

CIGRÉ / CIRED / UIE Joint Working Group C4.110

Convenor Math BOLLEN

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To: Mrs. Fay Geitona, Secretary General, CEER

by e-mail: voltagequality@ergeg.org

Cc: Mr. Luca Lo Schiavo: LLOSCHIAVO@autorita.energia.it

Dear Mrs. Geitona,

The members of joined working group C4.110 have taken notice of your consultancy paper "Towards voltage quality regulation in Europe", which our working group discussed during our most recent meeting in Brussels, Belgium, on 10-11 January 2007.

Our first observation is that the issue of power quality regulation, where it concerns voltage dips, is, in our opinion, very close to the issue of voltage-dip immunity, which is the main scope of our working group. We therefore would like to suggest a closer liaison between your organisation and our working group.

As our working group is still two years away from any final conclusions and recommendations, we are not in a position yet to give any specific answer to the issues for consultation in your report. As a working group we can however, at this stage, already express the following general opinions.

1. It is highly recommended to define one or more "responsibility sharing curves", between customers and network operators, as introduced in Figure 6 of your consultancy paper. These curves, as a minimum, should create a platform for information sharing between network operators and customers with equipment, processes and/or installations sensitive to voltage dips. The concept of regulation based on these curves remains to be worked out further before we can express an opinion on this.
2. It was felt by our working group that the term "responsibility" should be avoided in standard documents as this could give the wrong impression (see also note 8). The term "indicative compatibility curve" is proposed as an alternative to "responsibility sharing

curve. In this letter we will continue using the latter term while at the same time recommending you to consider an alternative term.

3. It should be noted that it will never be possible to completely prevent dips below the responsibility-sharing curve, no matter where the curve is located, for the same reasons that make it impossible to completely prevent supply interruptions. Limiting the number of dips below a curve is in many cases even more difficult than limiting the number of interruptions, as the voltage dips experienced by a specific customer originate from a much larger part of the power system than the interruptions experienced by this customer. The mains to reduce the number of voltage dips may be very limited and/or very costly, especially in well-designed and well-operated systems. Reasonable limits on number of voltage dips should be set in close cooperation with local network operators and affected customers taking into account local circumstances. Like with interruptions, it is not feasible to define Europe-wide limits on number of events. The random year-to-year variations in number of voltage dips should further be considered when setting limits on number of voltage dips.

4. The position of this curve should be coordinated with equipment immunity requirements as defined in international standards. For that reason liaison between your organisation and IEC 77A WG 06 is highly recommended.

5. The responsibility-sharing curve should be appropriately chosen to address the interest of all stakeholders in a fair and balanced way.

6. Concerning the use of the responsibility-sharing curve it is also important to point out that it will not be practically feasible to perform measurements at the point-of-connection for all individual customers. Guidelines are needed on the preferred locations for measurements; a reasonable compromise to be further studied is a combination of measurement locations at a limited number of locations in the network and locations at or near the point-of-connection or large customers sensitive to voltage dips. Here it is also important to consider that almost all domestic customers and a substantial part of commercial customers are not affected by voltage dips. This does not make voltage dips a less important issue, but the customers affected by voltage dips would not be helped by enforcing compulsory system-wide measurement and reporting.

A measurement compromise worth further study is installing measurement equipment in all main distribution substations (at MV side of the HV/MV transformers). Studies have shown that these substations are the point-of-common-coupling for the majority of voltage dips so that measurements at these locations will form, after some minor corrections, a reasonable estimate for the performance experienced by customers supplied from these locations.

7. Measurement and analysis issues, like the three-phase character of voltage dips, the location and connection of monitors, the geographical spread of the monitors, and time-aggregation, should be included in the discussion at an early stage. Appropriate choices

have to be made to prevent the resulting indices from giving the wrong message. In this respect a liaison with IEC TC 77A WG 09 is highly recommended.

8. Finally we would like to point out that the “responsibility sharing curve” in no way removes the final responsibility for personnel safety and large economic damages away from the customer. Protection against severe consequences, like fire, injury or emission of dangerous substances, remains the customer’s responsibility, even for events beyond the responsibility-sharing curve. The network operator should not be held responsible for the consequences of events beyond any regulator scheme.

Respectfully,

Math Bollen

Convenor, JWG C4.110

Joint Working Group C4.110’s scope is to gather technical knowledge on the immunity of equipment and processes against voltage dips, and to use this knowledge in the further development of methods and standards. The group currently consists of 20 regular members and 15 corresponding members. The members have the following background: 12 network operators; 10 academics and consultants; 6 industrial customers; 4 equipment manufacturers; and 3 persons with extensive experience on immunity testing of equipment.