Profiling Samples and Candidate Selection

This guidance note covers:

- How the Profile Administrator (PrA) Samples, Profile Classes (PC), Super Strata, and Strata are defined;

- What are the obligations on Suppliers to provide data;

- How are Sample Participants selected; and

- What checks should Suppliers perform on these selected participants.

1.   What are the Profile Classes?

Four generic Profile Classes were chosen as they represented large populations of similar customers. The four Profile Classes are as follows:

Profile Class 1	Domestic Unrestricted Customers
Profile Class 2	Domestic Economy 7 Customers
Profile Class 3	Non-Domestic Unrestricted Customers
Profile Class 4	Non-Domestic Economy 7 Customers

In previous Profiling Samples, Suppliers were required to also provide data for Profile Classes 5 to 8. However, this requirement has now been removed.

2.   What are the PrA Sample Structures?

If you are a Non-Half Hourly Supplier, BSCP510: The Provision of Sampling Data to the Profile Administrator requires that you provide details of Sample Participants, and half hourly demand data, to the PrA. This data is required for load research purposes to allow the non-half hourly demand profiles to be built.

The PrA samples are electricity supply customers drawn from the wider market, split by Profile Class, consumption band and Grid Supply Point (GSP) Group. They are designed to provide an accurate estimate of the load pattern for use in Settlement. Each customer within the samples will have a meter that is capable of collecting Half Hourly Consumption data.

The PrA samples all have a similar basic structure, but are slightly different in how items are defined within the structure:

Domestic Profile Classes (1 and 2)

The domestic Profile Classes (1 and 2) are structured as follows:
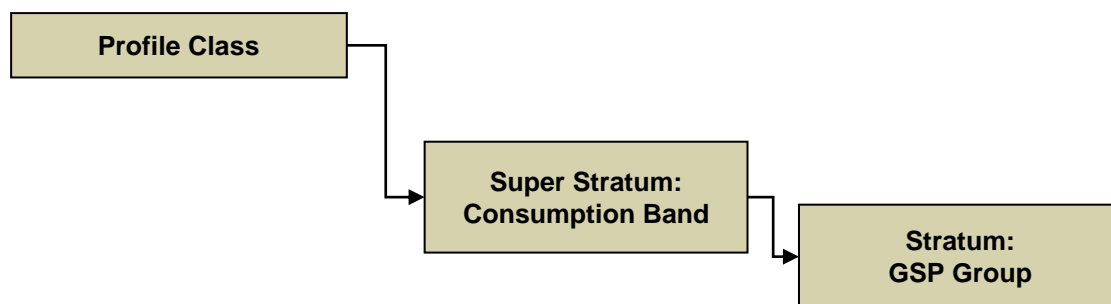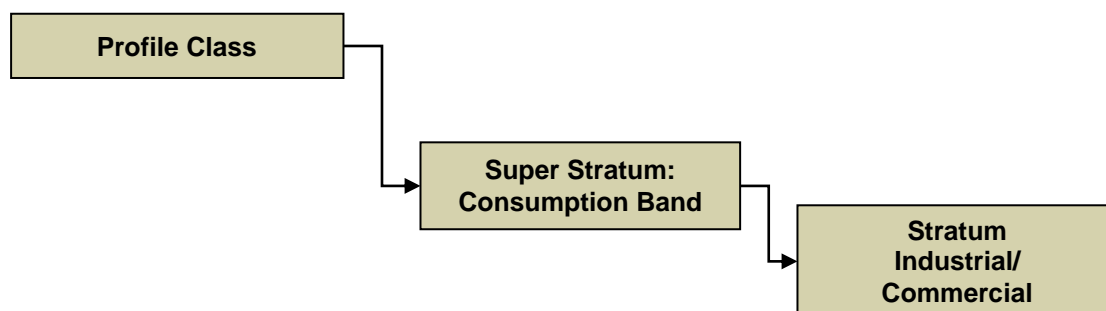

- The **Profile Class** is defined by the first two digits of the customer's Metering Point Administration Number (MPAN) or Metering System Identifier (MSID);

- The **Super Stratum** is defined as an annual consumption band, in kWh; and

- The **Stratum** is a sub-division of the Super Stratum, and is defined by another variable. For PC1 and PC2, the GSP Group related to a customer's location is used.

What is the difference between MPAN and MSID?

There is no difference. The BSC refers to the Metering Point Administration Number (MPAN) as the Metering System Identifier (MSID). For the avoidance of doubt, the MSID shall have the same meaning as the MPAN for the purpose of this document.

Non-Domestic Profile Class 3

The Non-Domestic Profile Class 3 is structured as follows:

```
┌─────────────────┐
│  Profile Class  │
└─────────────────┘
          └──────┐
          ┌──────────────────┐
          │ Super Stratum:   │
          │ Consumption Band │
          └──────────────────┘
                    └──────┐
                    ┌─────────────┐
                    │  Stratum    │
                    │ Industrial/ │
                    │ Commercial  │
                    └─────────────┘
```

- The **Profile Class** is defined by the first two digits of the customer's Metering System Identifier (MSID);

- The **Super Stratum** is defined as the an annual consumption band, in kWh; and

- The **Stratum** is a sub-division of the Super Stratum, and is defined by another variable. For PC3, whether the customer's site is industrial or commercial is used.

You may need to identify whether a customer is classed as industrial or commercial, which in most cases you should be able to do from the customer's name or site description. Alternatively ask the Meter Operator to confirm the status of the site when installing the meter.

Where it is not obvious which category a customer's site falls into, we ask suppliers to use best endeavours. If it is clear that the premises has a commercial use but appears to fall under the industrial category, then it should be deemed commercial. As a general rule, where a Sample Participant cannot be clearly defined as industrial, it should be placed under the commercial category. Please refer to the table below for help with defining a premises category:

Industry	Suggested Category
Agriculture	Industrial
Production	Industrial
Construction	Industrial
Motor trades	Industrial
Transport	Industrial
Post & telecom	Industrial
Wholesale	Commercial
Retail	Commercial
Hotels & catering	Commercial
Finance	Commercial
Property & business services	Commercial
Education	Commercial
Health	Commercial
Public admin & other services	Commercial

Non-Domestic Profile Class 4

The Non-Domestic Profile Class 4 is structured as follows:
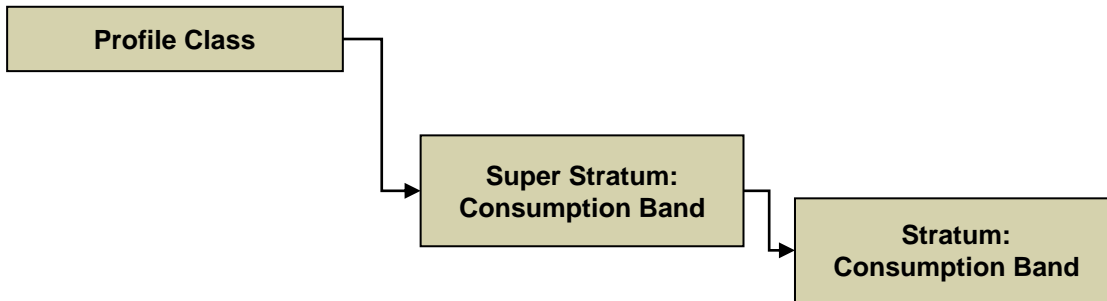
```
┌─────────────────┐
│  Profile Class  │
└────────┬────────┘
         │
         ▼
  ┌──────────────────┐
  │ Super Stratum:   │
  │ Consumption Band │
  └────────┬─────────┘
           │
           ▼
    ┌──────────────────┐
    │ Stratum:         │
    │ Consumption Band │
    └──────────────────┘
```

- The **Profile Class** is defined by the first two digits of the customer's Metering System Identifier (MSID); and

- The **Super Stratum** and **Stratum** are both defined by the annual consumption band, in kWh, and so are identical.

3. What are the Super Strata?

The **Super Strata** are the various consumption bands, and are currently defined as follows:

Profile Class	Super Stratum	Definition
1	1	0-2,999 kWh
1	2	3,000 - 7,499 kWh
1	3	>7,500 kWh
2	1	0-5,999 kWh
2	2	6000-13,999 kWh
2	3	>14,000 kWh
3	1	0-4,999 kWh
3	2	5,000-9,999 kWh
3	3	10,000-19,999 kWh
3	4	20,000-34,999 kWh
3	5	35,000-69,999 kWh
3	6	>70,000
4	1	0 - 9,999 kWh
4	2	10,000 - 24,999 kWh
4	3	25,000 - 49,999 kWh
4	4	50,000 - 99,999 kWh
4	5	>100,000 kWh

4.   What are the Obligations on Suppliers?

Suppliers are expected to co-operate fully with the PrA, providing information required under BSCP510 and such other information as the Profile Administrator may reasonably require, not limited to the following:

•   information to assist the PrA in the creation and maintenance of a Profiling sample;

•   by collecting half hourly demand data for Profiling purposes and providing that data to the PrA; and

•   at the request of the Supplier, install and maintain Profile Capable Metering Systems at the premises of those customers of the Supplier who are or are to become members of the PrA's Profiling Sample.

Failure to co-operate is considered non-compliance under Settlement Risk SR2710; the risk that Suppliers do not acquire and submit required profiling data to the PrA, resulting in the use of less representative profiling data.

5.   What do Sample Participant Requests look like?

Each year, in November the PrA will send a Sample Participant request to selected Non-Half Hourly Suppliers. This request will be broken down by **Market Participant Id (MPID)** and will detail the number of Sample Participants required for each **Profile Class/Stratum** combination.

A request for **Profile Class 1** might look as follows, as in this example the PrA is looking for 25 new Sample Participants from the Supplier's customer portfolio:

Supplier	SUPX	
MPID	XXXX	
Total Requirements		
Profile Class	MSIDs/MPANs	
1	25	
Super Stratum 1		0 - 2,999 kWh
Super Stratum 2		3,000 - 7,499 kWh
Super Stratum 3		>7,500 kWh

GSP Group	Super Stratum	Stratum	Requirement
_C	1	1	1
_J	1	2	0
_H	1	3	2
_L	1	4	0
_A	1	5	0

GSP Group	Super Stratum	Stratum	Requirement
_B	1	6	5
_E	1	7	0
_K	1	8	0
_D	1	9	0
_M	1	10	0
_F	1	11	0
_G	1	12	0
_N	1	13	0
_P	1	14	0
_C	2	15	6
_J	2	16	0
_H	2	17	0
_L	2	18	0
_A	2	19	0
_B	2	20	0
_E	2	21	4
_K	2	22	0
_D	2	23	0
_M	2	24	0
_F	2	25	1
_G	2	26	0
_N	2	27	0
_P	2	28	0
_C	3	29	0
_J	3	30	2
_H	3	31	0
_L	3	32	0
_A	3	33	0
_B	3	34	3
_E	3	35	0
_K	3	36	0
_D	3	37	0
_M	3	38	0
_F	3	39	0
_G	3	40	0
_N	3	41	0

GSP Group	Super Stratum	Stratum	Requirement
_P	3	42	1
Total			25

Note: The PrA will also provide a list of existing Sample Participant MSIDs for your MPID(s). The PrA will only request data from GSP Groups where it has been identified that you have customers.

6. What are the Sampling Constraints and Considerations?

6.1 Sampling Constraints

Unrestricted Profile Classes

You may only select Sample Participants for Domestic Unrestricted (PC1) and Non-Domestic Unrestricted (PC3) Profile Classes where the Sample Participants have tariffs:

- with a single unit price; or

- with prices that vary only according to the quantity of units used in a period.

Economy 7 Profile Classes

You may only select Sample Participants for Domestic Economy 7 (PC2) and Non-Domestic Economy 7 (PC4) Profile Classes where the Sample Participants are:

- supplied on Economy 7 tariffs characterised by a continuous 7-hour night regime occurring between the times of 00:30 and 07:30 Greenwich Mean Time (or within an hour thereof to allow for a degree of time-switch variation); and

- the night time load is recorded on a low register, with the continuous 17-hour day time load recorded on a normal register.

6.2 Customers that Cannot Participate in the Sample

The following customers cannot be selected to be Sample Participants:

- customers using or requesting the use of their own agents, e.g. Meter Operator

- customers that use a prepayment meter

- customers that use their own meter

- customers whose meters are controlled by the Radio Teleswitch Service (RTS).

6.3 Other Considerations

You may also reject randomly selected Sample Participants where you are aware of existing access issues to the premises. Where a randomly selected Sample Participant falls under one of the above categories, or you identify access difficulties, you should randomly select a replacement Sample Participant to mitigate for potential problems in the future. Therefore it would help to randomly select a greater number of Sample Participants than you actually require, as you would have replacement already identified if some customers need to be removed from the sample list.

7. How do I select a Sample?

Firstly, select a Primary Sample. A Primary Sample is a subset of your portfolio containing potential profile sample customer for a specific Profile Class. It has the advantage of being smaller and more manageable for Suppliers with large customer portfolios.

There are many ways for you to randomly select customers for the sample. This section details one approach for choosing customers, but you can use your own approach provided there is a random element to the selection method. The suggested approach below is a two stage process.

7.1 Suggested Approach: Stage 1 – Defining a Sampling Fraction

Firstly, draw a **Primary Sample** from the appropriate database for each MPID/Profile Class by defining a **Sampling Fraction** for each Profile Class, taking into account portfolio size:

- 1 in 2000 for domestic Profile Classes and 1 in 100 for Non-Domestic Profile Classes.

Draw a sample from the database by calculating a random number between 1 and the Sampling Fraction, for example:

- if the fraction is 1 in 2000, generate a random number between 1 and 2000 (e.g. 847).

Then select the customer details for the customer that matches the random number:

- the 847th Customer.

Then select the next customer by adding the Sampling Fraction:

- 847th, 2847th, 4847th, 6847th,………………, end of database.

7.2 Suggested Approach: Stage 2 – Selecting Customers from Strata

Once you've selected a Primary Sample, you can remove customers with inappropriate Standard Settlement Configurations (SSCs) given the sampling constraints (defined above). For example:

- remove customer where the SSC defines the customers as having; a Radio Teleswitch, a split rate Economy 7 Regime or a prepayment meter.

Once you've removed these customers from the Primary Sample, allocate a stratum number according to the structure for each Profile Class.

You can now remove customers from the selection in Strata where there is no sampling requirement. For the remaining customers divide the number of customers in the remaining Profile Class stratum by the number specified in the requirement to get a number n. For example:

- if there are 50 customers left in the Primary Sample Stratum, and the sampling requirement is 5, then: 50 / 5 = 10 = n

Then calculate a number between 1 and the calculated value:

- if the value is 10 then calculate a random number between 1 and 10 (e.g. 6).

Then select the customer details for the initial random number and every nth customer:

- the 6th Customer then 16th, 26th, 36th, 46th.

8.   What checks should I make on Selected Customers?

Once you have selected the customers, check each customer against the Sample constraints detailed in section 6.2 above. Also check the customer against the list of existing participants for the MPID to ensure that it is not already part of the load research Sample.

Where a selected customer is invalid then reject the customer and select the next available randomly selected customer in the list. Repeat the checking process above for this customer.

9.   Can I select more than the requested number of Sample Participants?

It will help to select more than one potential participant for each sample request, as this will allow the PrA to immediately select replacements if any customers are deemed to be unsuitable. Furthermore, these customers may be used as replacements for those sites that cannot have metering installed, kept in reserve or provided to the PrA to use as potential additional participants.

10. How do I respond to the Sampling Request from the PrA?

Complete the sample request (an example is shown below), remembering to state whether you will use your own or the PrA's agents for each MSID, and then send to bscservicedesk@cgi.com. Although some fields are stated as being optional, the more detailed information you can give the more likely the site will be accepted into the sample:

MPID	MSID	Will Supplier use PrA's agents? (Y/N)	Sample Participant Name	Site Addr 1	Site Addr 2	Site Addr 3	Site Addr 4	Post code	Sample Participant Contact 1	Sample Participant Contact 2	GSP Group	Profile Class	Super Stratum	Stratum	Annual Consumption[1]	Customer Type D=Domestic I=Industrial C=Commercial N=Non-Domestic	Does Sample Participant have PCMS installed? (Y/N)	SSC	SIC Code
M	M	M	C	M	M	M	M	M	C	C	M	M	M	M	M	M	M	M	O
4 char	13 char	1 char	50 char	50 char	50 char	50 char	50 char	7 char	50 char	50 char	2 char	2 char	2 char	2 char	10 char	1 char	1 char	4 char	8 char

M = Mandatory O = Optional C = Conditional (provide only for Non-Domestic Sample Participants)

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[1] Either Settlement Data (EAC/AA) or billing data may be used in the calculation of the annual consumption.

Appendix A – Full List of Strata

Participant Types:

D = Domestic

N = Non-Domestic

I = Industrial

C = Commercial

GSP Groups:

GSP Group Id	GSP Group Name
_A	Eastern
_B	East Midlands
_C	London
_D	Merseyside and North Wales
_E	Midlands
_F	Northern
_G	North Western
_H	Southern
_J	South Eastern
_K	South Wales
_L	South Western
_M	Yorkshire
_N	South Scotland
_P	North Scotland
NA	Not Applicable

Groups by Profile Class, Super Stratum, Stratum, Participant Type, and GSP Group:

Profile Class	Super Stratum	Stratum	Participant Type	GSP/NA
1	1	1	D	_C
1	1	2	D	_J
1	1	3	D	_H
1	1	4	D	_L
1	1	5	D	_A
1	1	6	D	_B
1	1	7	D	_E
1	1	8	D	_K
1	1	9	D	_D
1	1	10	D	_M
1	1	11	D	_F
1	1	12	D	_G
1	1	13	D	_N
1	1	14	D	_P
1	2	15	D	_C
1	2	16	D	_J
1	2	17	D	_H
1	2	18	D	_L
1	2	19	D	_A
1	2	20	D	_B
1	2	21	D	_E
1	2	22	D	_K
1	2	23	D	_D
1	2	24	D	_M
1	2	25	D	_F
1	2	26	D	_G
1	2	27	D	_N
1	2	28	D	_P
1	3	29	D	_C
1	3	30	D	_J
1	3	31	D	_H
1	3	32	D	_L
1	3	33	D	_A
1	3	34	D	_B
1	3	35	D	_E
1	3	36	D	_K
1	3	37	D	_D
1	3	38	D	_M
1	3	39	D	_F
1	3	40	D	_G
1	3	41	D	_N
1	3	42	D	_P

Profile Class	Super Stratum	Stratum	Participant Type	GSP/NA
2	1	1	D	_C
2	1	2	D	_J
2	1	3	D	_H
2	1	4	D	_L
2	1	5	D	_A
2	1	6	D	_B
2	1	7	D	_E
2	1	8	D	_K
2	1	9	D	_D
2	1	10	D	_M
2	1	11	D	_F
2	1	12	D	_G
2	2	13	D	_C
2	2	14	D	_J
2	2	15	D	_H
2	2	16	D	_L
2	2	17	D	_A
2	2	18	D	_B
2	2	19	D	_E
2	2	20	D	_K
2	2	21	D	_D
2	2	22	D	_M
2	2	23	D	_F
2	2	24	D	_G
2	3	25	D	_C
2	3	26	D	_J
2	3	27	D	_H
2	3	28	D	_L
2	3	29	D	_A
2	3	30	D	_B
2	3	31	D	_E
2	3	32	D	_K
2	3	33	D	_D
2	3	34	D	_M
2	3	35	D	_F
2	3	36	D	_G
3	1	1	C	NA
3	2	2	C	NA
3	3	3	C	NA
3	4	4	C	NA
3	5	5	C	NA
3	6	6	C	NA
3	1	7	I	NA
3	2	8	I	NA

Profile Class	Super Stratum	Stratum	Participant Type	GSP/NA
3	3	9	I	NA
3	4	10	I	NA
3	5	11	I	NA
3	6	12	I	NA
4	1	1	N	NA
4	2	2	N	NA
4	3	3	N	NA
4	4	4	N	NA
4	5	5	N	NA

Need more information?

If you would like more guidance on this topic please contact market.operations@elexon.co.uk

For more information please contact the **BSC Service Desk** at bscservicedesk@cgi.com, or call **0370 010 6950**.