

**Brussels, 28 September 2012**

## **COMMENTS OF EUROPEAN ENGINEERING INDUSTRIES ON ENTSO-E DRAFT DEMAND CONNECTION CODE (“DCC”)**

### **EXECUTIVE SUMMARY**

Following Orgalime’s oral comments raised at the User Group meetings held in the context of the consultation process of ENTSO-E on the draft ENTSO-E Demand Connection Code, Orgalime would like to herewith confirm its comments in writing:

The European Engineering Industries represented by Orgalime **support the development of a Demand Connection Code** and **agree that grid stability/system security is essential** and should be the **key objective of grid codes elaborated by ENTSO-E**, as this represents an indispensable prerequisite for manufacturing operations in Europe.

In particular, our industries fully agree that **continuity of the service** and **quality of the service** of the power system is a crucial issue, including for the participation of demand side resources in the future European power system.

However, the draft DCC, and in particular the current approach to “Demand Side Response Delivering System Frequency Control”, raises Orgalime’s concerns, as it:

- At the least undermines the core concept of a consumer oriented European energy system,
- suggests a centralised, mandatory shut on/off for appliances and no opt out possibility for the end-user,
- suggests a business case without rewarding the end-user for the service that he is offering to the grids, and therefore does not recognise the positive contribution that devices provide to load shifting, and
- thereby, in our view, risks going beyond the given mandate in the ACER framework guidelines on electricity grid connections of 20 July 2011 and the EC mandate letter of 5 January 2012.

The European engineering industries are opposed to the generalisation of such mechanisms with the rationale of ensuring a reliable electricity supply and preserving the assets of the grid, that should be used only in **very few** and **critical** cases. These cases should be determined together with all affected stakeholders, including Orgalime, be legally codified and then be applied as relevant basis in the Demand Connection Code.

We are, as all other relevant stakeholders, fully committed to contributing to the identification and implementation of the critical parameters to be taken into account in this context.

*Orgalime, the European Engineering Industries Association, speaks for 37 trade federations representing some 130,000 companies in the mechanical, electrical, electronic, metalworking & metal articles industries of 22 European countries. The industry employs some 10.2 million people in the EU and in 2011 accounted for some €1,666 billion of annual output. The industry not only represents some 28% of the output of manufactured products but also a third of the manufactured exports of the European Union.*

At this stage, we ask ENTSO-E to revise its draft Demand Connection Code in order to acknowledge the positive contribution of any demand side resource to grid balancing as well as the right of the end user (be they professional customers or private “prosumers”) to decide whether or not he agrees that his property should provide a specific service at a specific moment in time to the grid.

Orgalime also recalls its recommendation to ENTSO-E to liaise actively with the European Standardization Organizations and principally with its on-going M/490 initiative lead by the Smart Grid Coordination Group. Manufacturers of our industries should be equally represented in the respective Mandate 490 Steering Committee.

Finally, we call upon ENTSO-E to also take the comments and principles of this paper into account in the development of other codes, and in particular the Network Security and Electricity Balancing Codes in particular.

## DETAILED COMMENTS AND BACKGROUND EXPLANATIONS

### 1. “Demand Side Response (DSR) Delivering System Frequency Control” (art.15 and 17 of draft DCC)

According to the ENTSO-E draft DCC, the security of the electrical system cannot be ensured without considering the technical capabilities of all users.

Article 15.3.c and article 17 of the draft DCC describe the “Demand Side Response (DSR) Delivering System Frequency Control”. ENTSO-E is asking several questions regarding DSR application related to temperature controlled demand to deliver a smarter, robust and a more user friendly Low Frequency Demand Disconnection (LFDD) to avoid frequency collapse.

#### 1.1 End user benefits and rewarding services provided to the grid

The European engineering industries are opposed to establishing a general mechanism of “Capability as standard, with mandatory delivery”, as this would establish a business case without rewarding the end-user. Such a mechanism should be used only in **very few** and **critical** cases.

The main reasons for this position are the following:

- **Preservation of end-customer processes and assets:** The research of grid protection should not lead to negatively impacting demand-side actors. The electrical systems at end-customer side have been designed for a specific use, and such a use cannot be modified without a case by case analysis. In particular:
  - It would be highly problematic to generate a shutdown of critical processes (hospital), an unexpected failure of high-cost assets (arc furnace).
  - Actions on demand-side resources may unbalance the electrical protection plan and affect selectivity and in a worse case cause electrical fires.
  - **The different scenarios involving end-customers have to be discussed and analysed with them.**
- **The specificities of each and every end-customer process.** It is unrealistic to deal with a high-level approach – such as the control of all temperature controlled appliances – since their uses may significantly differ according to process and constraints of the end-customers.

- As an example (but there might be many), the hot water supply in a hospital cannot be stopped without causing nosocomial (hospital acquired) infections.
- **The different scenarios involving end-customers have to be discussed and analysed with them.**
- **Rewarding the participation of all actors according to the value created.** The final Demand Connection Code should ensure a proper sharing of the value across the chain. The enablement of end-customers' electrical resources require the installation of new devices, the retrofit of the installation, etc. e.g. extra costs for which end-users should be compensated by participating in Demand Response (D/R) contracts.
  - It is unrealistic to activate these resources below market price based on the reasoning that its purpose is grid stability – this will lead to disputed analyses, and overall, it would make the entire market run into failure.
  - **The analysis of the whole created-value by the D/R mechanisms, as a preamble, is in our view a necessary condition; it has to lead to a fair reward for all involved parties - This analysis has to include geographical and market specificities.**
- **Support to feed-in / feed-out models for end-users:** The end-user is becoming a proactive producer and consumer of energy (“prosumer”). This transformation implies that grid infrastructures (at the distribution level) evolve so that energy can flow in bi-directional and safe mode.
  - As an example, bi-directional protection and different settings have to be set in order to ensure safe operations – on both end-user and grid operator sides, and in proper coordination.
  - **We support any technical mechanisms that support this evolution, that benefit both supply and demand-side actors.**

## 1.2 Improving definitions and terminology

Article 15.3.c.1 reads as follows:

*“The TSOs shall jointly elaborate a proposal for the application of Demand Side Response System Frequency Control (DSR SFC) to significant Temperature Controlled Devices. This proposal shall aim at applying Demand Side Response System Frequency Control (DSR SFC) in a socio-economic efficient manner.”*

Orgalime is concerned with a series of ambiguous terms used in article 15.3.c.1, notably “*significant*” and “*in a socio-economic efficient manner*”, which would require clarification.

Furthermore, article 15.3.c.2 states that:

*“Within a period not exceeding 6 months, the proposal shall be consulted upon by the TSOs with the relevant stakeholders including, but not limited to, Distribution Network Operators and the competent European standardisation bodies. The outcome of this consultation will be considered and submitted with the finalised proposal not less than two months as from the end of the consultation period.”*

Orgalime suggests a rewording of article 15.3.c.2 to reflect that manufacturers of electrical and electronic equipment and their European representatives should be consulted, as well as other interested parties, such as consumers.

## 2. Potential impacts for installed and new equipment in the power grid

The European Engineering Industries are particularly concerned about potentially increasing risk and violation of existing European and global standards.

There is a critical issue of extending the requirements beyond existing standards by the suggested draft network code. This in fact could lead to severe failure risks to the power supply system.

## 2.1 General comments

- Ageing effects for equipment may increase if temporary over voltages (TOV) occur more frequently, due to more frequent switching operations. Therefore, detailed monitoring/statistics are recommended.
- Partial discharges may occur more frequently and will be maintained more frequently if overlaying TOV (e.g. switching OV, earth faults) is adding onto increased level of actual (temporary) operating voltage.

## 2.2 HV and MV switchgear

- The highest rated voltage of equipment may cover the extended operating voltage demands. However, the overall isolation coordination should be carefully re-examined for the installed base and also for projecting new MV and LV switchgear taking into account the occurring transformer ratios HV/MV and MV/LV. This applies especially for the extended voltage ranges  $>1.15$  p.u.
- For HV and MV circuit breakers, switching performance capability must be re-examined with special emphasis to demanding switching operations, for example switching off capacitor banks or back-to-back switching operation of capacitor banks. In case of doubt, equipment with the next higher rated voltage should be taken into account.

## 2.3 Transformers

- The draft DCC interferes with existing product standards: Existing standards must be reflected for the application of the network code. Other terminology and/or parameters and definitions need to be reflected on product specifications and tests especially for “installed base” in order to avoid excessive cost.
- The draft DCC results in details of implementation: It defines the basic requirements; but details need to be further developed through the standardisation process open to all stakeholders.
- Flexibility and future proof concept: The draft DCC is developed to minimize the security risk for the European Synchronous Areas, but automatic frequency disconnection settings need to be reflected on specifications and existing standards with focus on installed base.

## 2.4 Protection relays

The network code leads to expanded voltage and frequency settings.

This may affect in some cases the installed base of protection relays in former electromechanical or static technology.

## 2.5 Storage

It has to be clarified if it is correct to deal with storage as a demand and to differentiate between controlled and uncontrolled demand units.

Requirements should only be set for controlled demand units.

Orgalime objects to the definition that a storage system is generally defined as a demand unit.

Instead, storage has to be defined as having two roles:

- A demand system, in case of power consumption and
- As a generator, in case of power in-feed to the network.

Any kind of storage should be accepted like pump storage power plants.

### 3. Consumer Privacy and Data Protection

Orgalime is concerned with the proposal that each electricity user should notify to TSOs if its demand facility (up to each single piece of equipment) connected to the grid complies with Demand Response requirements.

As this obligation would result in extended notification requirements for all domestic users, we see consumer privacy and data protection rules as seriously at stake.

***In conclusion, Orgalime urges ENTSO-E to take these comments and suggestions into account in its further proceedings and looks forward to further contributing to the debate with a view to establishing a DCC for energy systems that are secure, reliable and efficient as well as non-discriminatory and consumer-oriented, as is required by EU Energy Legislation.***



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