

## Distribution Code Consultation Response Proforma

### DCRP/21/02/PC: Distribution Code EREC G100 Issue 2: Technical Requirements for Customers' Export and Import Limitation Schemes

Stakeholders are invited to respond to this consultation, expressing their views or providing any further evidence on any of the matters contained within the consultation document. Stakeholders are invited to supply the rationale for their responses to the set questions.

Please send your responses and comments by **17:00, 3<sup>rd</sup> December 2021** to [dcode@energynetworks.org](mailto:dcode@energynetworks.org) and please title your email 'Consultation Response DCRP/21/02/PC – EREC G100 Issue 2. Please note that any responses received after the deadline may not receive due consideration by the Working Group.

Any queries on the content of the consultation pro-forma should be addressed to DCode Administrator on 020 7706 5105, or to [dcode@energynetworks.org](mailto:dcode@energynetworks.org)

<b>Respondent</b>	<i>Richard Earl</i>
<b>Company Name</b>	EO Charging
<b>No. of DCode Stakeholders Represented</b>	
<b>Stakeholders represented</b>	<i>EO Charging and installers of EV charging stations in domestic and commercial settings</i>
<b>Role of Respondent</b>	Manufacturer of EV Charging Stations
<b>We intend to publish the consultation responses on the DCode website. Do you agree to this response being published on the DCode website? [Y/N]</b>	Yes

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	Question	Response
Q1	Do you agree with the general intent of the proposed modification? If not, please explain your views.	<p>Yes and No</p> <p>Yes - In principle we are strong supporters of load management so that we can install more charging stations than the site fuse would normally allow. Therefore clarity over the requirements is welcome.</p> <p>No – we have concerns over a number of points which are detailed in the reviewed document. My main concerns though relate to</p> <ul style="list-style-type: none"> <li>• potentially overly onerous security requirements of devices on site</li> <li>• The number of commissioning tests required by the installer</li> <li>• 4 hour lock out periods</li> <li>• the requirement to both measure and react to voltage fluctuations at the Connection Point.</li> <li>• The fact that we might have to lock out charging because of other loads on site. There is no central control of which devices need to be locked out</li> </ul> <p>My biggest concern is that excursions into state 2 might have nothing to do with the charging station and then we would have to stop charging because of things out of our control. This issue will become much more challenging over the next X years as the smart home system comes into effect. My view is that the CLS and the protection of the grid point is a critical part of the requirements being developed by the EV Energy Taskforce. Therefore my proposal would be to develop a two stage approach</p> <ul style="list-style-type: none"> <li>• Stage 1 – create a lightweight update now which explicitly includes import and export limitations. Leave out the complex rules around state 2, state 3, logging of events, remote resets. Allow manufacturers to implement something simple and sensible in the short term</li> <li>• Stage 2 – bring the complex control, security, state 2/3/4 interactions into the EVET requirement definition so that this key piece of infrastructure is developed as part of the wider system</li> </ul>
Q2	Do you agree that the revised EREC G100 should be included in the Distribution Code (as a new requirement by reference in DPC6), be listed in Annex 1 and included under Distribution Code governance in the future?	<p>I'm not an expert on this document structure and so not best to advised. I would like it to be aligned with the IET wiring regulations BS 7671. Therefore is there a way to reference the G100 requirements from the 722.311 requirement?</p>

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Q3	Do you agree that the proposed modifications satisfy the applicable Distribution Code objectives? If not, please explain your concerns.	Not qualified to state an opinion on this
Q4	Do you support the formal description of the states of operation and the migration between them?	<p>Mostly Yes but please check the detailed comments in the marked up specification.</p> <p>State 1 – yes</p> <p>State 2 – yes – but worried about the level of functionality to record the number and type of excursions into this state. Is there a requirement to report the number of excursions?</p> <p>State 3 – It's not clear on how state 3 is exited.</p> <p>State 4 – Isn't state 4 just a failure condition of the CLS? i.e. CLS turned off.</p>
Q5	Do you agree with the fail safe approach, and with the excessive state 2 operation criteria? If not, would you propose different criteria?	<p>Fail safe – mostly yes. I'm worried about the failure modes in the CT Clamps. This is difficult to detect if we are using 3<sup>rd</sup> party meters and CT clamps (e.g. a control unit connected to an external MID Meter that has CT clamps around the cables from the connection point).</p> <p>State 2 – I don't think that the second trigger condition of 4.5.1.3 is possible to invoke.</p> <p>I worry that in order to create a good user experience we are going to have to detect the failure conditions and then explain why we have stopped charging. This is time, money and effort on the development of the user interface (portal/mobile phone app).</p> <p>The time between two consecutive attempts I think is too long – 10min. In reality if the limit was breached then the customer would probably want to try again quickly. I could see this being difficult to explain to the customer</p> <p>How were the numbers chosen – 1minute, 8minutes and 10minutes?</p> <p>Won't the excursions be a function of the fuse size and vary accordingly? E.g. a larger fuse (100A) could withstand higher excursion times than a 60A fuse could.</p>
Q6	Do you agree with the proposed approach to resetting the limitation scheme and recovering	It must be possible to reset from mode 3. However this now places a burden on the CLS provider to provide this functionality to the support team and the installer e.g. the customer trips the site. The installer phones up EO and

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	from state 3? In particular do you agree that it is appropriate to distinguish the capability to reset the CLS between domestic and commercial/industrial installations? An alternative would be to make a distinction between fully type tested CLSs and those which are not fully type tested; the WG would be interested in views on this.	<p>then EO must analyse the problem, discuss with the installer and then remotely reset the device. Or the installer could go on site and reset the device through a local installer interface.</p> <p>This is all development effort and cost. It will take significant effort to train the various parties on this. So these regulations do not come for free.</p> <p>Commercial/Residential – I am not clear why commercial sites must have a four hour lock out. This is potentially highly damaging to customer operations e.g. “sorry amazon, you can’t charge your vehicles because something else on your site caused an excessive state2 operation and you are now locked out for four hours”.</p> <p>This will not go down well with customers!</p>
Q7	Do you agree with the revised design limits? Do you support the thresholds now proposed?	See comments above
Q8	Do you support the approach to communication media? Do you agree with the suggested approach to cyber security?	<p>An interesting point was raised in a recent BEAMA meeting. The cyber security requirements for the smart charging infrastructure (PAS 1878/1879 domain - DSRSP, CEM, ESA etc) has yet to be fully defined. Therefore although ETSI 303645 has been specified but is this the right specification for this domain? Has NCSC reviewed this?</p> <p>I am worried that you are forcing a security standard on all parts of the system that are not appropriate. For example secure and encrypted communication between the CLS and a cloud based server is highly encouraged. However do we really need encrypted comms between the onsite CLS and all components? I’m particularly thinking of the CLS communicating with a MID meter that might be installed at the connection point using RS485/Modbus. Does the security threat analysis really indicate that this must be encrypted?</p> <p>Many of the 3<sup>rd</sup> party devices that we use do not have this level of security because it has not been considered necessary up to now.</p>

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		I would recommend that this topic is removed and added to the work that the EV Energy Taskforce and NCSC are doing to ensure that the relevant smart charging architecture is appropriate.
Q9	Do you have any comments on the requirement to monitor the integrity of the secondary circuit of the current transformers used?	<p>How likely is this failure mode? A lot of our third party devices don't have this functionality and so it is going to be a slow process to get them to add this. Therefore is the risk level sufficient that we need this functionality?</p> <p>Also we have the primary protection of the on site fuse. So the CLS is really a secondary system and therefore is a potentially remote error case on the secondary system really worth the development effort?</p>
Q10	Do you support the approach proposed for multiple limitation devices installed in a single premise?	<p>At the moment this is really the only practical solution. I suspect that in the (near?) future we will have a common architecture where the distributed components (solar, battery, ev, heatpump etc) are all controlled by a central point but until that is common place we are going to have to cater for multiple limitation devices.</p> <p>The installer/customer will have to ensure that they don't compete/hunt for the available power.</p>
Q11	Do you have any comments on the proposals for domestic installations?	I worry that the on site testing is too onerous for a domestic installer. This will add time and cost which will not be attractive to anyone
Q12	Do you have any comments on the proposed type testing regime?	<p>To be honest I am still not clear on this. As a manufacturer Do we:</p> <ul style="list-style-type: none"> <li>• Complete the testing in the lab and self certify that the tests work on an example system</li> <li>• Get an example system tested by a 3<sup>rd</sup> party</li> <li>• Just complete on site testing for every installation</li> </ul> <p>I'm also not clear on when I would need to do the extensive on site testing. Is that for every installation?</p>
Q13	Is there the right balance of principle and detail in Section 5 on testing? Do you have any detailed comments on how testing should be prescribed?	See comments above and in the attached response document
Q14	Do you agree that the addition Figure 0-1 in the Introduction of EREC G100 aids understanding of	Yes

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	the relationship between EREC G100 and flexibility services that the customer might be providing? If not, can you suggest any improvements?	
Q15	Do you agree with requirement in EREC G100 to only provide a schematic diagram, with any operational diagram for generation remaining to be as specified in EREC G99 (or G98, 59 or 83)?	I would be good to know what sort of diagram you are looking for? Are the examples in Annex D appropriate?
Q16	Do you agree that the 5s period before an excursion into state 2 is registered is appropriate? If not, please state what you think might be an appropriate approach.	<p>How was the 5 second figure derived?</p> <p>For turning down electric vehicles e.g. from 32A to 20A, it should be possible to respond with 5 sec but it does depend on the vehicle.</p> <p>If we are controlling vehicles to balance voltage e.g. turn on an EV then it can take much more than 5 seconds for an EV to start charging.</p> <p>Therefore on reflection, 5 seconds might be too short....</p>
Q17	Do you agree that is appropriate to allow remote resetting of state 3?	Yes
Q18	Do you agree that fully type tested CLSs should be tested at three current settings, viz maximum, minimum and one intermediate point? If not please suggest.	Can you please refer to the specific tests?
Q19	If you have any detailed comments on the proposed drafting, please provide those comments in the proforma provided, or by marking up the consultation draft of G100.	Please refer to the attached document

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Please provide comments relating to the specific technical content of the proposed modifications<sup>1</sup>

Page / line No	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
						See comments above.

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<sup>1</sup> Add more rows if required