

**Review of Codes of Practice 1 and 2**

**Summary of recommended changes**

	<b>Issue</b>	<b>Benefiting Party</b>	<b>CoP Section Ref</b>	<b>CoP 2 Change</b>	<b>CoP 1 Change</b>
1	<p><b>Summation/Interposing CTs</b> To include references to ban the use of Summation CTs but allow Interposing CTs.</p>	Settlement	Foreword  5.1.2	<p>Replace paragraph 3 with: 'For the purpose of this Code of Practice, the use of Summation current transformers shall not normally be permitted. The use of Interposing current transformers is permitted providing the overall Metering System accuracy is maintained</p> <p>Remove final paragraph of 5.1.2</p>	Amend Foreword as for CoP 2.
2	<p><b>Passwords</b> To include a requirement for passwords.</p>	Registrants	3.	<p>Include the following definition: 'Password</p> <p>For Integral Outstations: Password means a string of characters of length no less than six and no more than twelve characters, where each character is a case insensitive alpha character (A to Z) or a digit (0 to 9) or the underscore character (_). Passwords must have a minimum of 2,000,000 combinations, for example six characters if composed of any alphanumeric characters or eight characters is composed only of hexadecimal characters (0 to F).</p> <p>For separate Outstations: a password may be as described above for Integral Outstations or a single password of any format.'</p> <p>Include a footnote: 'Meters separate from their Outstation and capable of external communications should have the same password requirements as for separate Outstations.'</p>	As for CoP 2

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Page 2 of 14			5.6	<p>Replace this section as follows:</p> <p>For Integral Outstations: Outstation(s) shall provide both local and remote interrogation facilities, from separate ports.</p> <p>To prevent unauthorised access to the data in the Metering Equipment a security scheme, as defined below and in Appendix D, shall be incorporated for both local and remote access. Separate security levels shall be provided for the following activities:-</p> <p>(i) Level 1 - Password for:- Read only of the following metering data, which shall be transferable on request during the interrogation process:-</p> <ul style="list-style-type: none"> <li>a) Outstation ID;</li> <li>b) Demand Values as defined in clause 4.1.2;</li> <li>c) cumulative measured quantities as defined in clause 4.1.1;</li> <li>d) Maximum Demand (MD) for kW or kVA per programmable charging period i.e. monthly, statistical review period;</li> <li>e) multi-rate cumulative Active Energy as specified by the Registrant;</li> <li>f) the measurement transformer ratios, where appropriate (see clause 5.3);</li> <li>g) the measurement transformer error correction factor and/or system loss factor, where this is a constant factor applied to the entire dynamic range of the Meter and the Meter is combined with the display and/or Outstation;</li> <li>h) alarm indications; and             <ul style="list-style-type: none"> <li>i) Outstation time and date.</li> </ul> </li> </ul> <p>(ii) Level 2 - Password for:-</p>	As for CoP 2

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			Appendix D (New)	<p>Insert new appendix D as follows:</p> <p><b>APPENDIX D PASSWORDS</b>                      The Passwords specified in clause 5.6 shall be subject to the following additional requirements:-</p> <ol style="list-style-type: none"> <li>1. The communications protocol employed shall ensure that the Password offered determines the level of access to the data within the Metering Equipment.</li> <li>2. A counter logging the number of illegal attempts (i.e. Password comparison failures) to access Metering Equipment via the local and remote ports shall be incorporated into the log-on process. This counter shall reset to zero at every hour change (i.e. 0100, 0200, etc).</li> <li>3. If the counter reaches 7, then access is prohibited at all levels until the counter resets at the next hour change.</li> </ol>	As for CoP 2
3	<p><b>Dedicated Measurement Transformers</b>                      To specify that CTs &amp; VTs are dedicated for Settlement only.</p>	Settlement	5.1.1	<p>Amend paragraph 1 as follows: ...shall be provided for the main and check sole use of Settlement Metering of a circuit. No other burden shall be connected to this dedicated set of current transformers. The main meter shall always be connected to this dedicated set of current transformers.</p> <p>The check meter may also be connected to this dedicated set of current transformers.</p> <p>Alternatively the check meter may be connected to another set of current transformers which shall be in accordance with IEC Standard 185 and with a</p>	None

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			5.1.4	<p>minimum standard of accuracy to Class 0.2S. Other burdens may be connected to this other set of current transformers provided that the Panel or Technical Assurance Agent is notified and that the overall accuracy requirements in clause 4.2.1 are met and evidence of the value of the additional burden shall be available for inspection by the Panel. The additional burden shall not be modified without prior notification to the Panel, and evidence of this value of the modified additional burden shall be available for inspection by either the Panel or Technical Assurance Agent.</p> <p>Remove 5.1.4 (ii) and amend paragraph 1 to read "...providing the following requirements and those in clauses..."</p>	<p>Remove 5.1.3 (ii) and replace 5.1.3 paragraph 1 with 5.1.4 paragraph 1 from CoP 2. Remove 5.1.3 (iv)</p> <p>Create new 5.1.3 to be identical to 5.1.3 from CoP 2 and renumber existing 5.1.3 to be 5.1.4.</p>

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4	<b>Actual CT/VT ratios to be used</b>	Customers Settlement	5.3	Insert new paragraph 3: All Meters supplied via measurement transformers shall be set to the actual primary and secondary ratings of the measurement transformers and the actual ratios displayed on the display or nameplate of the Meter.	As for CoP 2
5	<b>Displays</b> Specify mandatory and optional displays.	Registrants	5.4.1	Remove the existing paragraph and replace with:  The Metering Equipment shall display the following primary information (not necessarily simultaneously): a) Mandatory Displays i) Measured quantities as per clause 4.1.1; ii) Current time ("UTC") and date; iii) Measurement transformer ratios (see clause 5.3); and iv) If a compensation factor has been applied for measurement transformer errors and/or system losses, where this is a constant factor applied at security level 3 (i.e. where the Meter is combined with the display and/or Outstation).  SVA Metering Equipment shall be capable of enabling the display of the following information, as specified by the Registrant.  b) Display capabilities i) Maximum Demand (MD) for kW per programmable charging period,	As for CoP 2

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				i.e. monthly or statistical review period; ii) Maximum Demand (MD) for kVA per programmable charging period, i.e. monthly or statistical review period; iii) Twice the kWh advance since the commencement of a current Demand Period (i.e. kW rising demand); iv) Twice the kVAh advance since the commencement of a current Demand Period (i.e. kVA rising demand); v) Cumulative MD; vi) Number of MD resets; and vii) Multi-rate display sequence as specified by the Registrant with a minimum of 8 rates selectable over the calendar year.  MD shall be resettable at midnight of the last day of the charging period and for part chargeable period demands. If a manual reset button is provided then this shall be sealable.  Remove Appendix C	
6	<b>Pulsing</b> Pulsing to be specified for each measured quantity.	Customers Registrants	5.4.2	Replace existing text with: The Metering Equipment shall be capable of providing the following information locally to the customer or Registrant configured to their requirements taking account of the measured quantities (see clause 4.1.1):  i) For Active energy in kWh (Import and Export), re-active energy in kVArh (Import and Export) – if volt-free contacts are used, then these	As for CoP 2

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				<p>should use a pulse rate at full load of between 0.1 and 2 pulses per second with a nominal duration of 80mS per pulse; and</p> <p>ii) A 30 minute reset pulse, and if volt-free contacts are used then this pulse should be within a tolerance of <math>\pm 0.1\%</math> of the Demand Period from the volt-free contacts with a minimum duration of 0.5 second and a maximum duration of 10 seconds.</p>	
8	<b>Integral Outstations</b> Provision to be made.	Registrants	5.1.3	<p>Replace paragraphs 1 and 2 with:</p> <p>Where a common mode fault, such as a VT fuse failure, could cause incorrect voltages on both the main and check Meters, Meters combining integral Outstations shall provide for the data to be identified with an alarm indicating voltage imbalance. Otherwise, an alarm may be used which has an operating sensitivity of a voltage imbalance of 5% or more (expressed as a percentage of nominal voltage). The alarm shall incorporate a time delay feature so as to avoid spurious operation. The alarm shall produce voltage imbalance notification by the next working at a point which is normally manned.</p> <p>Remove paragraph 4.</p>	Replace paragraphs 1 and 2 in 5.1.3 (iv) with same replacement as for CoP 2.
9	<b>Protocol and Compliance</b> Metering Equipment to meet the requirements of BSCP601.	Data Collectors  Settlement	5.5 Para 4	The Outstation data shall be to a format and protocol approved by the Panel in accordance with BSCP 601.	As for CoP 2
11	<b>Material Change</b>	Settlement	5.1.4	Remove 5.1.4 (i)	Remove 5.1.3 (i)

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	Closer defined in CoPs.		Foreword	<p>Append to Foreword:</p> <p>Where a material change to a Metering System takes place, then this Metering System must be modified to comply with the most recent version of this Code of Practice. Changes to a Metering System are considered to be material where they constitute a change to:</p> <ul style="list-style-type: none"> <li>i) switchgear containing measurement transformers; and/or</li> <li>ii) the primary plant associated with the Metering System i.e. measurement transformers.</li> </ul> <p>Where a Dispensation applies, and where the Actual Metering Point is not at the Defined Metering Point, a Material Change affecting the Defined Metering Point may not affect the Metering System at the Actual Metering Point.</p>	Append same text to Foreword as for CoP 2
12	<p><b>4 Quadrant Metering</b></p> <p>This is to be a minimum requirement.</p>	Settlement	4.1.1 4.1.2  5.3	<p>Remove * and associated notes.</p> <p>Remove last sentence of paragraph 2</p>	None
13	<p><b>Energisation (Meter)</b></p>	Settlement	5.5	<p>Replace paragraph 8 with:</p> <p>'Outstations shall be fitted with an auxiliary terminal that provides for the Outstation's energisation. The supply to the auxiliary terminal shall be free of switches, secure and continuously available. If this is not possible, then the auxiliary supply may be provided from the measurement VT as long as it is separate from the potential measurement circuits'</p>	<p>Replace 5.5, paragraph 8 with:</p> <p>'Outstations shall be fitted with an auxiliary terminal that provides for the Outstation's</p>



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					energisation. The supply to the auxiliary terminal shall be free of switches, secure and continuously available'
14	<b>Central Despatch</b>	Clarification	Appendix A	Remove paragraph relating to Central Despatch under point 6.	None
15	<b>Measurement Criteria</b>	Clarification	4.1.1 and 4.1.2	Amend the power-of-10 prefixes from kilo ("k") to mega ("M")	None
16	<b>Wound Transformers</b>	Settlement	5.1	Replace paragraph 3 with: All measurements transformers shall be of a wound construction.	As for CoP 2 but replacing paragraph 1 of section 5.1 rather than paragraph 3
17	<b>Accuracy requirements</b>	Settlement	4.2.1	Remove caveat relating to accuracy requirements for current between 1-5% of the Rated Measuring Current	As for CoP 2
18	<b>Practical Guidance</b>	MOAs	Appendix E (New)	New Appendix E created to give guidance the use of multi-core cables.	As for CoP 2
19	<b>Fusing</b>	Settlement	5.1.4  5.3	Remove item (iii).  New paragraph as follows:	Remove 5.1.3 item (iii)

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			Appendix C (New)	<p>'Fusing shall be placed as close as practicable to the VT. In addition, means of isolation shall be provided locally for each Meter and its associated test facility in accordance with Appendix C.'</p> <p>New Appendix C created to give fusing guidelines plus a diagrammatic example.</p> <p>Incorporate the requirements of Pool circular CEO00438 relating to fusing. These requirements should reflect HV metering for a solid link in the yellow phase VT potential circuit.</p>	<p>As for CoP 2</p> <p>As for CoP 2</p> <p>As for CoP 2</p>
20	<b>IEC/BS Requirements</b>	Settlement	References	<p>Add:</p> <p>BS EN 62052-11 'Electricity metering equipment (AC). General requirements, tests and test conditions. Metering equipment';</p> <p>BS EN 62053-22 'Electricity metering equipment (a.c.). Particular requirements. Static meters for active energy (classes 0,2 S and 0,5 S)';</p> <p>BS EN 62053-11 'Electricity metering equipment (a.c.). Particular requirements. Electromechanical meters for active energy (classes 0,5, 1 and 2)';</p> <p>BS EN 62053-23 'Electricity metering equipment (a.c.). Particular requirements. Static meters for reactive energy (classes 2 and 3)';</p> <p>BS EN 62056-21 'Electricity metering. Data exchange for meter reading, tariff and load control. Direct local data exchange';</p> <p>IEC 60044-1 'Instrument transformers. Current transformers';</p> <p>IEC 60044-2 'Instrument transformers. Inductive voltage transformers'; and</p> <p>BS EN 60044-3 'Instrument transformers. Combined transformers'.</p> <p>Remove:</p> <p>BS EN 60687 'AC Static Watthour Meters for Active Energy (Classes 0.2S and</p>	<p>Add:</p> <p>BS EN 62052-11 'Electricity metering equipment (AC). General requirements, tests and test conditions. Metering equipment';</p> <p>BS EN 62053-22 'Electricity metering equipment (a.c.). Particular requirements. Static meters for active energy (classes 0,2 S and 0,5 S)';</p> <p>BS EN 62053-11 'Electricity metering equipment (a.c.). Particular requirements. Electromechanical meters for active energy (classes 0,5, 1 and 2)';</p> <p>BS EN 62053-23 'Electricity metering equipment (a.c.). Particular requirements. Static meters for reactive energy (classes 2 and 3)';</p>

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			<p>0.5S);                  BS EN 60521 'Class 0.5, 1 and 2 Alternating Current Watt-Hour Meters);                  BS EN 61268 'Alternating Current Static Var-Hour Meters for Reactive Energy (Classes 2 and 3);                  BS EN 61107 'Data Exchange for Meter Reading, Tariff and Load Control. Direct Local Exchange';                  IEC Standard 44-3 'Instrument Transformers – Combined Transformers';                  IEC Standard 185 'Current Transformers'; and                  IEC Standard 186 'Voltage Transformers'.</p>	<p>requirements.                  Static meters for active energy (classes 0,2 S and 0,5 S);                    BS EN 62053-23 'Electricity metering equipment (a.c.). Particular requirements. Static meters for reactive energy (Classes 2 and 3);                  BS EN 62056-21 'Electricity metering. Data exchange for meter reading, tariff and load control. Direct local data exchange';</p>
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					<p>IEC Standard 44-3 'Instrument Transformers – Combined Transformers';</p> <p>IEC Standard 185 'Current Transformers'; and</p> <p>IEC Standard 186 'Voltage Transformers'.</p> <p>Remove: BS EN 60687 'AC Static Watthour Meters for Active Energy (Classes 0.2S and 0.5S);</p> <p>Draft IEC Standard 1030 'Alternating</p>
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					<p>Current Static Var-Hour Meters for Reactive Energy (Classes 2 and 3);</p> <p>BS EN 61107 'Data Exchange for Meter Reading, Tariff and Load Control. Direct Local Exchange';</p> <p>IEC Standard 44-3 'Instrument Transformers – Combined Transformers';</p> <p>IEC Standard 185 'Current Transformers'; and</p> <p>IEC Standard</p>
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					186 'Voltage Transformers'.
21	<b>Cross-referencing</b>	Customers Registrants	5.5	<p>Add wording on to end of paragraph 2: "Separate Outstations storing data from a number of different circuits may be cascaded on to one communication line".</p> <p>Replace paragraph 3 with "Meters with integral Outstation facilities (I.e. a Main or Check Meters storing its own data) need not store data from its associated Main or Check Meter. "</p>	<p>As for CoP2</p> <p>N/A</p>
21	<b>Artificial Burdens</b>	Registrants	5.1	<p>Insert new paragraph 4: "For Metering Systems that represent low burdens on measurement transformers, consideration should be given as to whether that operating burden is within the operating range of the measurement transformers. In such cases, it may be necessary to add additional burden."</p>	As for CoP 2