

Environmental Basis of Reporting

Principles and methodologies

2016

Contents

1	Introduction	3
2	Approach to Reporting	3
2.1	Commitment to reporting.....	3
2.2	General greenhouse gas reporting principles	3
2.3	Assurance	4
3	Environmental Reporting Requirements.....	4
3.1	Reporting timetable	4
4	Reporting Obligations.....	5
4.1	Climate Change Act 2008.....	5
4.2	Mandatory Carbon Reporting	5
4.3	Carbon Reduction Commitment Energy Efficiency Scheme	6
5	Methodology	7
5.1	Reporting framework.....	7
5.2	Relevance	7
5.3	Completeness	7
5.4	Consistency.....	8
5.5	Accuracy.....	8
5.6	Transparency	8
6	Consolidation.....	8
6.1	Overview	8
6.2	Consolidation approach.....	8
6.3	Facility data capture processes.....	13
6.4	Emission source data capture processes	14
6.5	Accuracy hierarchies	16
6.6	Methods of estimation	17
6.7	Materiality.....	18
	Glossary	19

1 Introduction

The Environmental Basis of Reporting outlines the scope of each of the environmental key performance indicators (KPIs) assured in our 2016 Corporate Responsibility Performance Review and sets out the reporting approach and criteria required to support the environmental section

of the Serco Group plc Board's commitment to non-financial reporting (NFR). The reporting approach aims to:

- report Serco's activities honestly and give a fair impression of business conduct;
- provide key stakeholders with appropriate information, as guided by leading frameworks and standards; and
- inform relevant investor evaluations and indices.

2 Approach to Reporting

2.1 Commitment to reporting

Serco Group plc, as a UK public company, is required to disclose important information in its Annual Report and Accounts including reporting Greenhouse Gas (GHG) performance.

Compliance with these regulations also provides assurance that the plc Board is properly addressing its social, environmental and economic responsibilities towards key stakeholders; including employees, investors, suppliers, customers, consumers, communities, government and society.

As an international company operating in many countries, the Group also voluntarily discloses more detailed performance information. It does this primarily on its website www.serco.com and in its Annual Report and Accounts (also available from the website). The Group also chooses to participate in a number of external indices to benchmark its performance against other companies, and to answer queries from the investment community, customers and other stakeholders.

The Group has a formal approach to non-financial reporting (NFR)

which identifies material issues and performance indicators to enable better management and communication of the non-financial aspects of the business. Over the course of 2017 we will be reviewing our approach to meet 'The Companies, Partnerships and Groups (Accounts and Non-Financial Reporting) Regulations 2016' which transposed the EU NFR directive into UK law.

This information is used by Executive Management to set improvement objectives and targets, which are also endorsed by the plc Board. This is enabled by performance management which exists at division, business unit and site level.

2.2 General greenhouse gas reporting principles

Serco quantify and report greenhouse gas emissions in accordance with ISO 14064-1 2012 and the Greenhouse Gas Protocol - A Corporate Accounting and Reporting Standard (Revised Edition 2004), and therefore will follow the following principles:

Relevance	Serco will identify all GHG sources, sinks, data and methodologies appropriate for the needs of our stakeholders
Completeness	Every effort is be made to include all material GHG emissions
Consistency	To enable meaningful comparisons of GHG-related information, Serco will use emission factors produced using the same methodology

	where possible, and if not, explain why		
Accuracy	All uncertainties and biases are reduced as much as possible and explained	<p>2.3 Assurance</p> <p>Assurance and data verification is scoped and sought for the publically reported greenhouse gas disclosures. This is in line with good-practice and to help build trust with stakeholders. The assurance and verification exercise involves the use of an independent third party to select a sample of Serco sites to visit and personnel to interview and to provide reasonable assurance over its environmental public reporting. This is to verify reporting is accurate, reliable and enable a third party to provide an opinion as to whether the reporting provides a fair and balanced view of the Group's GHG emissions. The approach includes assurance of the qualitative information detailed in the Annual Report and Account.</p>	<p>Our assured data can be found in the Annual Report and Accounts and the Corporate Responsibility Report available on the Serco website: www.serco.com. Assured indicators include:</p> <ul style="list-style-type: none"> • Relative and absolute energy consumption • Relative and absolute CO2e emissions from energy consumed • An Intensity figure - tonnes CO2e/full time equivalents (FTE)
Transparency	Serco will disclose sufficient and appropriate GHG-related information to allow intended users to make decisions with reasonable confidence		

3 Environmental Reporting Requirements

Serco is committed to responsible stewardship of the environment, wherever we operate and specifically where our activities have the potential to adversely affect the environment. We aim to identify and reduce our environmental impacts, by minimising the use of non-renewable energy and other resources and by reflecting our principles of sustainable development in our activities.

Significantly, across the majority of our business we are working on our customers' premises and are therefore not in direct control of the environment within which we operate. That is why collaborative working with our customers on environmental issues is important. Serco recognises its responsibility to ensure that any adverse impact on the environment is reduced or, where possible, eliminated by applying the most appropriate

management systems at contract level - whether designed by our customers or by ourselves. Where we are not in control of the working environment, we support our customers in applying their own environmental management systems and objectives.

3.1 Reporting timetable

Frequency of reporting is dependent on the level of the business at which the operation sits and may be determined by the metric itself, based on the timeframes on which a judgement can be made. Reporting of KPIs is undertaken quarterly. KPIs are calculated over a twelve month rolling period to prevent the perception of short term variations affecting the view of performance.

Reporting Timetable		
Reporting Type	Frequency	Deadline
Internal reporting		
Divisional quarterly report to Group Executive and Corporate Responsibility Committee (CRC)	Quarterly	15th after each quarter
Group Annual CR Report and KPI performance reporting	Annual	31st December
Voluntary external reporting		
Carbon Disclosure Project	Annual	30th June
Reporting obligations		
Carbon Reduction Commitment Energy Efficiency Scheme (CRC) Reporting year	Annual	1st April to 31st March
CRC submission deadline	Annual	31st July
Mandatory Carbon Reporting	Annual	31st December

4 Reporting Obligations

4.1 Climate Change Act 2008

The UK Climate Change Bill aims to:

1. Improve carbon management and help the transition towards a low carbon economy in the UK
2. Demonstrate strong UK leadership internationally, signaling that we are committed to taking our share of responsibility for reducing global emissions in the context of developing negotiations on a post-2012 global agreement at Copenhagen in 2009.

The key provisions are:

1. Legally binding targets: greenhouse gas emission reductions through action in the UK and abroad of at least 80% by 2050, and reductions in CO₂e emissions of at least 26% by 2020, against a 1990 baseline.
2. A carbon budgeting system which caps emissions over five

year periods, with three budgets set at a time, to set out our trajectory to 2050.

Against this backdrop Serco are required to comply with the following legislation:

- Mandatory Carbon Reporting (MCR) in the Annual Directors Report
- Carbon Reduction Commitment Energy Efficiency Scheme (CRC)

The MCR regulations requires reporting of all scope 1 and 2 CO₂e emissions for the company including mobile, fleet fugitive and process emission for all global operations while the CRC just requires CO₂ emission reporting for all relevant electricity and gas supplies for operations owned or controlled in the UK.

4.2 Mandatory Carbon Reporting

Under the Companies Act 2006 (Strategic and Directors' Reports)

Regulations 2013 all quoted companies are required to report their annual global carbon equivalence emissions in their directors' report. Therefore Serco reports annual, global greenhouse gas emissions under their operational control in the Directors Reports of the Annual Report and Accounts.

4.2.1 Data

Serco are required to disclose the annual quantity of global emissions from the combustion of fuel, or the operation of any facility (scope 1 emissions) and the emissions from purchased electricity, heat, steam or cooling (scope 2). This must be reported in tonnes of carbon dioxide equivalent (CO₂e), with an appropriate intensity metric. Serco will report an emissions intensity figure in tonnes CO₂e per 1,000 FTE.

The report must:

- disclose the reporting period used for the carbon disclosure

- include annual data for Scope 1 and Scope 2
- provide global coverage
- use carbon dioxide equivalent (CO₂e) factors, such as those published by DEFRA, which take into account each of the six 'Kyoto' greenhouse gases, stated in section 92 of the Climate Change Act 2008:
- report emissions as the intensity metric, Serco will use tonnes CO₂e per 1,000 FTE
- disclose both the current year and the previous year's emissions
- State the methodologies used to calculate the reported information

4.2.2 Methodology

Serco quantify and report to ISO 14064-1. Serco has opted to use operational control as the consolidation approach due to the nature of its business, where employees are often on customer sites where no control is possible. As this will be inconsistent with the financial statement, classification of reporting boundaries will be described in detail.

4.2.3 Materiality

Due to the diverse nature of Serco's businesses across its global operation there are cases where Serco will consider greenhouse gas emitting operations to be immaterial or de-minimis. This document describes in detail the rules used to ascertain materiality for each territory and the Directors Report will state what is omitted and why.

4.2.4 Comparatives

Serco benchmarks its emissions using the reported emissions in the previous year's report as a baseline providing a comparison to

previous years in the Directors report.

4.3 Carbon Reduction Commitment Energy Efficiency Scheme

The CRC Energy Efficiency Scheme (formerly known as the Carbon Reduction Commitment) is a mandatory carbon emissions reporting and pricing scheme to cover all organisations in the UK using more than 6,000 MWh per year of electricity.

Participants in the CRC are required to measure and report their electricity and gas related carbon emissions annually following a specific set of measurement rules. The CRC scheme applies to emissions not already covered by Climate Change Agreements (CCAs) and the EU Emissions Trading System (EU ETS). The scheme requires participants to buy allowances for every tonne of CO₂ they emit (relating to electricity and gas), as reported under the scheme. It is mandatory for all companies to have the data externally audited to ISO14064 standard. Serco is committed to meeting its audit, reporting and purchase obligations in line with published deadlines.

4.3.1 Data

Serco discloses the annual quantity of UK emissions from the combustion of natural gas supplied through any meter that measures more than 73,200 kWh in any compliance year (scope 1 emissions) and the emissions from purchased electricity (scope 2) for meter types 03 through 08 and 00. This is reported in tonnes of carbon dioxide (CO₂) using conversion factors of 0.49636 Kg

CO₂ per kWh of electricity and 0.18407 Kg of CO₂ per kWh of natural gas. An Evidence Pack is produced which contains:

- Introduction
- Summary of key emissions data
- Organisational structure
 - Structural records – i.e. the scope of the CRC organisation, (key fuel types and the source list)
- Data records – i.e. annual consumption of energy (invoices /supplier statements, conversion factors to tCO₂) needed for verification purposes.
- Responsibilities
- Sources and sites
- Footprint Report
- Annual report
- Changes and special events
 - Special events/change records i.e. unusual events (actions after a meter failure, change of energy supplier, or a 'designated changes' in company structure).

The records for the Footprint Year are retained for the duration of the organisation's participation within the scheme. The Footprint Year provides the emissions data on which each Participant's proportion of the revenue recycling is based.

Annual records are kept for the duration of the relevant phase and for a further five years (12 years) after the end of the phase to which they relate. If selected for an audit, the data collected for previous five years can be made available for assessment.

4.3.2 Methodology

Serco currently follows the guidance available in the document CRC Energy Efficiency Scheme guidance for participants in Phase 2 (2014-2015 to 2018-2019) published by the Environment Agency but will adopt any further changes made to the regulations and guidance. It also uses the GHG conversion factors as requested by the Environment Agency.

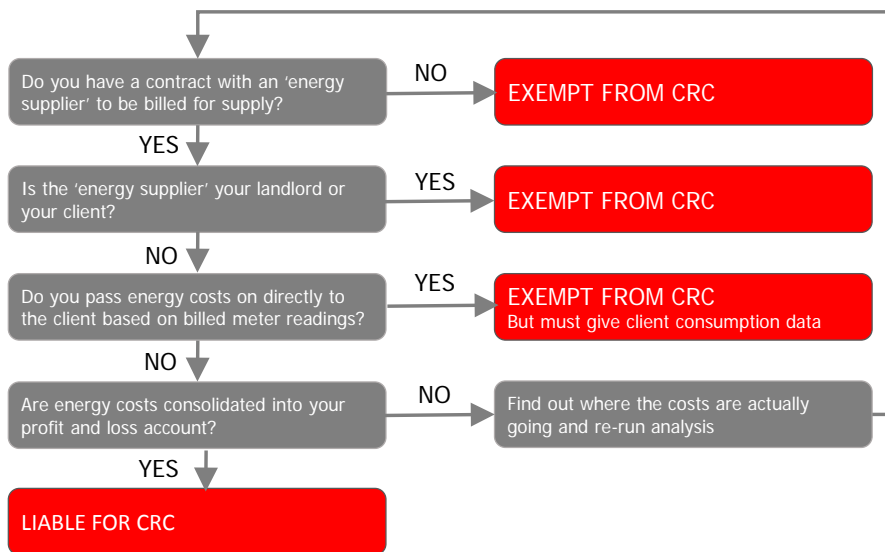
4.3.3 Materiality

Figure 'Case 1' outlines the process used to determine whether a location is in scope for the CRC scheme.

4.3.4 Comparatives

Serco has been a participant in the CRC scheme since the start of phase 1. This data is used to compare performance year on year. Data is published in our Annual Report and Accounts.

Case 1: Procuring energy on a site



5 Methodology

5.1 Reporting framework

Serco use the reporting framework IS O 14064-1:2012 for all GHG reporting. Any variations are stated and explained. This specifies principles and requirements at the organisation level for quantification and reporting of greenhouse gas (GHG) emissions and removals. It includes requirements for the design, development, management, reporting and verification of an organisation's

GHG inventory. This section details how Serco has applied the principles of ISO 14064-1 in producing its reports for the year.

5.2 Relevance

Serco report on GHG sources, GHG sinks data and methodologies appropriate to the needs of our business and stakeholders. This is done by examining each facility or operation, and establishing if Serco has control of any emission

sources, and if so, whether they are material to its reporting.

5.3 Completeness

Serco has attempted to include all relevant GHG emissions from primary sources. The following sections describe:

- Greenhouse gas emissions sources
- Greenhouse gas emission calculations

- Emission data capture processes and accuracy hierarchies
- Emissions excluded from scope
- Assumptions

All emissions and conversion factors used are taken from the relevant year's UK DEFRA Government conversion factors for company reporting.

5.4 Consistency

The processes used by each Division for capturing data about facilities or operational assets and identifying changes are documented. The process for establishing whether the facilities are within Serco's reporting boundary are consistent across all Divisions, but due to the varying nature of operations in different territories, all decisions are documented and authorised by senior management.

In each reporting period after the 2013 baseline, any material changes to the organisation are documented and explained. Any significant changes in reported emissions as a result of these changes is reported.

5.5 Accuracy

In the following sections, the methods of capturing both facility and emissions data are documented for each division and source. The methods of verifying the data capture is also described.

5.5.1 Estimation

Where any estimation is made (see section 6.6), the process used is documented and the potential consequential error described.

5.5.2 Assurance

Serco has its CRC dataset emissions internally audited (legal requirement) by Carbon Credentials Ltd prior to submission

within the CRC Annual Report. In addition our global GHG emissions are externally verified to ISO 14064-3 prior to publication in the Annual Report and Accounts, as required by Mandatory Carbon Reporting legislation.

5.6 Transparency

Serco discloses sufficient and appropriate GHG related information to allow intended users to make decisions with reasonable confidence. To ensure this is the case, this document records:

- Internal processes and procedures, how they are used and why
- All material assumptions and estimations
- Methodologies and conversion factors

6 Consolidation

6.1 Overview

This section describes the operating structure of Serco to give context to the Basis of Reporting.

6.1.1 Where Serco operate

Serco operate in over 1,400 locations across more than 25 Countries with operational control in more than 350 locations.

6.1.2 Operating structure

Figure 1 details the Business Units operating in each Division.

6.1.3 The sectors we work in

Serco operates across five core sectors:

- Defence
- Justice and Immigration
- Transport
- Health
- Citizen Services

6.2 Consolidation approach

6.2.1 Facility level definition

As a service company Serco employees are mainly on customer sites, therefore we classify our facilities individually. Significantly, across over two thirds of our business we work on our customers' premises and frequently do not have operational control of the facilities that are sources of GHG emissions.

Therefore, Serco has chosen to use operational control for its consolidation approach.

In general, if Serco manages the operations that will control CO₂e emissions, then Serco will report them as part of its GHG inventory. There are, however, exceptions; for example the CRC Energy Efficiency Scheme requires a subset of its UK portfolio to be reported over a different time period to that required for Serco Group annual reporting.

Environmental performance data is collected from our global operations on an operational control basis. For

Figure 1

Division	Business Units
ASPAC	Justice & Health Immigration Transport Defence Citizen Services
Americas	Transportation & Infrastructure Citizen & Defence Services CMS C4ISR National Security Services Canada
Middle East	Transport Aviation & Defence Health & FM
UK & Europe	Transport Defence Health Home Affairs Citizen Services Direct Services

6.2.3 Operation or facility level definition

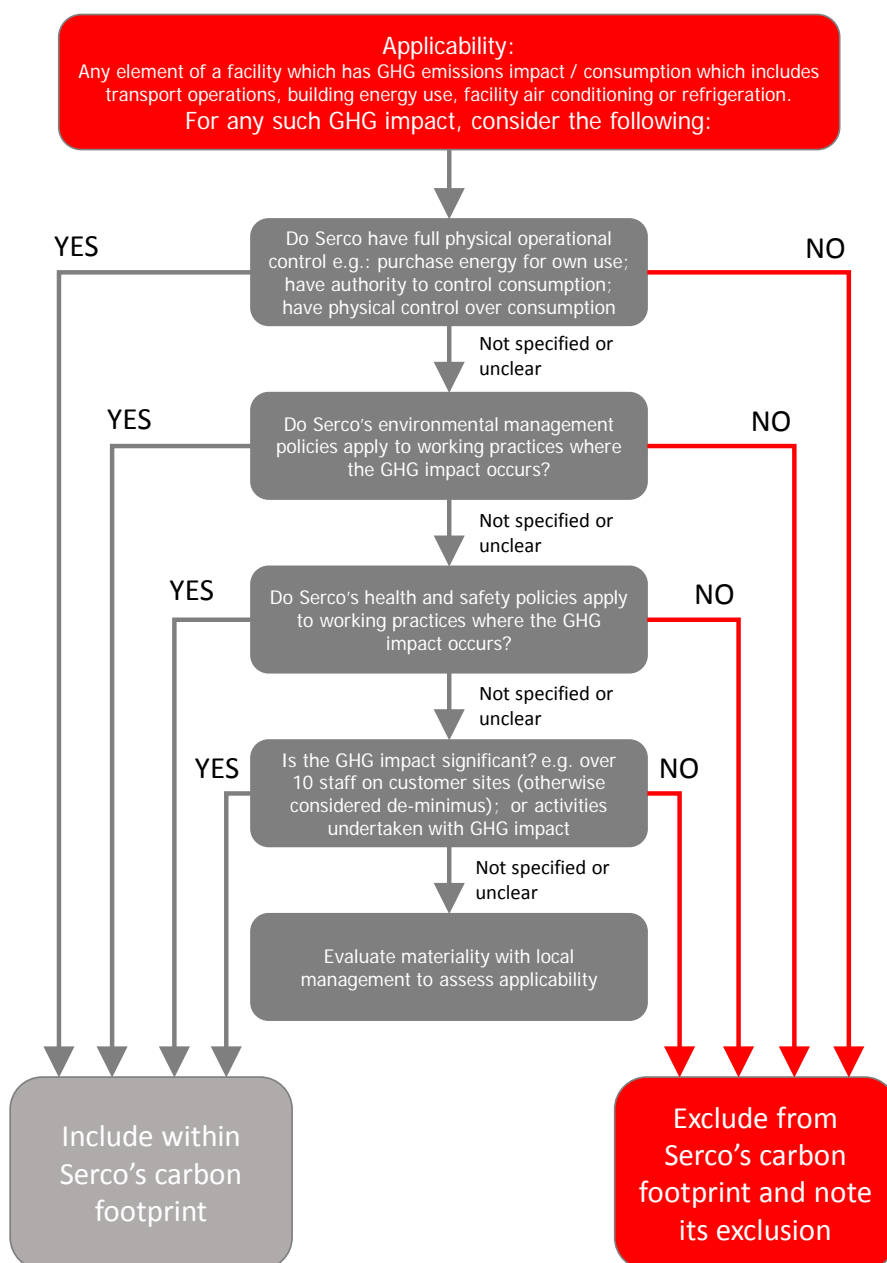
Serco has developed a process (shown below) for determining if a facility or entity is within its boundary of Mandatory Carbon Reporting. This has been used to evaluate all locations and transport operations.

Mandatory Carbon Reporting this is defined as where Serco has control as either the purchase and use of energy, or the authority to define health, safety and environmental policies over the facility.

6.2.2 Entity level definition

We aim to account for 100% of the data from the following entities:

- wholly owned operations and subsidiaries;
- any entities where Serco has full authority over operating policies [e.g. majority board-level voting rights]; and
- facilities that belong to our customers where we have been given authority over operational control.



6.2.4 Operation or facility level classification

All facilities are assessed according to the classifications shown below

Classification	Facility or asset type	Data availability	Example	Boundary scope status	Reporting requirements
0	Owned or managed premises where Serco has operational control over emissions	Data is directly available, e.g. meter readings, invoices, fuel purchased, supplier data	Prisons Leisure centres	In Scope	Emissions are reported for scope 1 and 2 and capture processes are documented
1	Leased premises with Serco held supply contract where Serco has operational control over emissions	Data is available for Serco controlled operation on leased premises	Leased office accommodation - all consumption data available	In Scope	Emissions are reported for scope 1 and 2 and capture processes are documented
2	Leased office accommodation - some consumption data available where Serco has operational control over emissions	Data is partially available, e.g. some consumption under control but part in service charge	Leased office accommodation - some consumption data available	In Scope	Emissions are reported for scope 1 and 2 Consumption is estimated where not available (see section 6.6) Where estimation is not possible, the reason is documented along with a reasonable indication of scale of omission Capture processes are documented
3	In serviced lease or rental accommodation Sub-tenancy within a larger building or working on a customer's premises where Serco has operational control over emissions	Data is not available, e.g. all consumption in service charge	Companies House (Cardiff)	In Scope	Consumption is estimated for scope 1 and 2. Estimation process is documented. Where estimation is not possible, the reason is documented along with a reasonable indication of scale of omission Capture processes are documented
4	Staff placed on Government, military or transient facilities performing directed tasks Work conducted amongst public Serco are not in control of operating policies and therefore excluded from MCR reporting	Data not available. Consumption and emissions are under the control of the customer. These are either paid directly by the customer or Serco pay on behalf of the customer Serco staff working within customers polices	UK RAF bases JSCSC Braintree hospital	Not in scope	Description of situation with reason for decision documented for external audit

Classification	Facility or asset type	Data availability	Example	Boundary scope status	Reporting requirements
5	Serco managed facility where staff are performing simple office or manual activities with no emission intensive activity	De-Minimis <10 staff with no unusual emission activity	Americas Driver Examination Centres	In scope but excluded as immaterial	Brief description of situation with reason for decision documented
6	Joint Ventures where Serco do not have authority to set environmental policies governing energy use in greenhouse gas emitting facilities	Not relevant	Northern and Mersey Rail	Not in scope	Brief description of situation with reason for decision documented
7	Joint Ventures where Serco has authority to set environmental policies governing energy use in greenhouse gas emitting facilities	Data is directly available or partly available, e.g. meter readings, invoices, fuel purchased, supplier data	ATS Bahrain	In Scope	Emissions are reported for scope 1 and 2 Consumption is estimated where not available (see section 6.6) Where estimation is not possible, the reason is documented along with a reasonable indication of scale of omission Capture processes are documented
8	Staff in customer facilities. Serco staff have authority to set environmental policies governing energy using greenhouse gas emitting facilities	Data not available for all or part of a contract.	AMEAA immigration centres	In Scope	Data for the contract is estimated. Estimation process documented. Where estimation is not possible, the reason is documented along with a reasonable indication of scale of omission
9	Facility last used before start of reporting period (1/10/2012)	Data not required	PECS - Chelmsford	Not in scope	No report required, location inactive before 1st MCR report
10	Additional contract on a facility that is already reporting all emissions for the facility and Serco staff have no authority to set environmental policies governing energy use in the facilities	Data not required, but headcount included in facility total	Healthcare contract in custodial centre	Not in scope	Evidence that facility is outside of reporting boundary documented
11	Owned or leased assets where Serco is	Data is directly available, e.g. fuel	Serco UK car fleet, Northlink ferries	In Scope	Data to be captured for scope 1

Classification	Facility or asset type	Data availability	Example	Boundary scope status	Reporting requirements
	the lessee, e.g. vehicles or vessels	card data, tankered deliveries			
12	Serco operated assets owned by customer. Data is not directly available, e.g. supplied by customer	Data not directly available, e.g. fuel supplied by customer	Vehicles or vessels that Serco operate where fuel supplied by customer	In Scope	Consumption is estimated for scope 1. Where estimation is not possible, the reason is reported along with reasonable indication of scale of omission
13	Serco operate on assets owned by customer and under the operational control of the customer	Serco staff work under customer policies	AFBINI contract – Research Vessel Corystes	Not in scope	Evidence that facility is outside of reporting boundary documented
14	Owned or managed premises	Data availability transferred to or from customer during reporting period	HMP Doncaster, where customer took control of utility purchase on 7/4/13	In Scope	Data to be captured for scope 1 and 2 for period where Serco had control. Data is estimated for remaining period and estimation process is documented
15	Facilities where ownership or environmental management transferred to or from customer during reporting period	Data available, partly available or not available	Laburnum House transfer to SunGard Feb 2013	In Scope	For period of Serco ownership: <ul style="list-style-type: none"> Data to be captured or scope 1 and 2 Consumption is estimated where not available (see section 6.6) Where estimation is not possible, the reason is documented along with a reasonable indication of scale of omission Capture processes are documented
16	No Staff on client facility. Serco are paying energy invoices as a service to the customer but have no operational control over emissions	No data available or required	JSCSC residential premises	Not in scope	Brief description of situation with reason for decision to be documented

6.3 Facility data capture processes

6.3.1 Method of capturing location and asset data

The primary method is based around the bid or rebid process where potential new or changing portfolio of facilities are added to the contract master database.

In addition, a number of secondary mechanisms are in place and where additional locations are identified, they are added to the contract master database. These include:

- SAP Invoice data capture process (see UK utility capture process for more detail)
- Acquisitions & Divestments process
- Notification of new suppliers by procurement
- Provision of operational support by Environment, Energy & Sustainability Team
- Serco's in-house Facilities Management Services Team updates
- Property Manager updates

For the UK, identified locations are added to the contract master database and Carbon Management GSOP classification register maintained by the cross divisional Environment, Energy and Sustainability team, supported by the Management Information & Reporting and Assure teams. Requests for additional information are sent to contract management, the property and/or HSE Team. Once information is verified it is added to the contract master database.

Due to the high number of contracts and locations where emission sources have been

identified within the division, the information held within the contract master database changes regularly; as such, regular maintenance is required and all stakeholders have a responsibility to ensure updates are provided to the Group Head of Environment, Energy and Sustainability and Management Information (MI) and Reporting team.

The mechanisms used to identify new contracts are also used to identify changes in location information and in such cases details are provided to the divisional Management Information and Reporting teams to update the contract master database.

Where information is missing reminders are sent to the owners of each set of data. Change reports summarising updated information in the period and gaps in the information are collated by the Management Information and Reporting team and circulated monthly to all stakeholders.

For Americas, the process for deciding which locations are in scope and which are not begins with a listing of all sites that is extracted from Serco Americas' accountable financial system, the Cost Point database. The listing of sites is then reviewed to exclude those sites which are exempt per approved classifications. For example, many Serco Americas worksites are exempted from reporting because they occur on military installations or vessels where Serco does not have financial or operational control over emissions sources.

For Middle East and ASPAC, a full review is undertaken annually with all contracts confirming and providing data about each facility, the Carbon GSOP Contract

Classification register will capture this data.

Data held by location includes:

- Site name and full address
- Division
- Business Unit
- Sub-Business Unit
- All MPANs/MPRNS for the facility
- All post-codes (or equivalents) suppliers use for delivery to a facility; it is not unusual for a tankered oil supplier to use a different postcode to an electricity supplier for a large facility such as a prison
- Activities that cause emissions
- Location status (lease, freehold)
- Data of last invoice for each emission if relevant
- Determination of whether facility is in scope for CRC and MCR with reasons if necessary
 - Operational control for MCR with explanation and authority
 - Classification of inclusion for CRC with explanation and authority
- Significant events

Serco's internal HSE database (Assure) has been developed to hold and maintain all global facility data from 2016. It will be maintained monthly by Divisions, and reviewed quarterly by the UK Environment, Energy and Sustainability Team. This will lead to clearer and more transparent reporting.

Verification

Contract Data – provision of details relating to the organisation and operation of the contract is the responsibility of the Contract Manager; this includes a nominated point of contact for provision of further information relating to environmental management within the contract.

Environmental data – this includes some information captured from existing sources as well as specific information required under the Carbon Management Group Standard Operating procedure (SMS-GSOP-HSE1-26 Carbon Management). The responsibility for the capture and verification of this information sits with the Environment Energy and Sustainability team in the UK, the HSE&S team in SGS, the Assurance Teams in ASPAC and Middle East, and the Engineering and EHS team in Americas. Information will generally be obtained through discussion with the identified points of contact for each contract and is signed-off as a true, accurate and complete set.

Once facility data is signed off by the divisional leads it is reviewed by the Environment, Energy and Sustainability team.

6.4 Emission source data capture processes

6.4.1 Emission sources

- **Data mining scanned images of electricity, natural gas, tanker delivered fuel invoices.** This is the primary method of capturing consumption information. A list of all vendors is maintained by the SAP team and validated by the Environment, Energy and

Sustainability team to ensure completeness and accuracy. Each Division using new vendors updates regarding supply vendors. Invoices for all known utility suppliers that are paid via the Serco financial system SAP are extracted and inspected by a dedicated team to capture:

- MPAN/MPRN or postcode for tanker delivered fuels
- kWh/litre/Kg/Metric tonnes/MJoules
- Units
- Cost
- Levies, e.g. Climate Change Levy in the UK
- invoice period or delivery date

Location data is checked and, for new facilities, identified by business name and full address. This process frequently identifies new locations that have purchased utilities but have not yet been captured by the process documented in the Facility Data Capture Process as documented above. These are reviewed and added where appropriate or identified as an instance where Serco pay as a service on behalf of a customer.

- **Data supplied by suppliers (UK)** Serco's two largest UK suppliers (npower and Dong) provide access to kWh data electronically. This approach covers approximately 10% of emission sources in the UK and 70% of Serco's consumption. Billing summary reports are likely to replace the invoice derived data completely where possible in 2017.
- **Automated Meter Reading (AMR)** AMRs have been installed across the majority of the UK

Leisure portfolio where AMR data is recorded and analysed for error using in-house proprietary data management software. Over 80% of gas consumption for the remainder of the UK, where Serco have operational control, have AMR installed. For electricity, more than 80% of consumption is through half hourly metering, although this constitutes less than 10% of locations.

- **Manual Meter Reading** UK Leisure sites have a paper record to complete gas and electricity readings that are taken at a set time each day. These are then transposed to a centrally held utility spreadsheet to capture consumption, cost and location information. The centrally held spreadsheet is then manually error checked in relation to:
 - Significant cost variance (vs. previous and benchmark periods)
 - Significant consumption variance (vs. previous and benchmark periods)

This data is compared to data received from AMRs. Any variances are investigated on the same day. Should meter readings on any day exceed a pre-determined boundary, emails are sent to the location manager who must investigate.

- **Estimation** For office accommodation, where consumption data is not available, it is calculated by using the number of Full Time Employees (FTE) for the facility compared to known consumption figures of similar facilities, or occupancy figures where appropriate.
 - UK – basis of estimation

has been refined to ensure office sites use office benchmark, light industrial and prison etc.

- Americas use the UK Basis of Estimation using local data.
- In Australia, People in Detention (PID) figures are added to the FTE figures to provide a more robust estimation methodology.

Verification

- **Data mining scanned images of invoices**

The capture spreadsheets contain various error checks such as kWh against cost range checking, comparing calculated climate change levy costs to kWh consumption and MPAN and MPRN checks against location data.

Once captured data is compared using Assure tools and when the external verification to ISO 14064-3 happens, a sampling plan is produced requiring the invoices covering 10% of consumption to be checked.

Data supplied by the suppliers electronically is used to verify the consumption data captured from invoices.

- **Data supplied by suppliers**
Data supplied electronically by suppliers is assumed to be correct, although on rare occasions comparison to invoice data has presented anomalies which are then resolved through investigation. This data is used to check the data mined from invoices. The reason it is not used as primary data is that:
 - It only covers a small percentage of emission sources identified from

invoices in the UK, although it is a high consumption percentage.

- It does not include all information that Serco require, such as Climate Change Levy.

Forecourt purchased vehicle fuel

- **Fuel Card purchased fuel**

The vast majority of forecourt fuels purchased for UK and Europe vehicles use a centrally controlled commercial fuel card. As this is directly invoiced back with individual purchase item information this data is considered as close to 100% accurate as is possible. In 2016, more people moved to purchasing fuel without a fuel card. The following processes describes how this data is processed:

- Arval provide monthly data to the Serco Fleet Management System. Out of this a monthly report is provided listing fuel card number, date purchased, gross and net cost, litres purchased, type of fuel, contract and division, and vehicle type and driver where known.
- For non-commercial vehicles, company car drivers are required each month to enter details of each business trip made during the month including start and end point, reason and date into an SAP portal. The driver also has to enter the start and end odometer reading for the vehicle for the month. This data is then authorised by the driver's line manager. The data is then extracted via a report for matching

against the litres purchased data. If no business mileage is entered for a company car, it is assumed all litres purchased were for private use and are excluded.

- The litres purchased data for each vehicle has a business /private mileage ratio applied so that the number of litres used for business in the month can be determined. For the commercial vehicles in the fleet, it is assumed that all fuel consumption is for business use

- **Non fuel card purchased information**

- Business mileage for reimbursement is entered into SAP
- Serco Fleet department produce a report showing business mileage and the types of vehicle for all ECO drivers

Estimated vehicle emissions (SGS)

- **Miscellaneous fuel purchases**
A small amount of fuel is purchased by the driver for other reasons including filling of hire cars, waiting for the issue of a fuel card, or emergencies. Hire car data is considered scope 3 and will be tracked for 2017 onwards as we look to extend the scope of our reporting to include scope 3 where material and practical to do so.

Verification

All data is prepared by Divisional leads, the Assure Manager and the Environment, Energy and Sustainability team. All data is included in the external verification to ISO 14064-3 and random

requests for data are requested and checked. Once all data is collated, it is visually inspected for any obvious anomalies before sign off by the Head of Environment, Energy and Sustainability.

Fugitive Emissions

• **Estate wide estimation**

Estimation based on operational knowledge of estate and likely refrigerant requirements – top up and recharge only. Assumption made on refrigerant type.

Verification

Verification is confined to confirmation of facility data and confirmation as reasonable by the external ISO 14064 verifiers.

6.5 Accuracy hierarchies

The accuracy hierarchy for scope 1 and 2 building energy is shown on the right. While AMR data is assumed to be the most accurate, it is not available for the majority of Serco’s electricity and gas meters. Some suppliers offer consumption data without costs, so invoice data is used to supplement.

Local meter reads are used in a small minority of cases with local management sign off and auditing. In most cases, they are taken to verify AMR to support real time EMS management systems.

Utility invoice data is used to capture the majority of consumption for UK, Americas, ASPAC and Middle East. Billing summary reports will be used as primary evidence increasingly in the future (derived directly for billing, often AMR).

Where data is not available for a short period, such as when a single invoice is not received, the value is calculated using the

estimation techniques described in the Estimation section.

Where consumption data is not available, a Basis of Estimation is used to estimate consumption using FTE rates or in the case of detention centres, FTE plus People in Detention (PID) rates.

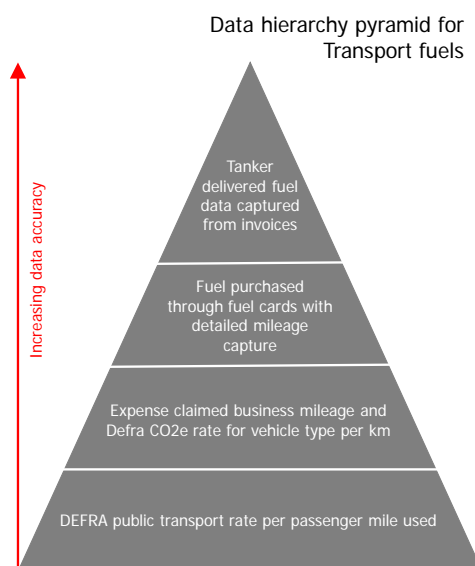
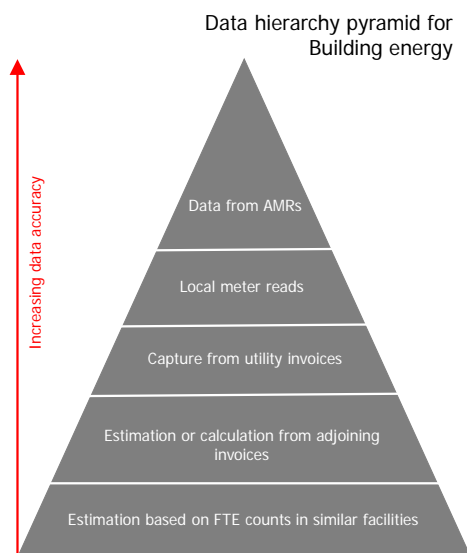
The majority of Serco delivered fuel is by tanker, and is used for marine, road transport and heating. Marine fuel oil is delivered by the metric tonne to two decimal points and the remainder by litre. All tanker delivered fuel data is captured from invoices.

Over 95% of forecourt purchased fuel in the UK is by fuel cards, and is reported to Serco monthly. At the same time, when our people use their vehicles for private mileage they record the total mileage and business mileage monthly, allowing a ratio of business mileage to private mileage to be calculated before applying DEFRA conversion factors

Those employees without fuel cards record their business mileage each month in SAP.

DEFRA guidelines for emissions by vehicle types per km are used to calculate CO2e.

Parts of Serco Global Services use buses and minibuses to transport staff. Mileage and size is recorded and emissions calculated using DEFRA public transport conversion factors



6.6 Methods of estimation

Emission Source	Method
Electricity and natural gas	<p>Estimation based on FTE</p> <p>There are a number of facilities where Serco staff work in premises where we have control over the consumption but no or partial sight of the consumption because they are working in facilities where the energy consumed is part of a service charge. In such cases, the following process is used:</p> <ul style="list-style-type: none"> • Electricity and natural gas consumption is captured and verified for several major UK facilities (all of portfolio type, ie direct services depots or prisons). • The average FTE figure for the reporting year is used to calculate an energy consumption figure for electricity and natural gas per FTE. • This figure is used for all office accommodation where the true consumption figure is unavailable. <p>Gaps in supply data</p> <p>Where data is captured from invoices, there can occasionally be a gap for a time period which must be calculated. If it is from a supplier that supplies data electronically, then this gap should already have been resolved, but where this does not help then the following approaches are used in the following order:</p> <ul style="list-style-type: none"> • For electricity, the meter readings from the previous 3 months are used to accurately calculate the consumption; this approach is documented in the MCR Summary Spreadsheet. • For natural gas, meter readings from either side are used to derive the number of units consumed and then the formula in the preceding invoice can be used to accurately calculate the kWh consumption; this process is documented in the MCR Summary Spreadsheet. • Where the above methods are not possible, either at the start or end of a reporting period or where a meter has been changed (often when the supplier changes), then the consumption must be estimated. • For electricity where consumption is typically flat, an average over several months is used and documented in the MCR Summary Spreadsheet. • For Gas, seasonality is taken into account. Occasionally, suppliers provide no invoice in summer months, where there is no supply, and this is checked and noted. Otherwise, an average taken over a year, or using the previous year's trend, is used depending on which seems most appropriate; this process is documented in the MCR Summary Spreadsheet.
Forecourt fuels	<p>GHG conversion factors</p> <p>Serco use the latest conversion figures each as year recommended by DEFRA.</p>
Vehicle transport for Serco Global Services	<p>GHG conversion factors</p> <p>Global Services have six locations operating vehicles to transport staff to and from work, these being 5, 7, 27, and 49 seat vehicles. The emissions have been calculated using the Defra Carbon conversion factors.</p>
Fugitive emissions	<p>Notes, calculations & assumptions</p> <p>Outlined in Serco's MCR Summary Spreadsheet tab.</p>

6.7 Materiality

6.7.1 Weighted average emissions

Serco has decided to set its materiality threshold at 5% for UK and Europe and Serco Global services, and 10% for Americas, ASPAC and Middle East, resulting in an overall level of below 5%.

6.7.2 Exclusions

There are a number of potential emission sources that Serco have decided are immaterial and so are not included in its MCR report, as capturing the information would outweigh the value of reporting the GHG impact and is considered to be well below the materiality threshold of 5%. These include:

Fugitive emissions from Middle East, ASPAC and Serco Global Services.

- A small amount of fuel is purchased by the driver for other reasons including filling of hire cars, waiting for the issue of a fuel card, or emergencies. Several examinations of expenses resulting from these cases have shown the amount to be de-minimis and are not reported. Previously these included:
 - mileage in hire cars claimed as personal expenses
 - Business mileage in private cars claimed as personal expenses
 - Instances where fuel costs are claimed, as opposed to mileage

As a consequence of less fuel cards being used in 2016, business mileage in private cars claimed as personal expenses is included in 2016.

6.7.3 Conversion factors, calculations and Intensity Metrics

Conversion factors

Emission factors relevant to each year will be applied, using the latest DEFRA conversion factors and the International Energy Agency, where appropriate, for overseas electricity. These have been updated during Q4 of each calendar year in readiness for end of year reporting, MCR and CDP. This approach is consistent with good reporting practice and is the methodology applied in the Corporate Responsibility Report and the Annual Directors' Report. All reporting uses carbon dioxide equivalents, including the global warming potential of all six 'Kyoto' greenhouse gases, stated in section 92 of the Climate Change Act 2008, these being: Carbon Dioxide, Methane (CH₄), Nitrous Oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulphur hexafluoride (SF₆).

All conversion factors are updated in Assure, allowing more accurate conversions to be applied for internal and external reporting.

Intensity metrics

Serco uses the intensity metric tonnes CO₂e/1,000 FTE.

Glossary

CCA	Climate Change Agreement
CH ₄	Methane
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide equivalence
CRC	Carbon Reduction Commitment Energy Efficiency Scheme
ECO	Employee Car Ownership Scheme
EMS	Environmental Management System
EU ETS	EU Emissions Trading System
FTE	Full Time Employee
GRMSC	Group Risk Management and Safety Committee
GSOP	Group Standard Operating Procedure
GWP	Global Warming Potential
HSE	Health, Safety and Environment
HFCs	Hydroflourocarbons
KPI	Key Performance Indicators
kWh	Kilowatt hours
MCR	Mandatory Carbon Reporting
MWh	Megawatt hours
N ₂ O	Nitrous Oxide
NFR	Non Financial Reporting
PFCs	Perflourocarbons
PID	Person in Detention
SF ₆	Sulphur hexaflouride
SRC	Safety, Risk and Compliance
SPOC	Single Point of Contact