Ofgem

Review of ECO Supply Volume Methodology

October 2019

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1. Executive summary

The ECO3 Order establishes thresholds for customer numbers and supply volumes (electricity kWh and gas kWh) beyond which a supply licence-holder will be considered a 'participant' for the purposes of ECO3. Participants become obligated to deliver energy efficiency measures under the scheme when they exceed these thresholds for the relevant phase.

The current methodologies have been in place since the start of ECO1 in October 2012 and were subject to a consultation process[1] at that time. At that time the methodology was considered to provide an accurate view of supply to domestic customers. Since then, various changes in metering technologies and settlement practices have occurred. The methodologies have not subsequently been reviewed. Ofgem have therefore commissioned this review to determine whether each methodology remains appropriate.

In completing this review, we have undertaken an evaluation of:

- the likely accuracy of the current supply methodologies for gas and/or electricity.
- the Elexon and Xoserve data flows to consider how domestic supply quantities can be captured and validated.
- any potential gains/losses and who the likely winners and losers might be if the methodologies were to be changed.

Recommendations

From this analysis, we make the following recommendations for potential amendments to the calculation of quantities to be reported by participants under the ECO scheme:

1. Re-define the reporting criteria to capture those electricity customers opting for elective half-hourly settlement.
2. Make minor clarification of the guidelines for reporting Annual Quantities for gas customers to exclude the use of Formula Year AQ parameter in this context.

[1] A series of five open letters; November 2012 to 30 April 2013 and four Guidance for Suppliers documents produced with effective dates from 1st May 2013 to 31st March 2015.

2. Scope of this report

2.1 Purpose of this report

The ECO3 Order establishes thresholds for customer numbers and supply volumes (electricity kWh and gas kWh) beyond which a supply licence-holder will be considered a 'participant' for the purposes of ECO3. Participants become obligated to deliver energy efficiency measures under the scheme when they exceed these thresholds for the relevant phase.

The current methodologies have been in place since the start of ECO1 in October 2012 and at that time was considered to provide an accurate view of supply to domestic customers. However, the methodologies have not subsequently been reviewed and may no longer be reflective of the definition in the ECO3 Order. Ofgem have therefore commissioned this review to determine whether each methodology remains appropriate.

This report sets out the findings and recommendations arising from the review we have undertaken for Ofgem of the Energy Company Obligation (ECO) Supply Volume Methodology. This review was carried out by GHD for Ofgem under the terms of the call off for the ECO Supply Volume Methodology Review under the GEMA Framework Agreement contract between GHD and Ofgem.

2.2 Scope and limitations

In carrying out our assessment, we have reviewed the audited gas and electricity supply volumes provided by participants that were either in excess of ECO3 supply volume thresholds or within 10% of those thresholds. Additionally, we have reviewed the published electricity and gas methodologies and data source specifications.

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GHD's scope of work has been to carry out external review of the scope of previous assurance audits to identify the main areas of assumptions not covered by previous assurance work.

2.3 Scope of our opinion

In carrying out our review and setting out our findings, we have considered the required purpose of the methodology and its outputs. In assessing the findings of our analysis, we consider the materiality for key stakeholders (i.e. participants in the ECO3 scheme).

2.4 Required level of assurance

Under the ECO3 scheme, the total Home Heating Carbon Reduction Obligation (HHRCO) cost savings which must be achieved before 1st April 2022 are £8.253bn. The impact on participants identified under ECO3 as having an obligation is therefore material. It is therefore considered that a high degree of assurance in the integrity of the methodology and its suitability for use is required.

In this context, assurance with respect to the methodology assumptions; the input data used; the accuracy of the calculations carried out within the methodology; the applicability of any adjustments made to participant volume data by each participant before submission; and validation of outputs is considered to be required.

2.5 Thresholds of materiality

Ofgem apply a threshold for materiality of reported volumes in audit validation of submissions made by licensed participants under the ECO scheme.

3. Energy Company Obligation – current basis

3.1 ECO obligation thresholds

The Energy Company Obligation (ECO) was enacted through the following Statutory Instruments:

- The Electricity and Gas (Energy Company Obligation) Order 2012 Number 3018
- The Electricity and Gas (Energy Company Obligation) Order 2014 Number 3219
- The Electricity and Gas (Energy Company Obligation) Order 2018 Number 1183

Under the scheme, licensed participants, for whom customer numbers and quantity of gas or electricity supplied exceeds defined thresholds, are obliged to implement a minimum level of energy efficiency measures.

Table 3-1 – ECO3 thresholds and phasing provided in Statutory Instrument 2018 (No. 1183)

Phase	1	2	3	4
Qualification year (i.e. period for which customer numbers and energy supplied are calculated)	2017	2018	2019	2020
Number of domestic customers	>250,000	>200,000	>150,000	>150,000
Electricity supply to domestic customers	500GWh	400GWh	300GWh	300GWh
Gas supply to domestic	1400GWh	1100GWh	700GWh	700GWh
Phase start/end dates (i.e. period for delivery of scheme obligations)	1st October 2018[2] to 31st March 2019	1st April 2019 to 31st March 2020	1st April 2020 to 31st March 2021	1st April 2021 to 31st March 2022

3.2 Obligation requirements

In each phase of ECO, an aggregate yearly delivery obligation for the installation of energy efficiency measures by electricity and gas participants is set as per Table 3-2 below. Specific sub-obligations exist including the solid wall minimum requirement and rural sub-obligation.

[2] Although the ECO3 scheme came into force 3 December 2018, the phase 1 obligation period was applicable for actions delivered by participants from 1 October 2018.

Table 3-2 – Total energy company obligations (electricity and gas) by phase according to ECO3.

Phase	Total home-heating cost reduction obligation (HHCRO)	Total solid wall minimum requirement
1	£1.179b	£0.103b
2	£2.358b	£0.206b
3	£2.358b	£0.206b
4	£2.358b	£0.206b

The aggregate obligation is allocated to those participants whose energy supplies or customer numbers exceed the qualifying thresholds set according to ECO3.

The total yearly obligation per individual participant for electricity or gas is calculated as per the appropriate value from Table 3-2 multiplied by the ratio of:

(a) the energy supplied by that participant expressed as a proportion of

(b) the total supply for all participants exceeding the scheme thresholds.

For phases two to four, which are relevant to this report, the amount of energy supplied for the purposes of ECO is considered to be the excess of the amount notified over the applicable threshold amount for the qualifying supply for that phase as given in Table 3-1 above. Participants whose volume of energy supplied falls below the level of qualifying supply would not become obligated under the ECO.

A similar calculation is performed for each participant in a group using the relative contributions of each group participant as a proportion of the total contribution of that group. This figure is multiplied by the ratio of supply delivered by that group to the total supply.

3.3 Supplier participation in the scheme

Notified participant volumes and customer numbers relating to the qualification year appropriate for each phase are provided by licensed participants to Ofgem by 1st February the following year. Additionally, where a participant is a group company the participant must provide notification for each of the other members of that group (independently for electricity and gas).

For the qualifying year 2018, 17 participants were captured by the scheme obligations: Avro Energy Limited; Centrica plc; Simple Energy Limited; Co-operative Energy Ltd; E (Gas and Electricity) Limited; EDF Energy; E.ON Energy Solutions Limited; Impello plc; Hudson Energy Supply UK Limited; Npower; OVO Energy Ltd; Iberdrola SA; SSE PLC; The Utility Warehouse (Telecom Plus); Green Network UK PLC; Octopus Energy Limited and Utilita Energy Limited.

3.4 Validation by Ofgem

Participants for whom volume reported in its submission to Ofgem under the scheme is above the supply volume thresholds in Table 3-1 above, or within 10% of those thresholds, are subject to independent audit, on behalf of Ofgem, of the notified values and the data informing these values. Ofgem have advised that each year a number of submissions must be revised following such audits and resubmitted. Audit reports for participant submissions made February 2019 in respect of the period 1 January 2018 – 31 December 2018 and a copy of Ofgem's obligation-setting calculator for that period have been provided to GHD as part of this assessment.

4. GHD review of ECO audit reports

Ofgem has provided copies of the 2018 (Phase 2) ECO audit reports covering participant obligations under ECO3. An audit was performed on each participant that was within 10% of the customer number thresholds defined in Table 3-1.

Where errors were identified during the audits, resubmissions with the correct data were subsequently made to Ofgem by participants.

These audit reports have been subsequently analysed by GHD. An assessment framework has been developed to identify common issues or themes from the audit reports.

Table 4-1 below presents a summary of the conclusions of these 2018 ECO audit reports.

Table 4-1 – Summary of conclusions from 2018 ECO audit reports reviewed by GHD.

Validation Type	Themes Identified - Gas	Themes Identified - Electricity
Correct data-source used	All participants used the correct data source.	All participants used the correct data sources – in one case the data was obtained by request to Elexon rather than directly. One participant extracted only customers with usage over 10,000 kWh.
Correct cut-off time	A number of participants were observed to be using data from month-end reporting rather than the 1st of the month, which led to a slight under-representation of supply volumes.	One participant performed an extract from the settlement date 23rd January instead of from the beginning of the year.
Correct process for identification of domestic customers	The process performed correctly in all cases where documentation was provided to auditors.	The process performed correctly in all cases where documentation was provided to auditors. In some cases filtering was not performed as the participant serves only domestic customers.
Comparison with alternative data sources (internal)	Direct comparisons with relevant internal data sources were typically not mentioned by the auditors.	Direct comparisons with relevant internal data sources were typically not mentioned by the auditors.
Comparison with alternative data sources (external)	Comparison with other Xoserve/CNG data sources was not typically mentioned by the auditors.	Comparison with other Elexon data flows was performed by some participants. Those participants typically performed better.

Validation Type	Themes Identified - Gas	Themes Identified - Electricity
Documented procedure	One participant did not have a documented procedure which made the audit process difficult. *This is identified as a key issue to be addressed by all participants.*	One participant did not have a documented procedure which made the audit process difficult. *This is identified as a key issue to be addressed by all participants.*
Indication of internal review	Larger participants typically have a more developed procedure for this. At least some 'sense checking' was normally performed.	Larger participants typically have a more developed procedure for this. At least some 'sense checking' was normally performed.
Evidence of comparative analysis with previous years	For some rapidly changing business this comparison will be less useful than for others. The internal review 'sense check' may have been a comparison with previous years.	For some rapidly changing business this comparison will be less useful than for others. The internal review 'sense check' may have been a comparison with previous years.
Original submission retrievable	Participants using spreadsheets to perform calculations were able to retrieve exactly their original submission during the audit process. Participants using database technology were unable to exactly reproduce their original submission due to customer database fluctuations and/or settlement run updates.	Participants using spreadsheets to perform calculations were able to retrieve exactly their original submission during the audit process. Participants using database technology were unable to exactly reproduce their original submission due to customer database fluctuations and/or settlement run updates.
Final submission review	One participant accidentally entered gas figures into the electricity figures box and *vice versa*.	One participant accidentally entered gas figures into the electricity figures box and *vice versa*.

5. Identification of domestic customers - electricity

5.1 Classification of customers

Historically, electricity metering for Settlement purposes has been on the basis of Half-hourly (HH) metered customers assigned to Profile Class 00, and Non-Half-Hourly (NHH) metered customers assigned to Profile Classes 1 – 8. Within this classification, Profile Classes 1 and 2 are reserved for domestic customers (Domestic Unrestricted and Domestic Economy 7/10 (off-peak) respectively).

Profile classes are assigned to Meter Point Administration Numbers (MPANs) according to the criteria set out in BSCP516[3].

"A Domestic Customer means a customer supplied or requiring to be supplied with electricity at Domestic premises (but excluding such customer in so far as he is supplied or requires to be supplied at premises other than Domestic premises).

A Non-Domestic Customer means any customer not included in the above Domestic Customer definition"

5.1.1 Process for classification of customers

The Balancing and Settlement Code (BSC) contains a number of procedures relevant to the calculation of participant volumes:

- BSC P504 – Non-half-hourly data collection for metering-systems registered in SMRS
- BSC P505 – Non-half-hourly data aggregation for metering-systems registered in SMRS;
- BSC P508 –Supplier volume allocation agent; and
- BSC P516 – Allocation of profile classes & SSCs for non-half hourly SVA metering systems registered in SMRS.

BSCP516 is relevant to the ECO Supply Volume Methodology as it sets out the process by which customers are assigned to profile classes.

Profile classes are allocated[4] upon various events including:

- New Meter System Identifier;
- Change of use from domestic to non-domestic or vice versa; and
- Change in meter configuration (including change of switched load capability).
- An annual process triggered each May but this is not applicable to domestic customers

5.2 Changes made to classification process since the original introduction of ECO

The following changes to the classification process since the ECO scheme was introduced have been made:

- BSC P272 – Mandatory half hourly settlement for profile classes 5-8;

[3] https://www.elexon.co.uk/wp-content/uploads/2016/02/BSCP516_v10.0.pdf
[4] As per BSC P516 Version 8.0

- BSC P322 – Revised implementation arrangements for mandatory half hourly settlement for profile classes 5-8;
- BSC P339 – Introduction of new Consumption Component Classes for Measurement
- BSC P346 – Changes to the BSC Specified Charged to facilitate Elective HH settlement

The changes introduced under P339 are relevant to the scope of this report and considered further below.

5.2.1 Measurement classes

Measurement classes provide broad classification of meter types which facilitates further classification in terms of profile classes and consumption component classes.

New classifications E – G were introduced to the classification of measurement systems on 1 April 2017[5] under modification proposal P339 for half-hourly settlement of <100kW customers.

Table 5-1 – Electricity measurement classes defined by BSC

Measurement Class	Description	Comment / potential relevance to ECO
A	Non-half-hourly metered	Related to profile classes 1 and 2
B	Non-half-hourly unmetered	
C	HH metered in 100kW premises	Related to profile class 00
D	Half-hourly unmetered	
E	Half-hourly metering equipment at below 100kW premises with current transformer	
F	Half-hourly metering equipment at below 100kW premises with current transformer or whole current and at domestic premises	Related to profile class 00
G	Half-hourly metering equipment at below 100kW with whole current and not at domestic premises	

5.2.2 Consumption Component Classes

The above measurement classes form an aspect of the consumption component class (CCC) for each MPAN. A CCC determines a number of factors related to an MPANs operation, as per Table 5-2 below.

Table 5-2 – Consumption component class criteria

Factor	Option
Measurement Quantity ID	Export
	Import

[5] BSC P339

Factor	Option
Data Aggregation Type	HH
	NHH
Metered/Unmetered Indicator	Metered
	Unmetered
Consumption Component Indicator	Basic consumption (or generation)
	Metering system specific line-losses
	Metering system non-specific line-losses
Actual/Estimated Indicator	Actual
	Estimated
AA/EAC Indicator	Annualised Advance
	Estimated Annual Consumption
AA/EAC Indicator	Metering Systems which are not 100kW Metering Systems (equivalent to Measurement Class "E")
	Metering Systems which are 100kW Metering Systems (equivalent to Measurement Class "C")
	Metering Systems which are at Domestic Premises, are not 100kW Metering Systems and for which consumption data is aggregated for reporting purposes (equivalent to Measurement Class "F")
	Metering Systems without current transformers which are not at Domestic Premises, are not 100kW Metering Systems and for which consumption data is aggregated for reporting purposes (equivalent to Measurement Class "G")
	Metering Systems with current transformers which are not at Domestic Premises, are not 100kW Metering Systems and for which consumption data is aggregated for reporting purposes (equivalent to Measurement Class "H")
	Not applicable

A total of 53 CCCs currently exist which relate to different specific combinations of the above criteria. Not all permutations of the above criteria are used. This information is recorded as data item J0160 and is included in data-flow D0296 which is considered later in this report as a potential additional data source which may support future ECO reporting obligations.

CCC ID 36[6] corresponds to half-hourly actual metered imports for domestic premises with peak demand < 100kW and would therefore capture elective HH domestic customers.

[6] BSC Section G and BSC P339 consultation documentation indicate that CCC Id 36 is the appropriate selection, however we note that some publications (https://www.elexon.co.uk/mod-proposal/p339/) indicate that CCC Id 42 corresponds to the appropriate description.

5.2.3 Estimation of potential number of elective HH electricity customers

Smart meter uptake

Following the implementation of CSCP change proposal CP1714, elective HH settlement can be made available by participants to domestic customers. These customers would be registered to Profile Class 00 and therefore under current ECO3 rules would not contribute to supply volumes for the purposes of calculating participant obligations. An estimate of the number of elective HH customers is therefore necessary to determine the impact of this category on participant obligations.

BEIS publishes quarterly reports on the number of smart meters installed and operated in domestic properties. According to the June 2019 report[7] over a quarter of domestic meters are now smart meters operating in smart mode, amounting to approximately 7.9m electricity smart meters and 5.7m gas smart meters in total of which approximately 97.4%[8] are registered to large suppliers whose supply volumes would exceed the participation thresholds applicable to the ECO3 scheme. Table 5-3 provides the numbers of electricity smart meters in operation as at the end of June 2019.

Table 5-3 – Number of domestic electricity smart meters in UK operating in smart mode[9]

Target	Domestic Smart Meters Operated	Estimated % of Domestic Properties
Large suppliers	7,654,779	29.8%
Small suppliers	197,500	9.6%
2020 Target (All domestic premises)	27,757,945	100%

BEIS are currently consulting on revised trajectory and timelines for the smart meter programme roll-out with revised milestones to 2024[10].

Uptake of elective HH settlement by domestic customers

Uptake of elective HH settlement by domestic customers is believed to be approximately 60,000 meters to date. Elective HH settlement has been available to domestic customers since 1st April 2017 which is approximately 30 months.

Based on the current 7.9m households operating electricity smart meters in smart mode, this would correspond to uptake of elective HH settlement of approximately 0.76% of smart meter users.

[7] Smart Meter Statistics in Great Britain: Quarterly Report to end June 2019
https://www.gov.uk/government/statistics/statistical-release-and-data-smart-meters-great-britain-quarter-2-2019
[8] Smart Meter Statistics in Great Britain: Quarterly Report to end June 2019
https://www.gov.uk/government/statistics/statistical-release-and-data-smart-meters-great-britain-quarter-2-2019.
[9] Smart Meter Statistics in Great Britain: Quarterly Report to end June 2019
https://www.gov.uk/government/statistics/statistical-release-and-data-smart-meters-great-britain-quarter-2-2019
[10] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/831734/smart-meter-policy-framework-post-2020-consultation.pdf

6. Supply volumes for domestic customers – electricity

6.1 Current reporting requirements

Calculating electricity supply

To calculate the amount of electricity supply, suppliers should use the methodology below.

Methodology for calculating the amount of electricity supply

3.12. ELEXON settlement data should be used for all notifications, given its acceptance for settlements data across the industry.

3.13. Suppliers should provide the total kilowatt hours (kWh) delivered to customers on Profile Classes 1 and 2. Suppliers should remove any unmetered supply from this data. This total kWh should be based on the settlement data available from 22 January of the year after the relevant qualification year, split by licence, flow and provided to suppliers by ELEXON.

3.14. To identify the total kWh for each profile class, suppliers must use the D0030 'Non Half hourly Distribution Use of System Charges (DUoS) report' data provided to both suppliers and Licensed Distribution System Operators (LDSO). This D0030 flow contains both consumption and losses data, but only consumption data is required, as ECO only requires the volumes which have been delivered to customers. Therefore no adjustments to line losses need to be made for reporting supply amounts for ECO.

https://www.ofgem.gov.uk/publications-and-updates/energy-company-obligation-2018-22-eco3-guidance-supplier-administration

6.2 Relevant profile classes

Currently, a snapshot is taken on 22nd January for the preceding qualification year using data flow D0030. Due to the rolling process of settlement day reconciliation, these figures include estimated NHH values.

Participant volumes are determined for the appropriate qualifying year on 22nd January following the end of that year. The electricity market operates a series of reconciliations for each settlement day, the first being on average 29 days after the settlement date and the last typically being 14 months on from that settlement date. During this process, estimated readings are over-written by actual data. The industry standard for the percentage of NHH systems with missing data is 0.1% by reconciliation run R3[11], indicating good quality data for the majority of the qualifying year.

Table 6-1 – Profile class descriptions and relevance to ECO3.

Profile Class	Description	Comment
00	a) Customers with peak load usage of electricity x >= 100kW b) Customers formerly in Profile Classes 5 -8 but migrated to Profile Class 00 under P272 and P322 (April 2017) c) Domestic customers with elective half-hourly settlement	a) Includes some domestic supplies relevant to ECO3 but not currently captured b) Not applicable to ECO3 c) relevant to ECO3 but not currently captured

[11] https://www.elexon.co.uk/wp-content/uploads/2012/02/PPC-SP09-July-2019.pdf

Profile Class	Description	Comment
	arrangements via SMETS/SMETS2 meters	
1	Domestic unrestricted customers	Currently captured under D0030 data flow; import metering without switched load capabilities (or where the participant is not aware of switched load capabilities) are allocated to this class.[12]
2	Domestic Economy 7 customers	Currently captured under D0030 data flow; import metering with switched load capabilities are allocated to this class
3	Non-domestic unrestricted customers	Not applicable to ECO
4	Non-domestic Economy 7 customers	Not applicable to ECO

6.3 Supply volume calculation and data sources used for reporting ECO supply volumes

Reporting of the total amount of electricity supplied is based on the latest settlement data available for the qualification year as of 22nd January of the following year, split by license and provided to participants by Elexon in the form of the D0030 non-half hourly DUoS charges report data. This supply volume must be submitted to Ofgem by 1st February of the same year, in advance of the start of the relevant ECO phase. No adjustments for line losses should be made. The data flow D0030 for a specific settlement period contains synthetic HH electricity quantities calculated from NHH data and the daily profile for that settlement period. The methodology for calculating daily profiles is not assessed as part of this report, as data is re-aggregated for the purposes of supply volume calculations.

D0030 are issued on a daily frequency and provide metered data aggregated on a supercustomer[13] basis for all meter points registered to that participant in each profile class.

All participants have access to data flow D0030 either directly or by request from Elexon.

BSC P508 governs the calculation of participant volumes and profile calculations according to the Participant Volume Allocation Agent (SVAA). Version 28 is the latest version of this document and is effective from 27th June 2019. Volume Allocation Runs (VAR) will calculate participant volumes, to be passed to the Settlement Administration Agent (SAA) in MWh.

BSC P504 and BSC P505 define procedures for collecting and aggregating volumes for non-half hourly meter readings, respectively. Both of these documents contain procedures for validating data at various steps of the procedure and precise requirements on the relevant data structures.

6.4 Participant validation of D0030 supply volumes

A number of other settlement data flows may be used by participants to validate their supply volume submissions as per Table 6-2 below.

[12] As per BSC P516 Version 8.0
[13] Supercustomers" refer to a method of billing for use of system charges, which aggregates consumption and standing charges for all customers within each profile class and whose meters are registered to the participant being billed.

From the audit reports we reviewed, it was apparent that different participants applied different approaches to validation in this way. In some cases the systems used by participants do not allow for direct access to certain data flows and data must instead be requested from Elexon.

Table 6-2 – Data flows currently used in the validation of supply volume data[14]

Data Flow	Comment
D0004 – Notification of failure to obtain reading	Used for identification of vacant sites
D0082 - Supplier - Supplier Purchase Matrix Report	Contains similar data to D0030 however at a higher level of aggregation. This data flow is also suitable for the validation of Profile Class 00 data.
D0242 – Supercustomer DUoS Daily Statement	Primarily used for the validation of supercustomer DUoS bills. This data flow is also suitable for the validation of Profile Class 00 data.
D0296 – Supplier BM Unit Report	Contains similar data to D0030 however at a higher level of aggregation. This data flow is also suitable for the validation of Profile Class 00 data.
D0303 – Notification of Meter Operator, Supplier and Metering Assets installed / removed by the MOP to the MAP	Used for identification of changes to metering assets.

[14] As per audit reports provided to GHD by Ofgem on 18th September 2019

7. Domestic supply volumes not captured– electricity

We believe the following categories of consumption would not be captured by the current methodology:

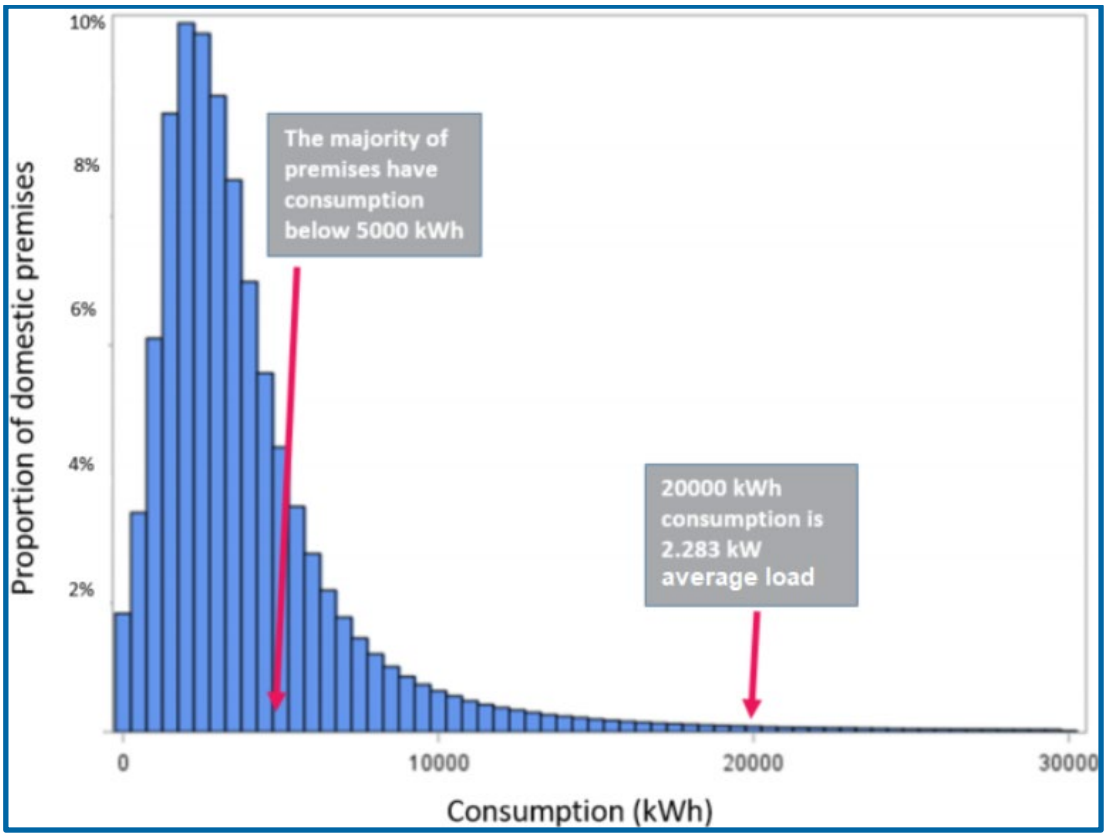
- Domestic customers with peak consumption >100kW (i.e. falling within mandatory HH settlement) (profile class 00)
- Domestic customers with SMETS meters opting for elective HH settlement (profile class 00)
- Demand prior to netting of domestic generation

We consider each of these categories in turn below.

7.1 Indicative analysis of potential materiality of mandatory HH settlement uptake (domestic customers > 100kW)

Analysis is presented below on the potential materiality of HH settlement affecting domestic customers > 100kW peak consumption. Figure 7-1 presents the distribution of domestic consumption by proportion of domestic premises[15].

Figure 7-1 – Histogram of household energy consumption



[15] The definition of domestic used in the BEIS source data (https://www.gov.uk/government/publications/regional-energy-data-guidance-note) is approximately equivalent with that used in this report (i.e. profile class 1 and 2 customers), though customers with annual consumption >100,000 kWh are reallocated to the non-domestic sector in the BEIS analysis.

Source: BEIS - SUB-NATIONAL ELECTRICITY AND GAS CONSUMPTION STATISTICS January 2018
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/678653/Sub-national_electricity_and_gas_consumption_summary_report_2016.pdf

Note: in converting annual consumption in kWh to peak kW, it has been assumed that peak domestic load is ten times average load.

On this basis, the 100 kW peak load threshold applicable to mandatory HH settlement equates to approximately 86,000 kWh pa consumption. This is noted to be beyond the range of the distribution.

Although the data set does not include peak >100kW customers and therefore represents a truncated distribution, it nevertheless provides useful insight into likely consumption beyond the domain of data presented. The proportion of domestic households falling into mandatory HH settlement is therefore considered to be negligible and hence immaterial to ECO.

7.2 Indicative analysis of potential impact of elective HH settlement uptake

Table 5-3 above provides the number of domestic electricity smart meters operating in smart mode, which equates to 28.3% of domestic properties. We have calculated an estimated impact on ECO3 supply volumes based on the assumed 0.76% uptake of elective HH settlement noted in section 5.2.3 and 7,654,779 smart meters currently deployed is indicated in Table 7-1 below.

Table 7-1 – Impact on ECO3 supply volumes by uptake of elective HH metering

Uptake Scenario	Estimated Impact on ECO3 supply volumes based on current
0.76%	0.19%

In order to settle customers half-hourly, suppliers need access to their customers' half-hourly data from their smart meter. Under the current rules, domestic consumers' half-hourly consumption data can only be accessed for settlement if they have given opt-in consent.

7.2.1 Trends potentially affecting uptake of elective HH settlement

Increased adoption of heat pumps and/or electric vehicles may increase customer appetite for elective HH settlement in order to take advantage of lower off-peak prices for those uses.

7.2.2 Ongoing consultation on market-wide half-hourly settlement (MHHS)

Further to the open letter published by Ofgem 12 August 2019[16], views are currently being sought on market-wide half-hourly settlement (MHHS).

7.3 Domestic distributed generation netted from consumption

For domestic (embedded) generation, it is not mandatory for a separate meter to be installed if the installed capacity of domestic generation is 30kW or less. In these cases, electricity export

[16] https://www.ofgem.gov.uk/system/files/docs/2019/08/open_letter_-_mhhs_rfi_voluntary_notice.pdf

payments are deemed (as 50% of installed capacity multiplied by the capacity factor of the installation).[17].

The presence of embedded generation behind the meter will reduce the demand profile so that only net (rather than gross demand) is reported.

To the extent that the ECO scheme is based on assumptions regarding *gross* consumption, the obligations calculated under the scheme on the current basis will be distorted.

[17] Measuring the electricity you export, Energy Saving Trust (https://www.energysavingtrust.org.uk/sites/default/files/reports/Measuring%20the%20electricity%20you%20export.pdf)

8. Proposed ECO reporting amendments - electricity

8.1 Proposed amendments

Historically, ECO reporting requirements have been based on quantities and customer numbers for profile classes 1 and 2 only. However, some domestic customers fall outside these profile classes because their consumption exceeds the 100kW threshold that triggers a mandatory requirement for HH meter.

In addition, Balancing and Settlement Code (BSC) change proposal CP1474 implemented changes that facilitated the elective HH settlement of SMETS Meters[18]. This led to an update in June 2017 to the Change of Measurement Class (CoMC) process to facilitate these transitions and as part of these processes the customer is re-assigned to profile class 00.

Profile class 00 data flows are regulated by several BSC codes of practice: COP2, COP3, COP5 and COP10. These codes broadly dictate the data which must be returned by half-hourly meters.

The existing data flow D0030 used for the calculation of supply volumes for profile classes 1 and 2 can also be used for the calculation of profile class 00 supply volumes by extending the set of allowed profiles classes to include profile class 00.

The data flow D0030 contains nested data structures which allow for the specification of supply volumes for certain profile classes, however it is not possible to specify a consumption component class for which to extract data. The implication of this is that it is not possible to unambiguously distinguish between domestic and non-domestic customers in profile class 00 within the D0030 data flow.

This report identifies several possible options to address this as presented in Table 8-1,and recommends one of these options.

Table 8-1 – ECO electricity supply volume methodology options

Option	Description	Recommended data flows	Additional data required	Additional Calculations required
A	No change to existing procedures	D0030	No change	No change
B	Include an estimate of supply volumes for domestic profile class 00 customers in addition to profiles classes 1 and 2.	D0030	Average domestic supply volume across profile classes 1 and 2; Number of domestic profile class 00 customers	Modify current calculation by adding the product of these two new data elements to the original value calculated as per A

[18] Elective HH Settlement Process - https://www.elexon.co.uk/meeting/walkthrough-elective-hh-settlement-process/

Option	Description	Recommended data flows	Additional data required	Additional Calculations required
C	Include supply volumes for elective HH domestic profile class 00 customers in addition to profiles classes 1 and 2.	D0030; D0296	Capture of precise profile class 00 elective HH domestic supply volumes by specifying CCC Id 36	Modify current calculation by adding additional supply volumes specified to the original value calculated as per A

8.1.1 Option A: Discussion

Option A is the status quo. Domestic customers opting for elective HH settlement would not be captured under the current methodology.

8.1.2 Option B: Discussion

Option B would offer a simple method of capturing approximate supply volumes for customers who have migrated to elective HH metering. In this case, each participant would identify the numbers of domestic and non-domestic profile class 00 customers they supply according to their Customer Relationship Management system MPAN records and add an amount to their electricity supply volume equal to:

- Number of domestic customers in PC00; multiplied by
- Average domestic supply volume [kWh] based on the average supply volume across profile classes 1 and 2 (using D0030 data flow values as already used).

This option, while simple, would cause obligations to be calculated on the basis of an estimate rather than actual values. Moreover, the accuracy of the estimation would decrease over time as a greater proportion of domestic customers switched from profile classes 1 and 2 to profile class 00.

8.1.3 Option C: Discussion

Although Option B may improve the data submitted by requiring participants to identify the number of their domestic customers in profile class 00 and then include an estimate of volumes attributable to them based on average domestic customer consumption, such an approach would only provide an approximation. A better approach would require participants to report *actual* energy volumes for such customers.

Option C sets out a proposed methodology for the reporting of such data by participants. It would provide a more accurate view based on actual settlement data and would also allow for verification through comparison with other data flows highlighted in Table 6-2 and Table 8-2.

Additional data items to support data validation

In addition to the assessment above, an investigation was performed into other data flows which could potentially be used by participants to cross-check their reported values prior to submission. Various potential options for further consideration are presented here. (Table 8-2).

Table 8-2 – Further validation data flows identified

Data flow	Comment
D0040	Provides aggregated participant consumption and line losses broken down by participant and CCC which may be used as a validation of options B or C.
D0081	Provides aggregated participant consumption and line losses broken down by participant and CCC which may be used as a validation of options B or C (in the same manner as D0040).
D0276	Provides settlement period participant consumption and line losses broken down by participant and CCC which may be used as a validation of options B or C (in the same manner as D0040).
D0298	Provides aggregated participant consumption and line losses broken down by participant and CCC however split by measurement class, which makes this data flow more complex to use than others.

The above flows may be used to perform validation of supply volumes by comparison of participant consumption with participant volumes, however D0296 is recommended for the capture of relevant profile class 00 supply volumes.

8.2 Recommended option

Option C is the recommended option because of the accuracy it would provide in reported volumes.

9. Impact of inclusion of HH-settled domestic customers

9.1 Impact at current level of elective HH uptake

As noted in Table 7-1, assuming approximately 0.76% uptake of elective HH[19] and 28% deployment of smart meters could result in approximately 0.19% of domestic electricity consumption not being captured under the current ECO supply volume methodology.

Under the terms of the scheme, the total obligation is fixed. Therefore any changes to reporting of energy would not change the total amount, but would alter the proportions of that total to be delivered by individual participants.

Using the obligation-setting calculator provided by Ofgem, we have carried out analysis to estimate the potential impact on participant's obligations of amending the methodology to include the energy that is not captured under the current methodology. At current levels of elective HH settlement uptake, this analysis indicates that the materiality to ECO obligations of such uncaptured energy could be a benefit in the region of £10k - £20k p.a. for smaller participants and a cost in the range £1.5k - £3k p.a. for larger participants. In this context, a benefit means that the participant's obligation is lower than would be the case if elective HH-settled energy were included in the ECO supply volume methodology. Conversely, a cost means that the participant pays more than would be the case if elective HH-settled energy were included.

The greater impact on small participants arises because the scheme obligation is driven by the excess supply volume over a defined threshold and the proportional impact on that excess is greater for participants closer to the threshold than for those whose supply volumes significantly exceed the threshold. The mechanism by which these impacts occur is considered in further detail in section 9.3.

9.2 Potential impact of future uptake of elective HH settlement

In the event that uptake levels for elective HH settlement were to increase in future, a corresponding reduction in energy consumption for non-half-hourly (NHH) domestic customers would be expected to be reported unless the ECO supply volume methodology were amended.

As noted in section 9.1 and explained further in section 9.3, this could have proportionately greater impact on those participants closer to the ECO volume threshold than those whose supply volumes significantly exceed the threshold.

If the ECO supply volume methodology were unamended, smaller participants could benefit disproportionately from the reducing volume reported. As an indication, we considered a scenario in which 25% of the current 28% of customer who have smart meters were to elect for HH settlement. This would correspond to approximately 6% of energy migrating from profile classes 1 and 2 under current arrangements to profile class 00 and therefore not being captured in the volumes reported under the current ECO supply volume methodology. In this scenario, the impact on participants is materially greater than at current levels of uptake. Without amendment of the ECO supply volume methodology, our analysis using the obligation-setting calculator provided by Ofgem indicates that, under such a scenario, participants closer to the threshold could benefit by an amount in the region of £300k p.a. with larger participants potentially incurring an obligation approximately £50k greater.

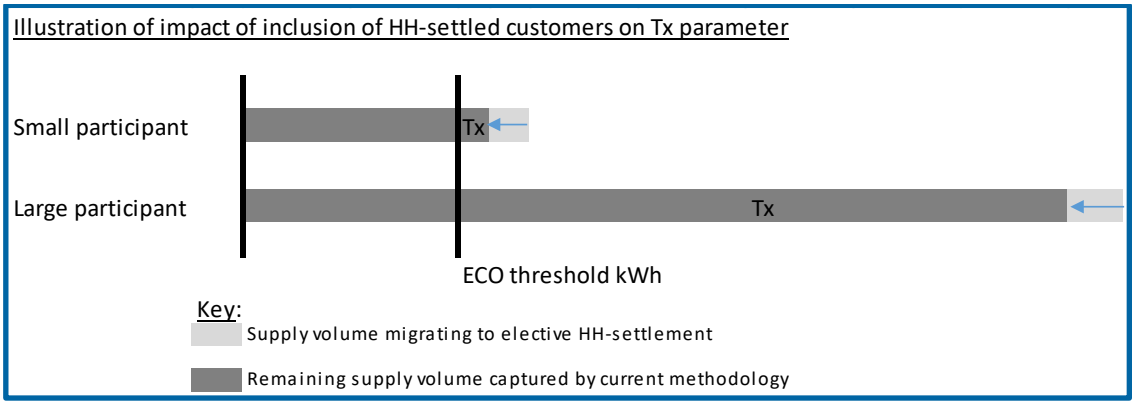
[19] . i.e. 0.76% based on approximately 60k customer migration to date since April 2017

9.3 Assessment of potential distributional impacts between different participants

We carried out analysis of the potential impact on scheme participants of the proposed amendments to the supply volume methodology assuming the percentage of elective HH settlement applies uniformly to all participants. Under this assumption, because the scheme obligation is driven by the *excess* of a participant's volume over the scheme threshold, such changes were found to have a proportionately larger impact on the obligation of participants with supply volumes close to the threshold than for those with supply volumes significantly beyond the threshold. This differential effect arises for the following reasons:

- The total obligation amount (A) is fixed and individual participant's obligations are determined as fraction of the total obligation (A) according to the excess of their supply volume above the scheme threshold (Tx) divided by the total excess of all participants (T) (i.e. both the numerator and the denominator of the fraction are changed by the inclusion of additional supply volume)[20].
- Reductions in the supply volume reported for large suppliers would therefore be reflected in similar percentage changes in the values of Tx and T, and hence limited impact on the value of the obligation for those participants.
- For smaller participants whose supply volumes are nearer to the obligation threshold, the reductions in reported supply volumes would represent a greater proportion of the excess over the threshold and therefore have a proportionately greater impact on Tx. Hence the participant's obligation (A * Tx / T) would increase disproportionately with respect to the excess supply volume T.

Figure 2 – illustration of impact on Tx parameter of uptake of HH-settled customers



However, it should be noted that the assumption that the quantity of additional energy that would not be captured in future without the recommended amendments is a uniform proportion of their existing supply volume for all participants irrespective of size is a key driver for this conclusion.

In practice, the actual quantity of additional energy not captured in future without the proposed amendments for each individual participant could be estimated as approximately:

- The proportion of customers in that participant's portfolio with smart meters; multiplied by
- the proportion of smart meter customers in that participant's portfolio electing for HH settlement-based contracts; multiplied by

[20] The parameters A, Tx and T are defined in Article 7 of The Electricity and Gas (Energy Company Obligation) Order 2018 Number 1183

- the average consumption for such customers

We therefore consider the impact of some potential sensitivities in these factors that may affect the validity of the assumption of uniform impact on all participants.

9.3.1 Sensitivity assessment of distributional impacts

Deployment of smart meters

BEIS statistics noted in Table 5-3 indicate levels of smart meter deployment that differ between small (9.6%) and large suppliers (29.8%).

In this context, the threshold for 'large' applied by BEIS is 250,000 customers[21]. This corresponds to the ECO phase 1 threshold and so would include all ECO participants. The ECO threshold reduces each year to 150,000 customers by phase 3 which would no longer align with the BEIS threshold.

Nevertheless, it is possible that participants with supply volumes close to the ECO threshold may share some characteristics with small suppliers and thus be assumed to have smart meter deployment rates closer to those for small suppliers in the BEIS report (i.e. 9.6%). Conversely participants with supply volumes significantly above the ECO threshold may share characteristics with large suppliers and so be assumed to have customer bases with smart meter deployment rates closer to those for large suppliers in the BEIS report (i.e. 29.8%).

If this were the case, the quantity of additional energy that would not be captured in future without the proposed amendments to the ECO supply volume methodology for participants closer to the ECO threshold would be proportionately lower than for larger participants thereby potentially offsetting the differential impact noted section 9.1.

Uptake of elective HH settlement

Although as noted in section 0, information on the deployment of smart meters broken down separately by small and large suppliers is available, data regarding the take-up of elective HH settlement is only available at an aggregated level and is not differentiated by size of supplier (small or large). Different scenarios may be possible in this context.

On the one hand, it is possible that customers registered with small suppliers may be more engaged with the market than "sticky" customers who have never switched supplier and that such customers may be more likely to take up a contract based on elective HH settlement. In that case, participants near to the ECO volume threshold may have portfolios in which a higher proportion of customers are likely to take up elective HH settlement than may be the case for participants significantly above the ECO volume threshold. The quantity of additional energy not captured in future without the proposed amendments would then be greater for such participants which might exaggerate the differential impact noted section 9.1.

Alternatively, if there were a correlation between smart meter deployment rates and elective HH settlement uptake then, given the lower smart meter deployment rates for small suppliers, a lower proportion of customers registered with participants near to ECO volume threshold may elect for HH settlement than would be the case for customers registered with participants significantly above the ECO volume threshold. In this case, the quantity of additional energy not captured in future without the proposed amendments would then be lower for such participants which might offset the differential impact noted section 9.1.

[21] Smart Meter Statistics in Great Britain: Quarterly Report to end June 2019
https://www.gov.uk/government/statistics/statistical-release-and-data-smart-meters-great-britain-quarter-2-2019

10. Identification of domestic customers– gas

The Uniform Network Code makes the following classifications of customers:

Daily metered / non-daily metered

The Uniform Network Code (UNC) differentiates between daily metered (DM) and Non-daily metered customers (NDM) (UNC Transportation Principal Document (TPD) Section A Clause 4.3).

Smaller and Larger Supply Points

Supply points with Annual Quantity less than 73,200kWh (2,500 therms) are considered to be smaller supply points (UNC TPD Section A Clause 4.2.2).

Supply point classification

Supply meter points are classified into Classes 1- 4 under UNC TPD G 1.5. Class 4 applies to NDM. Class 1 applies to NTS supply points and supply points above an annual volumetric threshold. Otherwise Registered Users elect the supply point classification.

Class 3 or 4 supply points are considered to be NDM supply points. (UNC TPD Section A Clause 4.3.5).

Changes to classifications are governed by UNC TPD Section G Clause 1.11. Where class 3 or 4 is selected under this process, the user makes a "meter reading election" for the reading frequency. For class 4 this may be monthly or annual. (UNC TPD Section M Clause 5.9.1).

Domestic

UNC General Terms (GT) Clause 2.9.2(c) classifies supply point premises as domestic where gas is "*offtaken wholly or mainly for domestic purposes*", otherwise non-domestic.

UNC TPD Section G Clause 1.9 sets out various terms with respect to the Supply Point Register established and maintained by the Central Data Services Provider (CDSP). This includes a "Meter Sector Code" parameter which is "*assigned to indicate whether the supply Point Premises are Domestic Premises or Non-domestic Premises*". (UNC TPD Section G 1.9.2(b)(iii)).

10.1.1 Process for classification of customers

Annex G-1 to UNC TPD Section G sets out the basis by which amendments may be made by a registered user to supply point registrations. This includes changes to meter read frequency, market sector code, class.

The annex also specifies the effective date for any such changes. Changes to market sector code are effective upon notice. Changes in meter read frequency are effective at user specification. We do not consider the timescales for implementation of changes are likely to result in any lags that will be material to the ECO scheme.

10.2 Ofgem ECO guidance for customer classification

Ofgem's current guidance documentation to participants for the ECO3 scheme appears to acknowledge that a unique definition of domestic supply does not exist:

3.11. We recognise that suppliers cannot all use the same methodology to calculate their domestic customer numbers without significant system changes. However, suppliers must use a reasonable methodology to accurately calculate domestic customer numbers. We may audit suppliers to ensure the methodology used is reasonable after notification but before the start of each phase, as applicable.

https://www.ofgem.gov.uk/publications-and-updates/energy-company-obligation-2018-22-eco3-guidance-supplier-administration

11. Supply volumes for domestic customers – gas

11.1 Current reporting requirement

The current guidance for reporting gas supply volumes to Ofgem is defined in terms of the Annual Quantity (AQ) parameter under the Uniform Network Code.

Participants' ECO obligations are based on the aggregated AQ for all customers registered with a participant. The value of this aggregate is taken at 5 specified dates in the year (1 January, 1 April, 1 July, 1 October and 31 December) with the obligation being based on the mean of these 5 values.

Calculating gas supply

To calculate the amount of gas supply, suppliers should use the methodology below.

Methodology for calculating the amount of gas supply

3.15. Aggregated Annual Quantity (AQ) is the estimated annual gas consumption of a customer over a year under seasonal normal conditions. AQ's are set annually by Xoserve in consultation with Gas Shippers and should be used as an approximation of gas delivered to domestic customers during the qualification year.

3.16. A supplier should complete the template, sent by us, to report the aggregated AQ of its domestic customers at the following five points in time, for the relevant qualification year (ie 2017, 2018, 2019 or 2020):

- 1 January
- 1 April
- 1 July
- 1 October
- 31 December

3.17. Suppliers should then calculate the mean of the five aggregated AQ values for a relevant qualification year and include this in the template provided. The mean of the five AQ values is the amount of gas supply for that supplier.

https://www.ofgem.gov.uk/publications-and-updates/energy-company-obligation-2018-22-eco3-guidance-supplier-administration

11.2 Uniform Network Code definition of Annual Quantity

Annual Quantity (AQ) is an estimate determined by the Central Data System Provider (CDSP) of the quantity of gas that would be off-taken on a seasonal normal basis at a supply point. (UNC TPD Section G Clause 1.6.1). It is calculated in each AQ Calculation Month (UNC TPD Section G Clause 1.6.4) which is a month in which a qualifying/valid meter reading is submitted prior to the 10th day of that month.

The readings used for the purposes of AQ calculation are the AQ Closing Reading (the most recent valid reading) (UNC TPD Section G Clause 1.6.7(a)) and the AQ Opening reading (the meter reading nearest to 365 days prior to the Closing reeding) (UNC TPD Section G Clause 1.6.7(b)).

"Valid" in this context is as set out UNC TPD Section M Clause 5.2. This excludes estimated meter readings.

Various checks against defined also tolerances form part of the validation process.

11.2.1 Meter reading frequency

Meter reading frequency requirements for Class 4, Smart and Advance Supply meters are set out in UNC TPD Section M Clause 5.9. Smart and Advanced meter are defined in UNC TPD Section M Clause 1.2.2 and also under the standard licence conditions.

The meter reading frequency of class may be monthly for class 4 supply meters comprised in a supply point whose Annual Quantity >293,000kWh, otherwise the meter read frequency for Class 4, Smart or Advanced Supply Meters is annual.

11.3 Uniform Network Code calculation of Annual Quantity

The calculation takes the metered quantity and normalises this quantity according to the load profile, daily adjustment and weather correction factors applicable to the days in the interval covered by the meter reading as per the formula shown in Figure 11-1 below.

Figure 11-1 – Extract from Uniform Network Code Transportation Principal Document Section H

3.2 Annual Quantity

3.2.1 Subject to paragraph 3.2.2, the Annual Quantity ('AQ') for a Class 3 or 4 Supply Meter Point shall be determined as follows:

$$AQ = AQMQ \times \frac{365}{\sum_{t=1}^{M} \left(ALP_t \times \left(1 + (DAF_t \times WCF_t)\right) \right)}$$

where:

AQMQ is the AQ Metered Quantity;

M is the number of Days in the AQ Metered Period;

and where for each Day (Day 't') in the AQ Metered Period:

ALP_t is the value for the year in which Day t falls (the **"relevant year"**) of the Annual Load Profile for the Applicable End User Category;

DAF_t is the value for the relevant year of the Daily Adjustment Factor for the Applicable End User Category;

WCF_t is the value for of the Weather Correction Factor (in accordance with paragraph 2.5).

We understand that the value of AQ is not affected by the process of switching of customers to a new participant and the AQ value that is in place at the point of transfer of ownership remains the same once the Meter Point becomes live with the new Registered Gas Shipper.

11.4 Revisions to AQ

Participants may request a change in the Annual Quantity of a supply meter in the event that the most recently calculated value does not reflect expected consumption. Such requests are permitted where there is an eligible cause. Three categories of eligible cause are specified (theft of gas plus two categories related to change in business activity that would not be applicable to domestic customers considered herein). (UNC TPD Section G Clause 1.6.20 and UNC TPD Section G Clause 1.6.21).

We do not consider that this revision process is likely to have a material impact on the calculation of ECO volumes.

11.5 Formula Year AQ

For the purposes of determining Transportation Charges under the Uniform Network Code, references to Annual Quantity in the Transportation Statement are to the Formula Year Annual Quantity – transportation charges are not relevant to the ECO scheme.

Formula Year means the period 1 April to 31 March (UNC General - Section GTC Clause 2.2.1).

Formula Year AQ is "*the Annual Quantity determined in most recent AQ Calculation Month falling not later than the December prior to that Formula Year*". (UNC TPD Section G Clause 1.6.17).

On this basis, Formula Year AQ lags the routine monthly updates to AQ that would be made throughout the year on receipt of new meter readings.

We would not expect systematic or structural variations between the two parameters at an aggregated level by participant for domestic customers unless there were material trends in domestic consumption over time (e.g. trends for declining volumes resulting from ongoing installation of more efficient boilers and/or electrification of heating, in which case Formula Year AQ may over-state consumption).

Otherwise the greatest drivers for variations in consumption for domestic customers are weather factors. However the calculation of AQ is seasonally normalised, so would not be affected in this way.

We understand that the arrangements for Formula Year AQ on switching of a customer to a new participant apply on the same basis as those for AQ (i.e. the existing value simply transfers to the new shipper).

11.6 New premises

We sought to understand the process applicable to registration of new domestic premises to identify whether there might be any delay before an AQ would be calculated and therefore omitted from ECO volumes reported by participants.

Our understanding is that a new supply point is assigned a rolling AQ value at the Meter Point's creation stage by the relevant requester (Shipper/Network/UIP) which is an estimate of what the site would consume if working at full capacity. This rolling AQ value becomes the Formula Year AQ value at point of the MPRN registration.

The term "Rolling AQ" is not formally defined in the Network Code.

Although the AQ value in this situation would be an estimate, we believe it would be captured ECO volumes reported by participants.

11.7 Potential future trends

11.7.1 Roll-out of smart meters

Increased deployment of smart meters may be expected to increase the frequency of valid meter readings and thereby increase the accuracy of AQ calculation.

11.7.2 Electrification of heating

This may result in a declining trend of domestic gas consumption. To the extent that AQ quantities are not based on recent meter readings, the reported values may lag any changes in actual consumption trends that may occur on this basis.

11.8 Summary

We would not expect systematic or structural variations between the Annual Quantity (AQ) and Formula Year AQ at an aggregated level by participant for domestic customers unless there were material trends in domestic consumption over time (e.g. trends for declining volumes resulting from ongoing installation of more efficient boilers and/or electrification of heating, in which case Formula Year AQ may over-state consumption).

AQ would include more recent data than Formula Year AQ and therefore be considered more accurate.

Customer switching between participants does not affect the AQ or Formula Year AQ values for those customers.

12. Proposed ECO reporting amendments - gas

We would not expect systematic or structural variations between the Annual Quantity (AQ) and Formula Year AQ at an aggregated level by participant for domestic customers.

Nevertheless AQ would include more recent data than Formula Year AQ and therefore be considered more accurate

Therefore it is recommended that the reporting guidance is amended to clarify that the required parameter is Annual Quantity and not Formula Year AQ.

13. Summary of recommendations

13.1 Electricity supply volume methodology

It is recommended that the reporting criteria are redefined to capture those electricity customers opting for elective half-hourly settlement.

We believe that supply volume data extracted from data-flow D0296 filtered for customers in consumption component class id 36[22] would provide the required quantity. This consumption component class corresponds to half-hourly metered imports of actual consumption values for measurement class F.

Additional data flows which may be used by participants for the purposes of additional validation of their submissions have also been identified within this report.

13.2 Gas supply volume methodology

It is recommended that the reporting guidance is amended to clarify that the required parameter is Annual Quantity and not Formula Year AQ.

13.3 Recommended revisions to ECO guidance document text for gas and electricity volume methodologies

We set out below the proposed amendments to the existing guidance document that would be required to give effect to the changes to reporting methodology recommended herein. The existing text of the guidance document is copied below with proposed amendments highlighted in yellow background.

> ***"Calculating electricity supply***
>
> *To calculate the amount of electricity supply, suppliers should use the methodology below.*
>
> *Methodology for calculating the amount of electricity supply*
>
> *3.12. ELEXON settlement data should be used for all notifications, given its acceptance for settlements data across the industry.*
>
> *3.13. Suppliers should provide the total kilowatt hours (kWh) delivered to (i) customers on Profile Classes 1 and 2; and (ii) delivered to customers on Profile Class 00 with Consumption Component Class 36[23]. Suppliers should remove any unmetered supply from this data. This total kWh should be based on the settlement data available from 22 January of the year after the relevant qualification year, split by licence, flow and provided to suppliers by ELEXON*
>
> *3.14. (i) For customers in Profile Classes 1 and 2, to identify the total kWh for each profile class, suppliers must use the D0030 'Aggregated DUoS Report' data flow provided to both suppliers and Licensed Distribution System Operators (LDSO). This D0030 data flow contains both consumption and losses data, but only consumption data is required, as ECO only requires the volumes which have been delivered to customers. Therefore no adjustments to line losses need to be made for reporting supply amounts for ECO.*

[22] BSC Section G and BSC P339 consultation documentation indicate that CCC Id 36 is the appropriate selection, however we note that some publications (https://www.elexon.co.uk/mod-proposal/p339/) indicate that CCC Id 42 corresponds to the appropriate description.
[23] As defined in BSC Section G as per changes introduced in BSC P339.

(ii) For customers in Profile Class 00, to identify the total kWh, suppliers must use the D0296 'Supplier BM Unit Report' data flow provided to both suppliers and Licensed Distribution System Operators (LDSO). Consumption Component Class 36 should be used to select the appropriate sub-category of customers.

Calculating gas supply

To calculate the amount of gas supply, suppliers should use the methodology below.

Methodology for calculating the amount of gas supply

3.15. The aggregated Annual Quantity (AQ) is the estimated annual gas consumption of a customer over a year under seasonal normal conditions. AQ's are calculated each AQ calculation month by Xoserve in consultation with Gas Shippers and should be used as an approximation of gas delivered to domestic customers during the qualification year.

3.16. A supplier should complete the template, sent by us, to report the aggregated AQ of its domestic customers at the following five points in time, for the relevant qualification year (ie 2017, 2018, 2019 or 2020):

- *1 January*
- *1 April*
- *1 July*
- *1 October*
- *31 December*

For the avoidance of doubt, values of Formula Year Annual Quantity are not to be used in the calculation of the aggregated Annual Quantity. The parameter required to be reported is the aggregate of values of Annual Quantity consistent with the definition in the Uniform Network Code Transportation Principal Document Section G Clause 1.6.1.

3.17. Suppliers should then calculate the mean of the five aggregated AQ values for a relevant qualification year and include this in the template provided. The mean of the five AQ values is the amount of gas supply for that supplier."

Appendices

Appendix A D0030 file data items

The D0030 data flow (flow version 1, DTC version 12.6) currently determines the format by which profile class 1 and 2 data are provided to Ofgem, for calculation of supply volumes under ECO. The D0030 data flow is owned by the BSC and consists of the following data items listed below

Data items present in D0030

Data Item Reference	Data Item Name	Comment
J0161	AA/EAC Indicator	
J0020	Actual/Estimated Indicator	
J0244	BSC Trading Party Id	
J0160	Consumption Component Class Id	Data aggregators provide data to Elexon aggregated by Consumption Component Class
J0162	Consumption Component Indicator	
J0884	Daily Profiled SPM Total Annualised Advance	This parameter corresponds to the sum of the below Profiled SPM Consumption values in the case that those values are calculated by the process of annualised advance.
J0885	Daily Profiled SPM Total EAC	
J0163	Data Aggregation Type	
J0189	Distributor Id	
J0323	Distributor Name	
J1104	GSP Group	
J0166	GSP Group Correction Factor	
J0165	GSP Group Correction Scaling Factor	
J0066	GSP Group Id	
J0269	GSP Group Name	
J0147	Line Loss Factor Class Id	Customer supply volumes are currently calculated without modification by line loss factor.
J0103	Measurement Quantity Id	
J0164	Metered/Unmetered Indicator	

Data Item Reference	Data Item Name	Comment
J1103	Profile Class	Determines whether domestic or non-domestic. Profile classes 1 and 2 included in calculations.
(multiple) SPs 1 -50 non-sequential J codes	Profiled SPM Consumption (Settlement Period 01-50) Aggregated@' GSP level	Consists of 50 data items. This profile is constructed from assumed profiles (for profile classes 1 and 2) and aggregated form the supply volumes required for the ECO submission.
J1090	Report Parameters	
J1087	Run Number	
J1086	Run Type Code	
J0146	Settlement Code	Selecting the latest settlement code will result in the most accurate supply volumes
J0882	Settlement Code Description	
J0073	Settlement Date	
J0074	Settlement Period Id	
J0167	Settlement Period Label	
J0190	SPM Default EAC MSID Count	
J0153	SPM Total AA MSID Count	
J1296	SPM Total All EACs	
J1195	SPM Total Annualised Advance Report Value	
J0150	SPM Total EAC MSID Count	
J0195	SSR Run Date	
J0196	SSR Run Number	
J0197	SSR Run Type Id	
J0076	Standard Settlement Configuration Id	
J0084	Supplier Id	The participant to which this data flow relates.
J0248	Supplier Name	
J0078	Time Pattern Regime	
J1089	User Name	

Appendix B Glossary

Acronym	Definition
AA	Annualised Advance
AQ	Annual Quantity
BEIS	Department for Business, Energy & Industrial Strategy
BM	Balancing Mechanism
BSC	Balancing and Settlement Code
CCC	Consumption Component Class
CDSP	Central Data Services Provider
CNG	Contract National Gas
DM	Daily Metered
DTC	MRA Data Transfer Catalogue
EAC	Estimated Annual
ECO	Energy Company Obligation
FYAQ	Formula Year Annual Quantity
GB	Great Britain
GEMA	Gas and Electricity Markets Authority
GHD	Gutteridge Haskins and Davey Ltd
GSP	Grid Supply Point
GT	Gas Transporter
GTC	Gas Transportation Provider
HH	Half Hourly
HHRCO	Home Heating Cost Reduction Obligation
ID	Identification
MAP	Meter Aggregation Provider
MHHS	Market-wide Half Hourly Settlement
MOP	Meter Operator Provider
MPAN	Meter Point Administration Number
MRASCo	Meter Registration Agreement Service Company
MSID	Metering System Identifier
NDM	Non-Daily Metered
NHH	Non-half-hourly
NTS	National Transmission System
PLC	Public Limited Company
SAA	Settlement Administration Agent
SMETS	Smart Metering Equipment Technical Specifications
SMRS	Supplier Meter Registration Service
SPM	Supplier Purchase Matrix
SSR	Standard Settlement Run
SVA	Supplier Volume Allocation
SVAA	Supplier Volume Allocation Agent
TPD	Transportation Principal Document
UIP	Utility Infrastructure Provider
UNC	Uniform Network Code
VAR	Volume Allocation Runs

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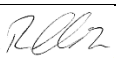
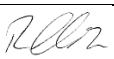
Document Status

Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
V0	Paul Buckworth, Edmund Bennett	Richard Clark		Richard Clark		9/10/19
Revision to sections 5,7,8,9 and 13 following revised data being provided by Ofgem.						
V1	Paul Buckworth, Edmund Bennett	Richard Clark		Richard Clark		23/10/19

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