

2012 Business Carbon Footprint (BCF) Report Commentary & Methodology

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**UTILITY OF
THE YEAR**



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Introduction

This report and commentary presents the Business Carbon Footprint (BCF) for UK Power Networks in accordance with Ofgem guidelines. UK Power Networks has been working for a number of years to reduce the environmental impact of our network and associated operations including the impact from our contractors. We have set our long term targets for our Business Carbon footprint and the wider sustainability agenda and will share these in an open and consultative way with our stakeholders.

About UK Power Networks

UK Power Networks is owned by the Cheung Kong Group (CKG). Operating in 54 countries, the company employs more than 240,000 people worldwide. CKG has a proven pedigree in running high-quality utility companies and a track record of wise investment and long-term plans. It successfully operates electricity distribution businesses serving communities in Hong Kong, Australia and New Zealand.

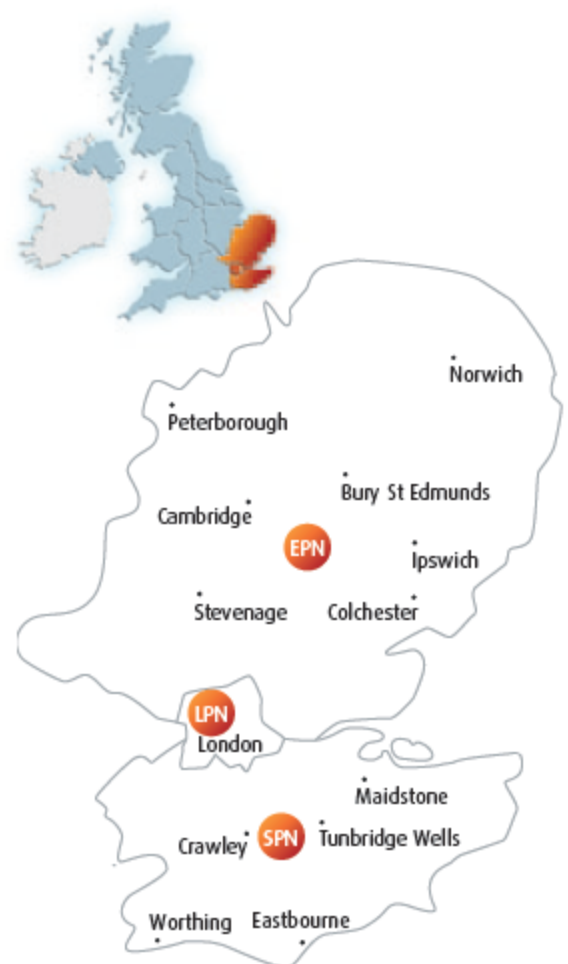
We are one of the largest Distribution Network Operators (DNOs) in the UK, covering more than 29,000 square kilometres from The Wash in the East to the River Arun on the South Coast. Approximately eight million connected customers depend on us for their power.

Our job is to deliver electricity to our customers safely, to 'keep the lights on' and to connect new customers.

UK Power Networks operate and manage three distribution networks bringing electricity to your door. Our networks distribute electricity using over 170,000 kilometres of underground cables and overhead lines and more than 130,000 substations.

We are responsible for maintaining and modernising our networks and ensuring that there is adequate capacity to support the needs of our customers. We have an important part to play in supporting the Government's move to a low carbon economy. The energy industry is facing considerable challenges to meet increasing demand. We are helping accommodate the new low carbon technologies such as electric vehicles and heat pumps by ensuring they integrate effectively and efficiently with our network, while planning for the rollout of smart meters.

This report covers our licensed distribution networks; East of England (EPN), London (LPN) and the South East (SPN).



About this Report

The following commentary details the processes used to calculate the BCF for UK Power Networks. All data in this commentary that is indicated with a yellow box as shown in the example below corresponds with the completed summary tables returned to Ofgem.

Example:

1.079

All data provided is for the Calendar reporting year (January 2012 to December 2012) unless stated otherwise. In all calculations the latest Defra conversion factors as recommended in the reporting guidelines from Ofgem have been used unless stated otherwise.

Organisation Structure

Below, figure 1 shows UK Power Networks is a parent company (Z) that has full ownership and financial control of operations (A), (B), (C) and (D) Unregulated. Data indicated with an (X) in our submission is inclusive of data from subsidiaries; (A), (B), and (C) unless stated otherwise. Data defined as (D) refers to our unregulated business and is excluded from the tables.

Data indicated with a (Y) is from our main contractors and their sub-contractors.

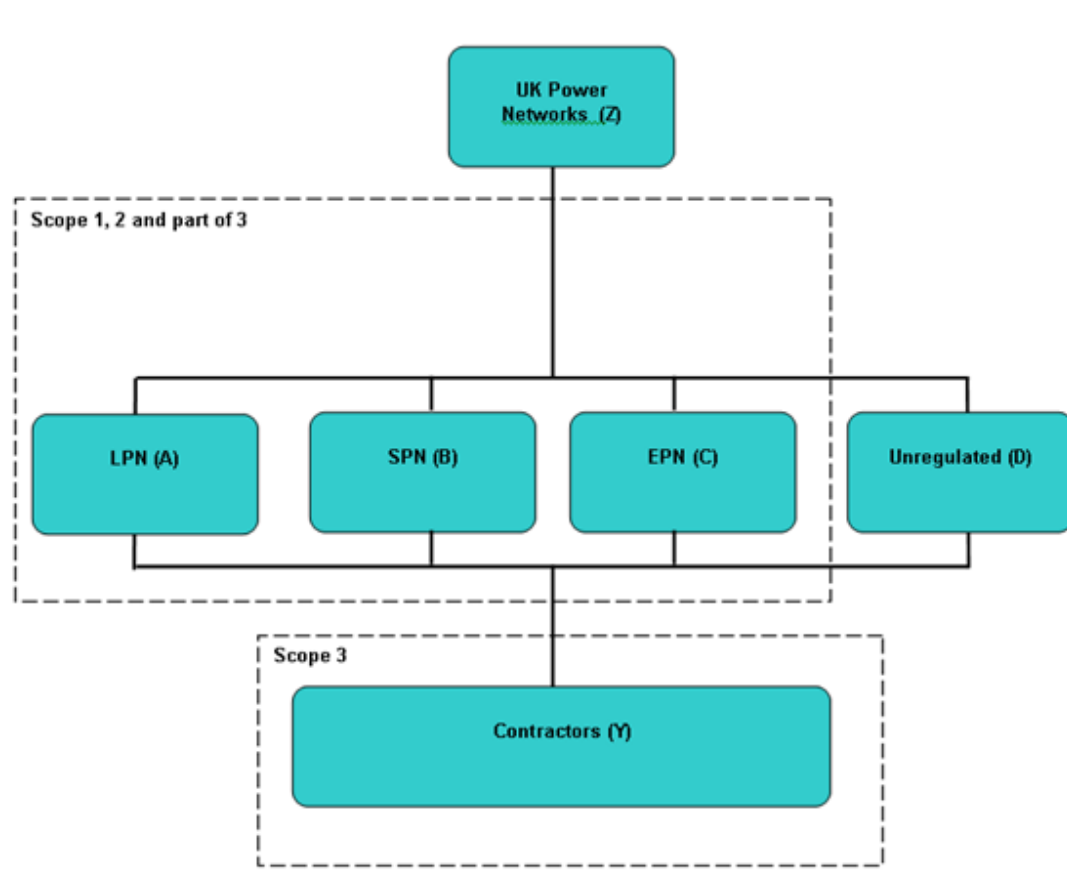


Figure 1 UK Power Network scope of business carbon footprint reporting

Building Energy Usage

Building energy use data is collated from electricity and gas bills received for each location. Data is measured in kWh then converted into tCO₂e. For buildings that are used for employees from all three DNO areas the energy apportioned is by headcount for each licence area.

Through an audit and subsequent improvement project the quality and accuracy of this data has been greatly improved.

Table 1a shows a breakdown by; energy type and licence area submitted to Ofgem.

| Key | Data Type/Description | Data Source | Conversion Factor | Conversion Factor Explained | Total Jan 12 to Dec 12 (tCO ₂ e) | Direct Measurement, Estimated or Excluded Data | Scope (GHG Protocol) |
|-----|-----------------------|-----------------------|-----------------------------|------------------------------|---|--|----------------------|
| A | LPN Electricity Usage | Billing for each site | 0.52 (Grid rolling average) | (Kwh to Kg CO ₂) | 1,523 | Measurement | 2 |
| B | SPN Electricity Usage | Billing for each site | 0.52 (Grid rolling average) | (Kwh to Kg CO ₂) | 1,508 | Measurement | 2 |
| C | EPN Electricity Usage | Billing for each site | 0.52 (Grid rolling average) | (Kwh to Kg CO ₂) | 2,765 | Measurement | 2 |
| A | LPN Gas Usage | Billing for each site | 0.206 (Net CV) | (Kwh to Kg CO ₂) | 43 | Measurement | 2 |
| B | SPN Gas Usage | Billing for each site | 0.206 (Net CV) | (Kwh to Kg CO ₂) | 91 | Measurement | 2 |
| C | EPN Gas Usage | Billing for each site | 0.206 (Net CV) | (Kwh to Kg CO ₂) | 162 | Measurement | 2 |

Substation Energy Usage

Annual consumption is assessed based on the number and type of plant installed in each licence area.

Table 1b shows the substation electricity usage for metered and unmetered sites by licence area.

| Key | Data Type/Description | Data Source | Conversion Factor | Conversion Factor Explained | Total Apr 12 to Mar 13 (tCO ₂ e) | Direct Measurement, Estimated or Excluded Data | Scope (GHG Protocol) |
|-----|-----------------------|-------------|-----------------------------|------------------------------|---|--|----------------------|
| A | LPN Metered | Estimate | 0.52 (Grid rolling average) | (Kwh to Kg CO ₂) | 2,294 | Estimate | 2 |
| A | LPN Unmetered | Assessed | 0.52 (Grid rolling average) | (Kwh to Kg CO ₂) | 3,347 | Estimate | 2 |
| B | SPN Metered | Estimate | 0.52 (Grid rolling average) | (Kwh to Kg CO ₂) | 339 | Estimate | 2 |
| B | SPN Unmetered | Assessed | 0.52 (Grid rolling average) | (Kwh to Kg CO ₂) | 4,867 | Estimate | 2 |
| C | EPN Metered | Estimate | 0.52 (Grid rolling average) | (Kwh to Kg CO ₂) | 5 | Estimate | 2 |
| C | EPN Unmetered | Assessed | 0.52 (Grid rolling average) | (Kwh to Kg CO ₂) | 11,727 | Estimate | 2 |

Table 1c shows the final substation electricity data submitted to Ofgem.

| Substation Energy Use | | |
|-----------------------|------|--------------------|
| Key | Area | tCO ₂ e |
| A | LPN | 5,641 |
| B | SPN | 5,206 |
| C | EPN | 11,732 |

Operational Transport

Fuel purchased for fleet vehicles is captured via fuel cards. Appropriate conversion factors have been used according to fuel type.

Table 2a shows a breakdown of tCO₂e emitted from the UK Power Networks fleet (X) and by our contractors (Y).

| Key | Data Type/Description | Data Source | Conversion Factor | Conversion Factor Explained | Total Jan 12 to Dec 12 (tCO ₂ e) | Direct Measurement, Estimated or Excluded Data | Scope (GHG Protocol) |
|-----|-------------------------------|----------------------|-------------------|---------------------------------|---|--|----------------------|
| X | Petrol | Fuel Card | 2.314 | (litres to kg CO ₂) | 0 | Measurement | 1 |
| X | Diesel | Fuel Card | 2.677 | (litres to kg CO ₂) | 12,105 | Measurement | 1 |
| X | Liquefied Petroleum Gas (LPG) | Fuel Card | 1.533 | (litres to kg CO ₂) | 0 | Measurement | 1 |
| X | Super unleaded Petrol | Fuel Card | 2.314 | (litres to kg CO ₂) | 10 | Measurement | 1 |
| X | Unleaded Petrol | Fuel Card | 2.314 | (litres to kg CO ₂) | 51 | Measurement | 1 |
| X | Gas Oil | Fuel Card | 3.021 | (litres to kg CO ₂) | 33 | Measurement | 1 |
| Y | Diesel | Contractor fuel card | 2.677 | (litres to kg CO ₂) | 15,998 | Measurement | 3 |
| Y | Unleaded Petrol | Contractor fuel card | 2.314 | (litres to kg CO ₂) | 252 | Measurement | 3 |
| Y | Super Unleaded Petrol | Contractor fuel card | 2.314 | (litres to kg CO ₂) | 1 | Measurement | 3 |
| Y | Leaded Petrol | Contractor fuel card | 2.314 | (litres to kg CO ₂) | 1 | Measurement | 3 |
| Y | Liquefied Petroleum Gas (LPG) | Contractor fuel card | 1.533 | (litres to kg CO ₂) | 0 | Measurement | 3 |
| Y | Red diesel | Contractor fuel card | 3.021 | (litres to kg CO ₂) | 1,082 | Measurement | 3 |
| | Total | | | | 29,534 | | |

Fuel usage is not recorded separately for each licence area. The total has been apportioned based on the number of direct operational staff per area. This method was favoured over geographic area as a split based on km² shows that our London network accounts for only 2% of the total km² across our three areas and this would be a disproportionate split of CO₂ from our transport fleet. This method is the same as the previous year allowing a fair comparison year on year.

Through an audit and subsequent improvement project the quality and accuracy of this data has been greatly improved.

Table 2b shows the breakdown and the final submitted figures to Ofgem per licence area.

| Key | Area | Direct Op. Staff | Percentage of Staff | tCO ₂ e |
|-----|------|------------------|---------------------|--------------------|
| A | LPN | 417 | 22% | 6,509 |
| B | SPN | 617 | 33% | 9,631 |
| C | EPN | 858 | 45% | 13,393 |

Business Transport

This section refers primarily to employee (X) and our contractor (Y) business travel (attending meetings etc.) which constitutes our indirect operational emissions. Some of the emissions included will be directly related to our operational work due to the data being combined.

Any source data available as costs only, has been converted into miles using industry standard methodologies before applying the Defra conversion factors.

Table 3a shows a breakdown of the amount of tCO₂e emitted by our employees (X) and by our contractors (Y).

| Business Transport - Passenger ROAD | | | | | | | |
|-------------------------------------|---------------------------|--------------------|-------------------|---|---|--|----------------------|
| Key | Data Type/Description | Data Source | Conversion Factor | Conversion Factor Explained | Total Jan 12 to Dec 12 (tCO ₂ e) | Direct Measurement, Estimated or Excluded Data | Scope (GHG Protocol) |
| X | Business Miles | SAP | 0.3133 | (Miles to kg CO ₂) | 3,109 | Measurement | 3 |
| Y | Contractor Business Miles | Contractor records | 0.3133 | (Miles to kg CO ₂) | 1,422 | Measurement | 3 |
| X | Taxi Expense Claims | SAP | 0.1254 | (£ to miles to km to kg CO ₂) | 3 | Measurement | 3 |
| X | Fuel Expense Claims | SAP | 2.1648 | (£ to miles to kg CO ₂) | 24 | Measurement | 3 |
| X | Car Hire | CCC | 0.3133 | (Miles to kg CO ₂) | 1 | Estimate | 3 |
| X | Car Hire | CWL | 0.3133 | (Miles to kg CO ₂) | 5 | Estimate | 3 |
| X | Taxi | CCC | 0.1254 | (£ to miles to km to kg CO ₂) | 1 | Estimate | 3 |
| | Total | | | | 4,565 | | |

| Business Transport - Passenger RAIL | | | | | | | |
|-------------------------------------|-----------------------------------|-------------|-------------------|--|---|--|----------------------|
| Key | Data Type/Description | Data Source | Conversion Factor | Conversion Factor Explained | Total Jan 12 to Dec 12 (tCO ₂ e) | Direct Measurement, Estimated or Excluded Data | Scope (GHG Protocol) |
| X | Rail Expense Claims | SAP | 0.476 | (£ to miles to kg CO ₂) | 98 | Measurement | 3 |
| X | Rail | CCC | 0.476 | £ to miles to km to kg CO ₂ | 304 | Estimate | 3 |
| X | Rail - Domestic | CWL | 0.094 | (Miles to km to kg CO ₂) | 8 | Measurement | 3 |
| X | Rail - Eurostar Inter-Continental | CWL | 0.024 | (Miles to km to kg CO ₂) | 0.04 | Measurement | 3 |
| | Total | | | | 410 | | |

| Business Transport - Passenger AIR | | | | | | | |
|------------------------------------|-----------------------|-------------|-------------------|---|---|--|----------------------|
| Key | Data Type/Description | Data Source | Conversion Factor | Conversion Factor Explained | Total Jan 12 to Dec 12 (tCO ₂ e) | Direct Measurement, Estimated or Excluded Data | Scope (GHG Protocol) |
| X | Air - Domestic | CCC | 0.293 | (£ to Miles to km to kg CO ₂) | 0.2 | Estimate | 3 |
| X | Air - Short Haul | CCC | 0.167 | (£ to Miles to km to kg CO ₂) | 0.2 | Estimate | 3 |
| X | Air - Long Haul | CCC | 0.191 | (£ to Miles to km to kg CO ₂) | 1 | Estimate | 3 |
| X | Air - Domestic | CWL | 0.293 | (Miles to km to kg CO ₂) | 3 | Measurement | 3 |
| X | Air - Short Haul | CWL | 0.167 | (Miles to km to kg CO ₂) | 6 | Measurement | 3 |
| X | Air - Long Haul | CWL | 0.191 | (Miles to km to kg CO ₂) | 76 | Measurement | 3 |
| | Total | | | | 86 | | |

The data is captured from three different sources:

- 1) SAP (financial management system): mileage and travel claimed through expenses
- 2) Carlson Wagonlit (CWL): our approved travel provider
- 3) Corporate credit card (CCC): travel purchased through company credit cards

The data is recorded by type of travel e.g. air, rail and road.

Business travel data is not recorded by each licence area; therefore the total business mileage has been apportioned based on the number of staff employed per area. For 77% of the vehicles the actual CO₂ rating as opposed to the DEFRA average has been used to improve the quality and accuracy of data.

Table 3b shows the breakdown and the final figures per licence area submitted to Ofgem.

| Business Transport - Passenger ROAD | | | | |
|-------------------------------------|------|-----------|---------------------|--------------------|
| Key | Area | Headcount | Percentage of Staff | tCO ₂ e |
| A | LPN | 1,328 | 27% | 1,244 |
| B | SPN | 1,495 | 31% | 1,400 |
| C | EPN | 2,050 | 42% | 1,920 |

| Business Transport - Passenger RAIL | | | | |
|-------------------------------------|------|-----------|---------------------|--------------------|
| Key | Area | Headcount | Percentage of Staff | tCO ₂ e |
| A | LPN | 1,328 | 27% | 112 |
| B | SPN | 1,495 | 31% | 126 |
| C | EPN | 2,050 | 42% | 172 |

| Business Transport - Passenger AIR | | | | |
|------------------------------------|------|-----------|---------------------|--------------------|
| Key | Area | Headcount | Percentage of Staff | tCO ₂ e |
| A | LPN | 1,328 | 27% | 24 |
| B | SPN | 1,495 | 31% | 26 |
| C | EPN | 2,050 | 42% | 36 |

Fugitive Emissions

Our asset database Ellipse is used to capture data for any SF₆ lost through top-ups. 39.1% of equipment containing SF₆ is in the EPN area, with 33.6% in LPN and 27.3% in SPN. 0.0013% of equipment containing SF₆ is responsible for the SF₆ loss. 23 of these assets were replaced during 2012/13.

We have calculated our SF₆ emissions in accordance with ENA-ER S38 and the Defra conversion factors. Submitted SF₆ data is for the regulatory reporting year (April 2012 - March 2013) rather than calendar year 2012. This is consistent with our return last year.

Table 4a shows the data by licence area submitted to Ofgem.

| Key | Data Type/Description | Data Source | Conversion Factor | Conversion Factor Explained | Total Apr 12 to Mar 13 (tCO ₂ e) | Direct Measurement, Estimated or Excluded Data | Scope (GHG Protocol) |
|-----|----------------------------|-------------|-------------------|-----------------------------|---|--|----------------------|
| A | LPN SF ₆ Losses | Ellipse | *23,900 | (Kg to KgCO ₂) | 635 | Measurement | 1 |
| B | SPN SF ₆ Losses | Ellipse | *23,900 | (Kg to KgCO ₂) | 315 | Measurement | 1 |
| C | EPN SF ₆ Losses | Ellipse | *23,900 | (Kg to KgCO ₂) | 1,697 | Measurement | 1 |

Fuel Combustion

This section refers to the emissions from standby generator use during fault repairs and planned work on the network. The data is captured through two different sources:

- 1) Two contractors provide standby diesel generators and report monthly fuel usage. Invoices from diesel fuel supplied are used to collate the monthly fuel usage by license area.
- 2) Data from fuel cards capture the fuel used by company owned generators.

Through an audit and subsequent improvement project the quality and accuracy of this data has been greatly improved.

Table 5a details a breakdown of the information by data source.

| Key | Data Type/Description | Data Source | Conversion Factor | Conversion Factor Explained | Total Jan 12 to Dec 12 (tCO ₂ e) | Direct Measurement, Estimated or Excluded Data | Scope (GHG Protocol) |
|-----|----------------------------|-----------------|-------------------|---------------------------------|---|--|----------------------|
| X | Stand-by Diesel generators | MEMS & Aggreko | 2.677 | (litres to kg CO ₂) | 9,521 | Measurement | 1 |
| X | Stand-by Diesel generators | UKPN Fuel Cards | 2.677 | (litres to kg CO ₂) | 57 | Measurement | 1 |

Table 5b shows the final figures per licence area submitted to Ofgem.

| Key | Area | tCO ₂ e |
|-----|------|--------------------|
| A | LPN | 2,000 |
| B | SPN | 4,342 |
| C | EPN | 3,235 |

Losses

The calculations for units entering and units exiting are as per last year i.e. Ofgem's directions in the now discontinued Cost and Revenue Reporting RIGs for worksheet V15.

In summary 'units exiting' is the sum of units exiting at embedded interconnectors and embedded BMUs plus units distributed to HH and NHH customers; 'units entering' is the sum of all units entering at GSPs, interconnectors and BMUs, less units exiting at GSPs and other interconnectors and other BMUs plus generation exports by HH and NHH customers (i.e. DG).

The data supplied is based upon the latest available reconciliation run in complete months, this means that we have actual data for the period 01/04/2012 to 31/01/2013 and forecast data for the period 01/02/2013 to 31/03/2013, the forecast data is based on the latest actuals for February 2012 and March 2012.

This report is compiled a month earlier than last year (in turn several months earlier than the previous year) hence there have been less reconciliation runs making the data for the two years not comparable. The data must be further reconciled before it is complete for the purposes of loss reporting. The final data for 2012/13 will be available in July 2014 and the losses performance is expected to deteriorate as future reconciliations are received, the current position should not be taken as a forecast of future performance.

Table 6a shows the data by licence area submitted to Ofgem.

| Key | Data Type/Description | Data Source | Conversion Factor | Conversion Factor Explained | Total Apr 12 to Mar 13 (tCO ₂ e) | Direct Measurement, Estimated or Excluded Data | Scope (GHG Protocol) |
|-----|-----------------------|-----------------------|-----------------------------|------------------------------|---|--|----------------------|
| A | LPN Losses | Billing for each site | 0.52 (Grid rolling average) | (Kwh to Kg CO ₂) | 843,139 | Measurement | 1 |
| B | SPN Losses | Billing for each site | 0.52 (Grid rolling average) | (Kwh to Kg CO ₂) | 675,935 | Measurement | 1 |
| C | EPN Losses | Billing for each site | 0.52 (Grid rolling average) | (Kwh to Kg CO ₂) | 1,152,525 | Measurement | 1 |

Contractors

Contractor Definition

To maintain consistency, we have continued with the same contractors used to collate the BCF tables in previous years. This group of contractors were originally selected by the size of the financial contract and their scope of work. Where there have been contractual changes, the new contractors have been included maintaining a level of consistency within the data.

As part of our agreement with our contractors they are required to include any data from work that they sub-contract, and to report data that is accumulated as a direct result of works undertaken for UK Power Networks. This methodology does mean that some assumptions are made for example;

Transport – Whilst mileage is relatively straightforward and contract specific, with fuel usage the contractors split the fuel consumption by the number of companies they are working for dependant on the size of the contract they have within each company.

Further Enquiries

If you have any questions about this report please do not hesitate to contact:

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