VDN Position Statement on the ERGEG – Public Consultation Paper ”Towards Voltage Quality Regulation in Europe”

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In principle, VDN accepts that documents on power quality should continuously be adjusted to actual needs, especially when the regulatory framework is changing.

We would like to point out that there will be costs due to additional continuous monitoring and evaluation of power quality, but the question who will pay these costs has not been answered, yet. It’s important to consider the relationship between cost and additional value.

Nevertheless, we would like to mention that today EN 50160 seems to be one of the most favoured documents of the total Cenelec Standardisation. At an acclamation in December 2006 all 22 voters were for the EN 50160. Furthermore, we would like to point out that the number of complaints on power quality has to be put in relation to some tens of years with electric power consumption throughout Europe.

The very high power quality in Germany and the few complaints result from grid operation nowadays. Due to this fact and regarding the costs, we see no need to monitor the voltage quality today.

The network structure, especially network structure of the low-voltage system, is based on statistical concepts. A low-voltage customer is allowed to switch-on any equipment at any time he wants. For a typical public customer, consumption amounts to 30 kW. In practice, the low-voltage grid is designed for a statistical consumption of about 2 - 4 kW for each customer.

In consequence, there is a low but certain probability that the total actual power consumption of a low-voltage grid may exceed the designed value. In this case, any power quality phenomenon may exceed given limits.

For that reason, today standardisation on power quality is dealing with probabilities - mostly 95%. This means in 95 % of all cases no problems will arise.

This approach is the best economical solution for all parties concerned, and it is based on a long and good experience throughout Europe. This is indicated by the few complaints on power quality. Therefore, we are only discussing the difference between good and excellent. To this end, necessary alterations of the regulatory scene on power quality should be implemented step by step, but not by revolutionary regime. Making changes without reconsidering all impact factors could cause severe damage to the existing framework. Well-discussed specific amendments are quite more suitable to adjust existing standards to regulatory needs.

Concerning the specific recommendations in chapter 4, we would like to give the following advice:

4.1 Improve definitions and measurement rules

We agree in principle to the need of improvement, but it should be carried out step by step, after a thorough discussion, preferably in EN 50160.
The lower value (90%) of the voltage tolerance range should be maintained for the definition of a voltage drop. Consequently, the voltage change should be within the voltage range of tolerance.

In this context, we refer to the information given in the Application Guide of EN 50160.

4.2 Limits for voltage variations - Avoid "95%-of-time" clause and avoid long time intervals for averaging measured values

As mentioned above a probability of less than 100% is necessary especially in the low-voltage system.

Regarding the low-voltage system, 95%-of-time seems to be a reasonable value as there is much experience with that value which is mentioned in several EMC-standards.
The time interval of 10 minutes is needed for averaging measured values in respect of the realised technical system of the grid.

Necessary additional limits for effects within the 10 minutes period are described by additional phenomena, e.g. dips, swells, temporary overvoltages.

4.3 Enlarge the scope of EN 50160 to high and extra-high voltage systems

Due to large technical differences, the EN 50160 philosophy cannot be copied for extra-high voltages. For high-voltage, there is a chance to develop an additional chapter in EN 50160, but it will take some time to develop the necessary ideas.

4.4 Avoid ambiguous indicative values for voltage events

Some of the mentioned phenomena are not under the grid operators' control, so that only indicative values are possible. There are no severe problems with the description within EN 50160 nowadays. Nevertheless, we see a certain chance to have more concrete values for voltage events step by step.
Voltage dips cannot be avoided by the grid operator. It is the common point of view of grid operators and producers that the product standards concerned are to guarantee that appliances control voltage dips (see new version of EN 50160).

4.5 Consider duties and rights of all parties involved

From the customer's point of view power quality depends on:

- Interruptions, short-circuit power and grid capacity (under the control of the grid operator),
- the sum and the behaviour of equipment in all the customers' installations (with today's possibilities, grid operators are not able to take the responsibility),
- force majeure.

In consequence, the distribution system operator can only be responsible for that part of power quality that is underlying his control.

4.6 Introduce limits for voltage events according to network characteristics

It is difficult to determine limits for voltage events as they are rather unpredictable and mainly out of DSOs' control. Nevertheless, we see a necessity to describe events having in mind the different regional characteristics of the structure of supply and the existing grids.

4.7 Develop the concept of power quality contracts

EN 50160 guarantees a base level for power quality.

Additional higher power quality can be negotiated by individual contracts having in mind the specific grid situation and the specific customers' need.

Because of this specific situation the existing German concept is:

- Nearly all technical solutions can be negotiated
- All expenditures (TOTEX) for the specific power quality requirements have to be paid by the customer.

Concerning the issues for consultation in chapter 7 we would like to give the following advice:

Before 1983, the voltage range was already +/- 10%. It was generally accepted, also by manufacturers. Only during the transitional phase when rated voltages were harmonized throughout Europe, the voltage range was limited unilaterally to take account of the use of old appliances. Consequently, after termination of the transitional phase, the original voltage range of +/- 10 % is to be restored, particularly since the requirements upon network operators, that have undergone radical changes since 1983, need to be taken into consideration in view of the increasing use of dispersed generation supported by the EU and regulators. Thus, an extension of the voltage range should rather be taken into account.