Background

This document forms part of the consultation pack for the revision of Engineering Recommendation P28.

The following changes to the legal text of the Distribution Code, Issue 28 – 01 May 2017, are proposed where:

- original legal text is shown black coloured font;
- proposed deletions to legal text are shown in red with strikethrough;
- proposed additions to legal text are shown in red.

Table 1 – Proposed DCODE Modifications

Item	Reference in DCode	Page in DCode	Legal Text
1	Annex 1 Qualifying Standards	23	8 Engineering Recommendation P28 ~~Planning limits for voltage fluctuations caused by industrial, commercial and domestic equipment in the United Kingdom.~~ Voltage fluctuations and the connection of disturbing equipment to transmission systems and distribution networks in the United Kingdom
2	DPC4.2.3.2 Voltage Disturbances	43	(a) Voltage fluctuations shall comply with the limits and applicable requirements for assessment and measurement set out in DGD Annex 1, Item 8 ~~9~~ Engineering Recommendation P28, "~~Planning limits for voltage fluctuations caused by industrial, commercial and domestic equipment in the United Kingdom~~ Voltage fluctuations and the connection of disturbing equipment to transmission systems and distribution networks in the United Kingdom".
3	DPC4.2.3.3 Voltage Step Changes	44	~~The effect of voltage step changes caused by the connection and disconnection of **User**'s **Equipment** or **Customer**'s **Demand** to or from the **DNO's Distribution System** must be considered and be subject to limits to avoid unacceptable voltage changes being experienced by other **Customer**s connected to the **DNO's Distribution System**. The magnitude of a voltage step change depends on the method of voltage control, types of load connected and the presence of local generation. Typical limits for~~

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			For voltage step changes caused by the connection and disconnection of **User**'s **Equipment** or **Customer**'s **Demand** to the **DNO's Distribution System**, ~~are~~ a general limit of ±3% ~~for infrequent planned switching events or outages~~ applies in accordance with Engineering Recommendation P28~~)~~. ~~For unplanned outages such as faults it will generally be acceptable to design to a voltage step change of ±10%.~~ ~~For the purpose of the **Distribution Code** a voltage step change should be considered to be the change from the initial voltage level to the resulting voltage level after all the **Generation Set** automatic voltage regulator and static VAR compensator actions, and transient decay (typically 5 seconds after the fault clearance or system switching) have taken place, but before any other automatic or manual tap-changing and switching actions have commenced.~~ ~~The voltage depression arising from transformer magnetising inrush current is a short-time phenomenon not generally easily captured by the definition of voltage step change used above. In addition the size of the depression is dependent on the point on wave of switching, and the duration of the depression is relatively short, in that the voltage recovers substantially in under one second.~~ ~~**User**'s installations should be designed such that transformer magnetising inrush current associated with normal routine switching operations does not cause voltage fluctuations outside those in Engineering Recommendation P28 (ie a maximum of ±3%). To achieve this it may be necessary install switchgear so that sites containing multiple transformers can be energised in stages.~~ ~~Situations will arise from time to time~~ For very infrequent events that result in rapid voltage change type characteristics, such as when complete sites including a significant presence of transformers are energised as a result of post fault switching, post maintenance switching, or carrying out commissioning

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			tests on the **DNO's Distribution System** or on **User**s' Systems~~,. In these situations~~ it will generally be acceptable to design to an expected depression of around ~~±~~10%, recognizing that a worst case energization might cause a larger depression, on the basis that such events are considered to be rare and it is difficult to predict the exact depression because of the point on wave switching uncertainty. ~~Should these switching events become more frequent than once per year, then the design should revert to aiming to limit depressions to less than 3%.~~