

Minutes of Meeting  
Drafting Team on Demand Connection Code (DT DCC)  
DSO Technical Expert Group (DSO TEG)

Date: 14 September 2011  
Time: 09h00 – 16h00  
Place: RTE, Paris

Participants

Name	Affiliation	present	excused
<i>DT DCC</i>			
Gianluca Albanese	Terna		X
Stephanie Bieth	RTE	X	
Anders Danell	SVK	X	
Roberto Gnudi	Terna	X	
Edwin Haesen	ENTSO-E secretariat	X	
Bastian Homburg	Amprion	X	
Kees Jansen	Tennet	X	
<b>Klančnik Jurij</b>	ELES		X
Mikko Koskinen	Fingrid	X	
Joao Moreira	REN		X
Mark Norton	EirGrid	X	
Sergio Pasero Ruiz	REE	X	
Guillemette Smadja	Elia / LRG	X	
Helge Urdal	National Grid	X	
<i>DSO TEG</i>			
Alberto Ceretti	Eurelectric DSO/Enel Distribuzione	X	
Falk Engelmann	CEDEC/VKU		X
Bruno Gouverneur	Eurelectric DSO/Synergrid	X	
Mike Kay	Geode/ENWL		X
Tony Hearne	Eurelectric DSO/ESB Networks		X
Riccardo Lama	Eurelectric DSO/Enel Distribuzione		X
Johan Lundqvist	Geode/Svenskenergi	X	
Marc Malbrancke	CEDEC/Inter-Regies	X	
Pavla Mandatova	Eurelectric DSO		X
Jacques Merley	Eurelectric DSO/ERDF	X	
Sylvia Michel	Geode/Svenskenergi		X
Herman Poelman	CEDEC/Alliander	X	
Graeme Vincent	Eurelectric DSO/Scottish Power	X	
Walter Schaffer	Geode/Salzburgnetz		X
Pierre Schlosser	Eurelectric DSO	X	
Siegfried Wanzek	Eurelectric DSO/E.ON-Energie	X	

Welcome

Introduction of all participants

## Agenda

09:00-09:05hrs Approve Agenda

09:05-09:30hrs Approve minutes from meeting 6 July 2011

09:30-10:00hrs Discussion on changes from draft FWGL and impact on draft code

10:00-10:30hrs Discussion on drafted text:

- Compliance;
  - What is tested
  - How testing takes place
  - Stages of Compliance testing
- Derogation;
  - What it is
  - Whom it applies to
  - How it is applied
  - Exemptions
- Enforcement period
  - No longer than 3 years

10:30-10:45hrs Coffee break

10:45-12:30hrs Discussion on drafted text (continued):

- Compliance;
  - What is tested
  - How testing takes place
  - Stages of Compliance testing
- Derogation;
  - What it is
  - Whom it applies to
  - How it is applied
  - Exemptions
- Enforcement period
  - No longer than 3 years

12:30-13:00hrs Lunch break

13:00-15:45hrs Principles discussion on:

- Frequency and voltage parameters;
- Load-frequency control related issues;
  - Low Frequency/Voltage Disconnection and On Load Tap Blocking
  - When this occurs
  - Why it is used
- Short-circuit current;
- Requirements for protection devices;
- Disconnection/Islanding/Reconnection
  - Methods/Procedures

- Information/Data exchange
  - What is required
  - By whom
  - When
  - How it is provided

15:45-16:00hrs Review and Set Actions

→ Agenda proposal is approved.

### **Approval Minutes 6 July, Helsinki**

The version with comments by the DSO TEG inserted, is discussed.

The discussion of July needs to be seen in light of the fact there was no final FWGL at that moment.

The DSO TEG is concerned about the applicability of functionalities in the code and their relation to technical standards. If functionalities are too detailed and issues arise, do standards or the functional requirements need to be adapted? The network code will be European law.

The DT outlines that the purpose of these meetings is to ask the DSO TEG's expertise on the feasibility of requirements.

The DSO TEG is of the opinion that a NC needs to be general since detailed requirements cannot be imposed identically all over Europe. The comment focuses mainly on the NC Requirement for Generators not the Demand Connection Code (as the later is not detailed till now).

The DT indicates that the Framework Guideline states that a NC supersedes standards. However, it is not the intention per se to do this just for the sake of overruling existing standards.

The DSO TEG states that one cannot test for compliance on principles. If principles are not detailed/ clearly linked with defined standards, you cannot have clear definitions including descriptions of related testing and there is a high risk for legal problems.

The DT confirmed that part of this meeting will be about principles of the functional requirements, and that these principles will be used to write the NC. The functional requirement of the NC will of course need to be sufficiently detailed to enable tests for compliance. This drafting of the code will be reviewed by the DSO TEG at the next meetings in line with the agreed method of working from the 6<sup>th</sup> July Helsinki meeting.

The DSO TEG agrees with a discussion on principles without prejudice over what will be industrially achievable and can be reasonably implemented. Standards continue to be the main tool for defining requirements respectively, there will be a necessity to be adapted to these requirements and define what is technically possible to implement.

The DT refers to informal discussions with manufacturers, which have not identified any requirements which are not technically achievable. Most of what has been described in the NC draft (on RfG), is already applied somewhere.

The DSO TEG argues this has to be applied in the existing grid and its users.

The DT agrees that requirements need to be practically achievable. Retro-active application will be discussed later on, on the basis of the rules set in the FWGL. None of the requirements in DCC already drafted are too detailed or radically new. The only new domain (see ToR) is demand response.

The DSO TEG points out the wider frequency ranges in NC RfG which are not possible in existing installations in some countries.

The DT noted that the initial view on retro-active application differs from what is required by the final FWGL. This will be discussed later on. Still, if proposed functional requirements are practically not achievable (based on a Cost Benefit Analysis), the DSO TEG should and can argue on this point not to apply requirements retrospectively.

The DSO TEG state it is not their opinion that they have still question on the practical implementation of the rule “functional requirements should supersede standards”, but if ACER requires this in the FWGL it is a different situation which has further to be clarified.

→The minutes of 6 July are adapted according to this clarification

The minutes will be made public as required by Regulation 714/2009<sup>1</sup>

The Regulation gives no time frame within which this publication should take place

## **Discussion on changes from draft FWGL and impact on draft code**

The DSO TEG asks if the discussion on PV inverter frequency trip settings (being done nationally, e.g. very intensely in Germany) but also addressed by ENTSO-E on the European Level is also taken up in the CBA on RfG?

The DT elaborated that the PV case can be used as an example and that the CBA argumentation will be consistent with the one in the NC RfG. Since the situation was urgent, it should not wait for the NC to come into force.

In this context DT informs the DSO TEG about two further DTS set up in context with the drafting of The NC Grid Connection: one group working on the CBA and another one to work on the “whys” of requirements and the relation between the different DTs DSO TEG. The organogram of the ENTSO-S structure is taken to illustrate the working relationship<sup>2</sup>. The DT on NC RfG, the DT on DCC and the ad-hoc group working on the Position Paper (giving argumentation for the NC) all report to the WG European Planning Standards. Several experts participate also in more than one of the groups.

## **Discussion on CBA**

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<sup>1</sup> Article 10, paragraph 2 : “All documents and minutes of meetings related to the consultations referred to in paragraph 1 shall be made public.”

<sup>2</sup> <https://www.entsoe.eu/the-association/structure/>

The CBA use has to follow the FWGL prescription. Retro-active application will be based on individual TSO request. The NRA has to explicitly approve for retro-active application to take place.

ENTSO-E is not a requesting party for retro-active application. The PV case is different due to the potential severe grid consequences, in the event that the present PV parks may trip at a sunny moment.

If large costs or technical implications are identified by a stakeholder, he will have to address this to the TSO who will include the relevant information in the CBA. If the CBA shows retro-active application cannot be justified, the NRA would not approve this or the TSO would not even request it.

The DSO TEG is of the opinion that a CBA needs to be detailed enough for existing and new installations from the beginning of the NC development, not after writing the functional requirements (and then realizing implementation is not possible). They elaborate that proposed functional requirements for new installations need to be compatible with the existing grid.

For the DSO TEG it is clear that a TSO needs information from the relevant DSO for making a CBA proposal, especially in case of retro-active application. The DSO TEG proposes to discuss that the CBA methodology and principles will be discussed with them.

The CBA methodology is discussed by the DT and ad-hoc team on 22/09. The DSO TEG request will be discussed there. Feedback on this will be given by next DSO TEG meeting

### **NC - standards interaction**

During the last meeting (July, Helsinki) DSO TEG had concerns on overlap between NC drafting and work in Mandate 490 going on in parallel. An initial discussion between the DT DCC and representatives of M490 is set up.

DSO TEG checks M490 text, identifies possible issues and will formulate proposals on this by next meeting

The DSO TEG asks where requirements on a level higher than that of the individual customer will be dealt with, e.g. the over-frequency setting of PV installation is set at the individual installation. A requirement could be to drop x MW at y Hz, this does not impose a requirement per unit. Requirements must be defined at the TSO/DSO interface. Also the term DSO is according to the DSO TEG not properly defined in the FWGL.

The DT agreed that the requirements also at the interface point are required and specified in the FWGL and are therefore in the ToR. Also setting out individual DSO customer requirements are part of the FWGL and are also part of the ToR.

The DSO TEG asks if significance is defined similarly in all codes. The DT indicates that significance has to be assessed for each individual requirement.

The DSO TEG has concerns that in reaction to requirements investors might split up generation projects which will result in more units of a less significant type (cfr. MW thresholds in RfG). A paragraph can be added to the code which prohibits this (e.g. as is done in the Dutch electricity law).

## Significance test

The DSO TEG is concerned about discrepancies between the codes on Grid Connection and the codes on System Operation.

The DT clarifies that interactions between these codes are discussed within ENTSO-E. Overlap already exists in the FWGLs and might exist as well in the resulting codes. DSO TEG reaffirms that it's ENTSO-E'S responsibility to avoid unclear overlaps in the codes.

The request for insight by the DSO TEG in the draft code on Operational Security will be passed on to the DT working on this.

It is emphasized that the FWGL on SO is not yet finalized.

The DSO TEG asks how a potential future grid situation is reflected in the operational code. Grid connection codes have to introduce such requirements which are necessary for future system operation can cope with evolutions. Retro-active application because of future amendments in the code might not be a reasonable option, while on the other hand the present requirements need to be economically justifiable.

The DT states its interpretation of the significance test. If a requirement for a type of connection is in the code, it is because it is significant. The code (and hence significance) can be reassessed at a later stage as prescribed and required in the FWGL. The DSO TEG noticed that this interpretation of "significance" might be a too broad 'translation' of the FWGL.

The DSO TEG requests more overview on the time lines of all FWGL and NC developments. The DT clarifies that a three-year work program is worked out jointly between EC, ACER, ENTSO-E<sup>3</sup>. The work program for electricity (consultation document) is available at [http://ec.europa.eu/energy/international/consultations/doc/20110410\\_consultation\\_document.pdf](http://ec.europa.eu/energy/international/consultations/doc/20110410_consultation_document.pdf)

## Discussion on drafted text

Note: The version sent to the DSO TEG is dated May 2011. The document will need to be adapted based on final FWGL publication of July 2011.

The participants of the meeting go through the document page per page to give comments.

Definition of cross border issue:

- Renewables are mentioned. Why should renewables on a DSO level have a cross-border impact? The DT illustrates this with the case of over-frequency settings for PV inverters where wider settings are needed to avoid mass tripping.

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<sup>3</sup> Regulation 714/2009, Article 6, paragraph 1 : *"The Commission shall, after consulting the Agency, the ENTSO for Electricity and the other relevant stakeholders, establish an annual priority list identifying the areas set out in Article 8(6) to be included in the development of network codes."*

- Why is demand and generation mentioned, since this is a Demand Connection Code? The DT argues that it is of relevance in case of embedded generation with an industrial customer and because one has to maintain a system view

Why does the code have to give definitions? These are already in the FWGL. Argument: The FWGL will disappear, the code will be law.

→ The code will look at the ones from the FWGL and take over / adapt where needed.

The 'whereas' section will be submitted together with the rest of the code. In the eventual law, this section will disappear. If not, section 5 needs to be changed probably.

Relevance of the 'whereas' section will be checked by the Legal team.

The DSO TEG states some of the descriptions at the beginning of the FWGL have disappeared, probably to the benefit of an umbrella document for all FWGL's announced by ACER. This is not yet published. Therefore, we can only react if and when we receive it.

Definitions will be reviewed.

Are private/closed distribution networks covered? Answer: These were not mentioned in the agreed ToR.

The DSO TEG has remarks on the definition of Demand Facility: A DSO is not always demand and is not a subgroup of Demand Facility.

→ The definition will be analyzed.

Is storage defined in the context of Demand? Will it be considered as Generation?

- If it is a system tool, it is out of scope of this code
- If it is operated by third party, it is more complicated. Different requirements can apply if it is owned/operated by a third party (e.g. information exchange)

What if hydro storage is owned by a TSO? Which requirements should apply?

→ This aspect will be taken into consideration by the DT. The final requirements need to be non-discriminatory.

What if a customer has load and generation in perfect balance? Is a customer then considered a Generator or Demand?

→ The DSO TEG and the DT DCC agree on Demand initially. That does not exclude that it should also be considered as a generator. Whether the generator feeds into the grid or not is not relevant in the DCC. (Note: this was already agreed on in the Helsinki meeting in July)

'Industrial load' needs to be defined.

## Discussion on Derogation/Compliance

As stated earlier, the drafted chapters need to be revised in light of the final FWGL.  
→ Discussion on this topic is postponed to a later time.

## Discussion on DCC principles

These principles will be further worked out by the DT.  
A presentation is given with basic ideas on which comments are given.

- **Principles – Frequency and voltage parameters**  
No additional viewpoints are given by the DSO TEG. Drafting of the code will be done on the basis of these principles
- **Principles – Load/frequency control related issues**
  - Not clear what is meant in the FWGL besides LFDD, LVDD and OLTC blocking
  - Principles for Load/frequency control as a single topic was discussed as this is broken down into a number of other requirements the principles of which will be discussed separately.
  - No additional viewpoints are given by the DSO TEG
- **Principles – low frequency / voltage disconnection and OLT blocking**
  - Reference to ENTSO-E continental Europe defence plan<sup>4</sup> for further info on recent incidents, phenomenon of voltage collapse, recommendations to prevent this.
  - Use of LVDD, LFDD depends also on planning standards used for grid development. Regional differences exist as well. A DSO is responsible to develop implementation plans for requirements. The DSO TEG expresses the concern that LVDD should not be used as a tool to avoid system development investments
  - Will PV panels with voltage regulation stop to regulate if LVDD and OLTC blocking is activated? → Not considered in the present grid connection code drafts
  - No additional viewpoints are given by the DSO TEG
- **Principles – short-circuit current**
  - Will a max and min short-circuit current be given? Agreed at meeting that a maximum value of contribution from the transmission network will be provided. A minimum value is a lot more difficult to calculate.
  - Why is this aspect a cross-border issue? First, it is explicitly mentioned in the FWGL of Grid Connection and System Operation. Second, if you want to model the impact, you need cross-border information. E.g. a generator near the border impacts customers in another zone.
  - The DSO TEG asks whether for these requirements a threshold is required. If so, are these to be set nationally / per synchronous zone / for all Europe?

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<sup>4</sup> [https://www.entsoe.eu/fileadmin/user\\_upload/library/publications/entsoe/RG\\_SOC\\_CE/RG\\_CE\\_ENTSO-E\\_Defence\\_Plan\\_final\\_2011\\_public\\_110131.pdf](https://www.entsoe.eu/fileadmin/user_upload/library/publications/entsoe/RG_SOC_CE/RG_CE_ENTSO-E_Defence_Plan_final_2011_public_110131.pdf)



- The DSO TEG asks that with respect to requirements on short-circuit contribution of customers the asset capability is taken into consideration. Can a method to minimize cost in equipment replacement costs be considered?
- **Principles – Information/data exchange**
  - The DSO TEG notes the aspect of confidentiality when passing on information
  - The DT asks how DSO's across Europe normally get around confidentiality issues?
    - Reference is made to the task force on data privacy and security in Mandate 490. Expert Group 2 of the Task Force Smart Grids has published a paper on this which is available on the website of DG energy<sup>5</sup>
    - A reference is made to the 'smart meter law' history in the Netherlands
  - The DSO TEG indicate their concern with unspecified usage of 'real-time' information exchange and asks for a definition which avoids risks and excessive costs?
  - There is a separate FWGL on data transparency. The code drafting is not mandated to ENTSO-E. The DSO TEG states in their understanding this has not much to do with operational data which of relevance here.
- **Principles – requirements for protection devices**

Requirements will be functional. It is not the intention to translate national requirements to a European level.
- **Principles – disconnection/islanding/reconnection**

The DSO TEG wishes that a longer-term vision taking in consideration increasing amounts of decentralized generation is kept in mind in drafting these requirements.

### Meeting dates and work program

Next meetings between DT DCC and DSO TEG are planned for

- 04/11 (Brussels)
- 29/11 (Amsterdam)

Note: There was a mistake in the minutes of the Helsinki meeting (06/07/2011). There is no meeting scheduled for 14/10.

An extra date is provisionally set at 07/12 in Brussels (now transferred to Düsseldorf)

### Discussion drafted text (continued)

If a TSO wants to intervene on load in the context of LVDD or demand response, how will he have info on the distribution grid status (and thus constraints)?

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<sup>5</sup> [http://ec.europa.eu/energy/gas\\_electricity/smartgrids/doc/expert\\_group2.pdf](http://ec.europa.eu/energy/gas_electricity/smartgrids/doc/expert_group2.pdf)

→ A DSO is considered as a system operator not as customer. This question is more of relevance in the system operation code.

Does a customer/aggregator need info on grid situation (of a TSO as well as DSO)? → This aspect is added as a note to the Principles on Info/Data exchange

The meeting is concluded.