Draft Change Proposal – BSCP40/01	DCP No: 0002 *Version No:* ***1.0*** *(mandatory by BSCCo)*

Title *(mandatory by originator)*
New charging code structure for Unmetered Supplies

Description of Problem/Issue *(mandatory by originator)*

The Supplier Volume Allocation Group (SVG) requested that ELEXON investigate potential amendments to the current Unmetered Supply arrangements, so as to recognise newly developing control technologies (known as Central Management Systems (CMS)). As part of this work, an external review group was set up which considered a number of solutions. Three options were developed[1]. One of these options (option 2) proposed that the structure of the charging code[2] be changed for CMS. However, the review group concluded that an expanded or amended charging code structure was not required solely to accommodate CMS.

Nevertheless, the review group did recommend that a Draft Change Proposal be raised to further investigate a change to the structure of the charging code. This was because the review group noted that the existing charging code structure had been used for over 20 years; and felt that an increased level of flexibility was required, to accommodate a greater number of combinations of Unmetered Supplies apparatus and electronic control gear (and capture many different levels of control, e.g. dimming). At the SVG meeting on 31 January 2007 (SVG72), the SVG considered the recommendations of the review group and agreed that a Draft Change Proposal be raised to allow further discussion of possible changes to the charging code structure.

The review group agreed the following requirements for the new structure of the charging code:

- Allow representation of anticipated types of new UMS equipment (apparatus and control gear) and running arrangements (multiple levels of dimming), in particular an ability to represent a number of different loads for the same nominal lamp and control gear combination. There should also be an element of future proofing;
- Maintain the existing structure, systems and codes. This would seek to minimise any impact on existing participants who may wish not to change their UMS equipment for new more efficient types and facilitate the transition from the existing to the new structure;
- Allow participants to easily recognise all types of UMS equipment to enable construction of inventories and assist Unmetered Supplies Operators (UMSOs) in checking or producing summary inventories;
- Not impact on quality of inventories and facilitate the auditing of inventories and seek to ensure that current audit issues are not made worse by increasing the complexity inventory management;
- Recognise existing systems functionality in particular Equivalent Meter systems; LAMP,

[1] These options were discussed at SVG in paper SVG72/01.

[2] A charging code provides a unique representation of the type of Unmetered apparatus, how it is controlled and its power rating and are used by:

a) Customers to provide the Unmetered System Operators (UMSOs) with details of the unmetered equipment which is connected to the distribution network;
b) UMSOs to calculate the EACs for Non Half Hourly Customers and to audit Customer's inventories;
c) Meter Administrators to calculate the consumption for Half Hourly Customers; and
d) Approved by Unmetered Supplies User Group/SVG and published by BSCCo.

FLARE and Lailoken; and

- Not adversely impact on the existing Half Hourly and Non Half Hourly trading arrangements.

Interactions:
This change may interact with the review group's solution for accommodating CMS (option 3 in SVG paper SVG72/01) raised via a separate Draft Change Proposal (DCP0001).

Justification for Change *(mandatory by originator)*

The existing structure of the charging code only allows for 10 possible types of control gear to be represented. For lighting equipment the control gear is digit '7' of the charging code, see structure below.

'12'	'3456'	'7'
Apparatus type	Nominal rating	Control gear

New types of electronic control gear are being developed by manufacturers which can give many different combinations of actual power consumption (circuit watts). Furthermore, the power consumption can vary by manufacturer of the control gear. In Europe, there are significant developments in this technology in order to save energy. Therefore, the existing 10 combinations cannot represent all these possible combinations.

New charging codes have been approved in 2006 which did not follow the existing structure as set out in the Operational Information document (see Operational Information). These newly approved codes employ a change to the Nominal rating part of the code to represent the different power consumption as determined by the new control gear that is available. One member of the review group believed that the current charging code structure cannot cope with requests for new codes now, as it in affect has run out of codes. If this approach was followed the easy identification of nominal ratings for apparatus could be lost.

Customers are seeking to make use of new types of control gear to achieve energy savings and reductions in CO_2 emissions and thereby meet government set targets. One manufacturer is releasing 3 different series of electronic ballasts with power ratings ranging from 75W-81W. A difference of 1W multiplied over thousands of installations will make a significant difference in power consumption.

Proposed Solution(s) (mandatory by originator)

The review group discussed a number of approaches to amend the charging code structure, such as adding digits to the end of the existing code, making the code alphanumeric or using a random assignment of digits (thereby losing the existing structure). The review group discounted the options of making the charging code alphanumeric and random assignment as these options would not allow for easy identification of charging codes, which could make it more difficult for UMSOs to check inventories. This could make the current audit issues relating to inventory management more difficult to close. The most favoured solutions were:

1. Extending the length to 12 digits

The proposed structure for standard lighting equipment[3] would be:

1,2|3,4,5,6|7,8,9,10,|11,12

Digits	Representation
1, 2	Apparatus type
3, 4, 5, 6	Nominal equipment rating in watts
7, 8, 9, 10	Control gear, allowing 10,000 control gear combinations
11, 12	Percentage dimming, where: '00' = full load circuit watts, '80' = 80% of full load circuit watts

Main features are:

- Existing codes and structure would not be altered and any Customers not using the new charging codes may not need to change their systems;
- Customers who wish to use dimming or newly developed control gear technology will need to amend their systems to produce detailed inventories incorporating twelve digit charging codes;
- The new structure is easily recognisable as it is the same as the old code with 5 zeros on the end. This will assist in maintaining correct codes, simplify desk top auditing and simplify the conversion from the old code to the new code;
- The extension of the control gear code to four digits provides 10,000 combinations and will enable manufacturers to be identified. This should ensure that the new structure is sufficiently flexible to handle future developments in technology;
- Percentage dimming as a level of the full load circuit watts is easily readable by participants;
- UMSOs and Meter Administrators (MAs) will be able to accept inventories in either format;
- Maintaining the present structure should minimise the impact (and cost) to Customers as the charging code can continue to be built by linking the codes for individual items;
- Single stage dimming to any level can be accommodated on the existing Equivalent Meters. The inclusion of the dimming level within charge code enables the bright and dim load values to be entered into existing system tables. Consideration will need to be given to the number of levels allowed. However, when a party applies for a new charging code evidence will need to be provided to support the percentage dimming power level;
- Can apply to Non Half Hourly Traded supplies. The programmes used by UMSOs to calculate Estimated Annual Consumptions (EACs) will need to be modified to accommodate

[3] Charging codes for traffic signals, motorway signals and miscellaneous type un-metered equipment employ a different structure. Currently digits 1,2 indicate the type (60 = traffic, 60 or 79 for motorway and 80 for miscellaneous), digits '3,4' indicate the sub-type (such as zebra crossings, CCTV cameras, bus shelters) and digits '5,6,7' the nominal rating. Therefore, any charging codes beginning with '60, '79' or '80' the 7th digit is part of the nominal rating and cannot be used to indicate a different control gear. For these codes digits '8, 9 and 10' will be used. Further information on existing codes can be found in the Operational Information Document Operational Information or current list of charging codes.

single stage dimming; and

- All UMSO and MA computer systems will need modification to handle twelve digit charging codes.

2. Extending the length to 11 digits and making the additional characters alphanumeric

This option has many variants where alphanumeric characters can be used with digits, however the variant suggested by the review group is that depicted below. The proposed structure for standard lighting equipment[4] would be:

1,2|3,4,5,6|G,G,G|10,11

Digits/ Characters	Representation
1, 2	Apparatus type
3, 4, 5, 6	Nominal equipment rating in watts
'G,G,G'	Control gear, where first G = manufacturer (36 combinations) and second and third G; GG = control gear (1296 combinations)
10,11	Percentage dimming, where: '00' = full load circuit watts, '80' = 80% of full load circuit watts

The change to the charging code should take the form of additional digits at the end of the existing 7 digits and that it is an alphanumeric code. This would allow for the easy identification of the manufacturer as well as the power consumption of the new control gear/apparatus combination. Main features are similar to solution 1 with the additional change to recognise alphanumeric charging codes:

- Existing charging codes and structure would not be changed. Any Customers not using the new charging codes may not need to change their systems as they could continue to use the 7 digit number; and
- Customers using new Codes would need to amend their systems to cater for the extra code length and the change to alphanumeric coding.

Changes required by both options

Changes are required to recognise the change in structure to the charging code:

1) BSCP520:
   a) Section 1.2.5. 'Approval of Categories of Apparatus, Load Rating and Time Switch Regimes Codes', in particular to reflect additional load research required for dimming levels;

[4] Charging codes for traffic signals, motorway signals and miscellaneous type un-metered equipment employ a different structure. As for solution 1, any charging codes beginning with '60, '79' or '80' the 7th digit is part of the nominal rating and cannot be used to indicate a different control gear. For these codes characters the first 'G' would be kept as a digit and part of the nominal rating and second and third 'G', 'GG' indicate manufacturer and control gear.

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b) Appendix 4.4 ' Calculation of EACs' to reflect dimming level information;
c) Appendix 4.5.2.1 'Functions of a Passive Meter' to reflect dimming level information;

2) Operational Information Document:
   a) Section 2: to reflect the above changes in charging code for options 1 and 2;
   b) Section 4: For option 1, the Standard File Format (SFF) for Detailed Inventories remains the same although the charging code length is increased. For option 2, the SFF will be modified to use the additional alphanumeric codes;

3) Charging codes (xls and csv formats):
   a) to reflect the above changes in charging code for options 1 and 2 and any new codes utilising the amended charging code structure;

4) Manufacturer's Equipment Coding List and Manufacturer's Equipment Temporary Coding List:
   a) to reflect the above changes in charging code for options 1 and 2 and any new codes utilising the amended charging code structure.

Version History ***(mandatory by BSCCo)***
N/A

Has this DCP been raised for discussion by a Working Group ***(optional by originator)*****: ~~Y~~/N*** (delete as appropriate)

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