | --- | --- | | **Summary – Fuel Combustion WPD South West** | | | |  | **WPD S West** | **Contractors** | | **Gas Oil (red diesel)** | **851.16** | **1269.78** | | **Natural Gas (LPG)** | **0.00** | **0.00** | | **Fuels Other** | **0.00** | **36.53** | | **Total** | **851.16** | **1306.31** |   **Diesel Combustion**   |  |  |  | | --- | --- | --- | | Gas Oil (red diesel) Combustion | | | |  | Litres Used | tCO2e | | WPD S West area | 260,277.86 | 756.42 | | WPD Scilly Isles fuel | 101859 | 94.74 | | Contractors | 436525.00 | 1269.78 | | Total | **798661.86** | **2028.61** |   **Natural Gas (LPG)**   |  |  |  | | --- | --- | --- | | Natural Gas Combustion | | | |  | Litres Used | tCO2e | | WPD WM area | 0.00 | 0.00 | | Contractors | 0.00 | 0.00 | | Total | 0.00 | 0.00 |   **Other Fuels (Kerosene and petrol)**   |  |  |  | | --- | --- | --- | | Fuels Other Combustion | | | |  | Litres Used | tCO2e | | WPD WM area | 0.00 | 0.00 | | Contractors | 16648.00 | 36.53 | | Total | 16648.00 | 36.53 | | |

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| **Building energy usage**  Natural gas, Diesel and other fuels are all categorised as fuel combustion and must be converted to tCO2e on either a Gross Calorific Value (Gross CV) or Net Calorific Value (Net CV) basis. The chosen approach should be explained, including whether it has been adapted over time.  Substation Electricity must be captured under Buildings Energy Usage. Please explain the basis on which energy supplied has been assessed. |
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### E4 – Losses Snapshot

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| **Allocation and estimation methodologies:** detail any estimations, allocations or apportionments to calculate the numbers submitted. |
| Cable volumes are reported from stores bookings to the South West/South Wales and East Midlands/West Midlands stores. They have been allocated to individual DNO licence areas based on the total asset length in each licence area.  To calculate the volume of cable which was uprated, the usage before the change was compared to the usage after the change. Reduced usage of small size assets was attributed to the change in policy. |

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| **Programme/Project Title**  Please provide a brief summary and rationale for each of the activities in column C which you have reported against. |
| The cable items in column C all relate to the uprating of cables at the time of installation. At this stage the additional cost of the cable is minimal compared to the overall cost of installation.  The transformer items in column C follow the same logic with the exclusion of “pre-1958 transformers”. |

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| **Primary driver of activity**  If, in column E, you have selected ‘Other’ as the primary driver of the activity, please provide further explanation. |
| Other is the primary driver for all activities except “pre 1958 transformers” as the uprating of cables and transformers is not specifically attributed to reinforcement or replacement. The “pre 1958 transformers” item is shown as equipment to manage loss as the units are being replaced for the sole reason of loss reduction. |

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| **Baseline Scenario**  Please provide a brief description of the ‘Baseline Scenario’ inputted in column K for each activity. |
| WPD’s Losses CBAs were constructed using a nil cost baseline scenario, with the Options constructed using incremental costs e.g. purchase price of larger asset. As the unit costs within the CBA should be used to populate table E4, both the Estimated unit cost of the activity in Column J and the Estimated Distribution Losses-Justified Cost have been populated with the incremental unit costs of the included programmes. For the same reason, there is nil cost in the Avoided DNO costs over ‘Baseline Scenario’ in column AV.  CBAs were prepared on a WPD company wide basis, rather than specific to licence areas. This does not impact the unit costs entered into table E4, however this should be taken into consideration in relation to the data entered in the RIIO-ED1 CBA Tool summary from columns AT onwards. |

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| **Use of the RIIO-ED1 CBA Tool**  DNOs should use the latest version of the RIIO-ED1 CBA Tool for each of the activities reported in column C. Where the RIIO-ED1 CBA Tool cannot be used to justify an activity, DNOs should explain why and provide evidence for how they have derived the equivalent figures for the worksheet. The most up-to-date CBA for each activity reported in the Regulatory Year under report must be submitted. |
| CBA tool used |

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| **Changes to CBAs**  If, following an update to the CBA used to originally justify the activity in column C, the updated CBA shows:   * a negative net benefit for an activity, but the DNO decides it is in the best interests of consumers to continue the activity, or * a substantively different NPV from that used to justify an activity that has already begun.   the DNO should include an explanation of what has changed and why the DNO is continuing the activity.  For example, where the carbon price used in the RIIO-ED1 CBA Tool has changed from that used to inform the decision such that the activity no longer has a positive NPV. |
| n/a |

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| **Cost benefit analysis additional information**  Please include a reference to the file name and location of any additional relevant evidence submitted to support the costs and benefits inputted into this worksheet. This should include the most recent CBA for each activity reported in column C in the Regulatory Year under report. |
| n/a |

### E5 – Smart Metering

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| **Allocation and estimation methodologies:** detail any estimations, allocations or apportionments to calculate the numbers submitted. |
| Many of the Smart Metering benefits will not be realised until a significant number of smart meters are installed.  Avoided Loses to Network Operators will not be realised until time of use tariffs have been introduced to change customer behaviour. The reduction in CML derived from “last gasp” reporting and reduction in calls to fault lines will not be realised until SMETS2 meters are rolled out in significant volumes. |

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| **Actions to deliver benefits**  Detail what activities have been undertaken in the relevant regulatory year to produce benefits of smart metering where efficient and maximise benefits overall to consumers. At a minimum this should include:   * A description of what the expenditure reported under Smart Meter Information Technology Costs is being used to procure and how it expects this to deliver benefits for consumers. * A description of the benefits expected from the non-elective data procured as part of the Smart Meter Communication Licensee Costs. The DNO should set out how it has used this data. * A description of the Elective Communication Services being procured, how it has used these services, and a description of the benefits the DNO expects to achieve. |
| None. |

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| **Calculation of benefits**  Explain how the benefits have been calculated, including all assumptions used and details of the counterfactual scenario against which the benefits are calculated. |
| n/a |

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| **Use of the RIIO-ED1 CBA Tool**  DNOs should use the latest version of the RIIO-ED1 CBA Tool for each solution reported in the worksheet in the Regulatory Year under report. Where the RIIO-ED1 CBA Tool cannot be used to justify a solution, DNOs should explain why and provide evidence for how they have derived the equivalent figures for the worksheet. The most up-to-date CBA for each activity reported in the Regulatory Year under report which are used to complete the worksheet must be submitted. |
| n/a |

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| **Cost benefit analysis additional information**  Please include a reference to the file name and location of any additional relevant evidence submitted to support the costs and benefits inputted into this worksheet. This should include the most recent CBA for each solution reported in the Regulatory Year under report. |
| n/a |

### E6 – Innovative Solutions

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| **Allocation and estimation methodologies:** detail any estimations, allocations or apportionments to calculate the numbers submitted. |
| **Costs** **column W** - Total costs incurred on accepted and completed alternative connection schemes with15/16 regulatory period. These have been split by DNO upstream DUOS costs and the customer sole use and customer re-enforcement contribution costs.  **MVA released column BV** - Total MVA capacity made available through accepted and completed alternative connection schemes that have incurred costs with15/16 regulatory period.  **Estimated Gross Avoided Costs column DA** – Total MVA released from column BV multiplied by the calculated avoided costs for each option from the Alternative Connections CBA. |

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| **General**  For each of the solutions please explain:   * In detail what the solution is, linking to external documents where necessary. * How this is being used, and how it is delivering benefits. * What the volume unit is and what you have counted as a single unit. * How each of the impacts have been calculated, including what assumptions have been relied upon. |
| **Alternative Connection Offers -** within the 2015-16 period WPD offered 3 types of Alternative Connection options, these can benefit generation customers where a conventional firm offer would prove financially unviable in areas where high levels of network re-enforcement are required.  These 3 alternative options include;   * **Active Network Management** - connection offered on the basis that the generator will join a 'last in first out' queue for forced curtailment at times of peak constraint. * **Soft Intertrip** - connection offered on the basis that the generator will be forced offline at times of peak constraint * **Timed** - connection offered on the basis that the generator will only operate within a fixed time period.   More detail can be found at <http://www.westernpower.co.uk/Connections/Generation/Alternative-Connections.aspx>  **Units** – cost per MVA made available to customers has been used for all three options and the baseline scenario. A single unit is 1MVA. |

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| **Use of the RIIO-ED1 CBA Tool**  DNOs should use the latest version of the RIIO-ED1 CBA Tool for each solution reported in the Regulatory Year under report. Where the RIIO-ED1 CBA Tool cannot be used to justify a solution, DNOs should explain why and provide evidence for how they have derived the equivalent figures for the worksheet. The most up-to-date CBA for each solution reported in the Regulatory Year under report which are used to complete the worksheet must be submitted. |
| n/a |

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| **Changes to CBAs**  If, following an update to the CBA used to originally justify the activity in column C, the updated CBA shows a negative net benefit for an activity, but the DNO decides it is in the best interests of consumers to continue the activity, the DNO should include an explanation of what has changed and why the DNO is continuing the activity. |
| n/a |

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| **Calculation of benefits**  Explain how the benefits have been calculated, including all assumptions used and details of the counterfactual scenario against which the benefits are calculated. |
| **Scenario** – alternative connections can be applied for across the entirety of WPDs networks and cost savings per MVA can widely vary dependent upon the constraints at the local BSP/GSP. To estimate the cost per MVA we have used 3 known BSP/GSP zones where re-enforcement costs are already known and averaged these to provide a reasonable estimate.  **Workings Baseline column F** - Approximate costs of firm work does not include s/gear costs as these are a requirement for all connections regardless of MVA connecting or whether connection is firm or alternative.  **Workings Sheets 1-3 column F** - Approximate costs of alternative work does not include s/gear costs as these are a requirement for all connections regardless of MVA connecting or whether connection is firm or alternative.  **Workings Sheets 1-3 column J** - Assumed 5MVA per connection application.  **Workings Sheets 1-3 columns H & I** - For the purposes of this CBA we have not implemented the £200/kW rule for cost apportioned reinforcement. Average 90/10 apportionment used.  **Workings Option 1 column K & L** – sole user and annual user costs taken from charging methodology document for each ANM Zone. |

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| **Cost benefit analysis additional information**  Please include a reference to the file name and location of any additional relevant evidence submitted to support the costs and benefits inputted into this worksheet. This should include the most recent CBA for each solution reported in the Regulatory Year under report. |
| **Supporting Documents:**  2015-16 Alternative Connections CBA  Bridgwater ANM Charging Methodology  Corby ANM Charging Methodology  Skegness ANM Charging Methodology  Constrained Connections Information Request spreadsheet 270516 Final |

### E7 – LCTs

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| **Allocation and estimation methodologies:** detail any estimations, allocations or apportionments to calculate the numbers submitted. |
| Heatpumps – This dataset has been collated using the aggregated data publically released by Ofgem under the domestic RHI. The non-domestic RHI for ASHPs and GSPs did not provide sufficient detail to determine location. The volumes are insignificant though.  Electric Vehicles – this dataset has been collated using the electric vehicles notification process under the IET Code of Practice and referenced in OLEVs guidance for installers. It includes only details of EV charge points notified directly to WPD or through the ENA. Slow charge has assumed rates of 16A/phase and below. Fast charge encompasses anything above 16A/phase  G83 PVs Non-PV G83s and G59 generation has been collated using the standard reporting methodologies. |

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| **LCT – Processes used to report data**  (i) Please explain processes used to calculate or estimate the number and size of each type of LCT.  (ii) If any assumptions have been made in calculating or estimating either of these values, these must be noted and explained. |
| For Heatpumps, the Ofgem RHI domestic data has been used to calculate the installation volumes and capacity.  Location of heat pumps has been broadly matched using the council regions compared to WPD’s regulatory patches.  Electric Vehicles are notified to us on a per MPAN basis, and full installation details are provided. This has been used to calculate the installation volumes and capacity.  G83 PVs Non-PV G83s and G59 generation has been collated using the standard reporting methodologies. |

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| **LCT - Uptake**  Please explain how the level of LCT uptake experienced compares to the forecast in your RIIO-ED1 Business Plan and the DECC low carbon scenarios. This must also include any expectation of changes in the trajectory for each LCT over the next Regulatory Year in comparison to actuals to date. |
| LCT uptake compares well with the exception of PV installations. Our expectation was that the reduction in the Feed In Tariff would supress the rates of installation but this has not been seen. The current level of uncertainty with regard to future links to the EU and the possibility of non-EU trade agreements allowing cheaper PV panels to be used within the UK will all place into doubt future forecasts. |

1. [Greenhouse gas protocol](http://www.ghgprotocol.org/) [↑](#footnote-ref-1)