Nordel comments on the ERGEG public consultation on Draft Guidelines of Good Practice for Operational Security

1. General comments

ERGEG has launched a public consultation on draft Guidelines of Good Practice for Operational Security. Nordel welcomes the broad consultation process as it opens for a necessary discussion on the roles and responsibilities in the security of electricity supply domain in the new structure that is under creation under the initiative of the European Commission. Nordel wishes, in line with ETSO, to contribute constructively to this discussion along with ERGEG in order to bring the implementation of the 3rd legislative package forward.

Nordel finds it however important to focus on some more principal underlying issues that need to be clarified before going into such a detailed level that the draft Guidelines represents.

Nordel see the need to comment on the document, in the following referred to as the GGP, mainly from two aspects. Firstly it is the relevance of the GGP in relation to the extensive amount of other technical standards and procedures that must be adhered to in the security of supply process. Secondly it is the issue of who should have the authority to decide on and approve such standards and consequently the responsibility for their validity.

1.1 Relevance of the contents

Key observations:

- The GGP represents only an extract of the entire complex of rules that is needed to be in place within the responsibility of the TSOs. To cover the full perspective the GGP is too simplified and insufficient
- Nordel can not see that the GGP brings up any new substance compared to existing regional rules, recommendations and on-going developments.
- The GGP do not seem to observe the vulnerability aspect of giving open publicity to sensitive information on critical infrastructures.

The GGP is claimed to be the necessary basis for the development of binding rules on EU level. The technical substance in the document is however entirely based on information that can be easily captured from existing rules and grid codes within the regional organisations like UCTE, Nordel, UKTSOAE etc. and from on-going reviews and developments based on experiences from recent incidents. In that respect, the document does not bring up any new substance. Some erroneous items and misunderstandings in the document can also be noticed.

One important weakness in the GGP-document is that it is based on a too narrow view of the wide range of technical and organisational issues that

constitute a secure supply of electricity. Further to the addressed items such as the commonly known criteria for managing immediate contingencies (n-1, n-x etc), there are numerous other technical standards that must be adhered to in the planning, construction and operational phases of power systems.

One such issue is the technical performance of installations connected to the transmission grids, particularly power stations, under perturbed conditions. This issue is not addressed in the GGP, although it had a decisive impact on the amount of disconnected customers during the major disturbance in continental Europe on November 4, 2006.

In the GGP it is assumed that extensive information and data on the determination of transmission limits should be made publicly available on a continuous basis. This would open up for provision of very sensitive information to those who might have an interest to cause serious damage to the critical infrastructure. The authors of the GGP do not observe or discuss this vulnerability consequence of their proposal.

1.2 Authority relation between ENTSO-E and ACER

Key observation:

- The timing to publish such a detailed document as the GGP is somewhat premature when the formalisation of the 3rd legislation package proposed by the EC is not yet finalised.
- As the authority and responsibility relation between the coming institutions of ENTSO-E and ACER still is not in place, Nordel see the risk that the detailed GGP-document would obscure the principal discussion on the appropriate definition of these roles.

The GGP is released in a context when the establishment of a formal structure of authority and responsibility for the security of supply is under preparation in its final stage. In particular the interrelation between the proposed central agency for European regulators, ACER, and the future institutionalised joint organisation for the European TSOs, ENTSO-E is discussed extensively. In this process, the "regulatory side", represented primarily by ERGEG, advocates that mandatory operational rules and codes on security of supply should be approved and determined by the regulators through ACER. The GGP-document is apparently meant to be a "Position Paper" in this process.

This authorisation issue is not clearly addressed in the GGP-document, but it appears in some statements. It is however crucial that the responsibility consequences of how this structure is formed with respect to the security of supply are adequately analysed before binding institutional decisions are taken. In particular it is important to observe that if the authorisation of the operational rules and codes would be given to the Regulators/ACER, this necessarily means that this part also would become fully responsible for the validity of these rules in situations that may lead to extensive loss of electricity supply to the public. A serious aspect is also that this would lead to conflicts for the integrity of the regulatory powers.

For these and other apparent reasons it is highly questionable to leave the ultimate authorization of such technically detailed substances to the

regulators. These aspects are elaborated further in the detailed comments below.

Detailed comments

2.1 Responsibility principles

The attention that is paid to the operational rules and codes concerning security in the ongoing formation process seem to rest on a view that such rules should stand alone to be a primary responsibility of the body that is authorised to approve and determine them, either this would be given to the regulators/ACER or the TSOs/ENTSO-E. This is certainly not the case. The main responsibility of the TSOs is briefly to provide an adequate security of supply to the society and a viable physical platform for the electricity market to operate within. In that wider perspective it must be understood that the set of rules and codes referred to in the GGP, being either mandatory or voluntary, is one among many other interrelated instruments or tools that are needed for the TSOs to accomplish the required performance within this responsibility.

There are in fact numerous technical and organisational codes, standards and procedures that must be in place and complied to in order to ensure a secure supply of electricity. These instruments must be fully compatible with each other and must be carefully adjusted to currently changing preconditions and technical developments that form the working environment for the TSOs.

Correspondingly it can neither be a primary objective of the Regulators/ACER to specify in detail which instruments that the TSOs need to fulfil their responsibility. The regulation must instead be focused on monitoring on a more principal level the overall security performance of the TSOs within the economical framework of acceptable costs to the electricity consumers.

The assumption that rules and codes on security of supply according to the GGP would be approved and determined by the Regulators/ACER raises a number of pertinent questions. One is to determine, within the multiple sets of interdependent standards and rules, where to draw the line between those that should be approved by the regulators/ACER according to that assumption, and those who fall outside of this confined area of responsibility. It would be utterly confusing to extract the particular subset of rules regarded in this GGP from the broader TSO responsibility.

A logical conclusion to the assumption of a regulatory authority in this respect would be that it should also include all other technical standards and dimensioning principles for the grid security, outside of the items listed in the GGP. This would require an extensive upgrading of the technical competence within the regulator organisations nationally and centrally within ACER to an equal level of the TSOs. The rationality and economics of such a development is for obvious reasons highly questionable.

A related critical question is who shall carry the responsibility for situations leading to extensive loss of supply to the public society and customers. It is a

common misperception that all critical situations can be handled by a strict application of necessarily very simplified criteria such as n-1 etc. Criteria and other rules must of course be observed and complied to as far as they are applicable. In reality such situations call for complex assessments by experienced and well trained operational staff, if the prevailing conditions are within the framework of current rules or if exceptional measures need to be taken to secure or restore the electricity supply.

The point is that it must be a comprehensive responsibility of the TSOs to handle all aspects of such situations. If a failure to sustain the electricity supply occurs the TSO must be able to respond consistently on the relevance of the determined rules and codes, their applicability in the actual situation and the necessary measures taken. Within their responsibility area the TSOs should have the full responsibility for failures leading to loss of supply regardless of the reason being inadequate rules and codes or inability to comply with them.

Consequential to the assumption that the Regulators/ACER would determine and approve the operational security rules, is that this part would have to accept the full responsibility that these rules are in all aspects valid and correct. This is a logical conclusion because the principal reason for such an arrangement is that the Regulators/ACER would in this case have the formal power to overrule the meaning of the TSOs in these technically complicated issues. If a black-out situation occurs that can be attributed to irrelevant rules, however strictly followed by the TSOs, the responsibility would lie heavy on the concerned regulators.

In reality, major power outages are very complex to analyse and to clarify the sequence and interdependence of a vast multitude of events and actions taken. It would certainly add to the complexity if particular divisions of responsibility for various parts of the technical substance and regulations between the TSOs and the Regulators become a significant element to be taken care of in such an analysis. It is easy to foresee the positioning problems that could arise in such a complex process. On the worst end of the scale it might appear interests on both sides to cover up for improprieties in rules and actions taken if they would be proved to have contributed to the failures. That would certainly imply a serious loss of transparency to the public.

A serious implication of allocating the decision on rules and codes to the Regulators/ACER is that it would violate the integrity of the appropriate regulatory powers needed in the electricity infrastructure and market playing field. By actively taking decisions on which standards etc that shall be applied, the Regulators/ACER would become a part of the organisational structure that they are at the same time supposed to monitor and scrutinise. This would apparently hamper the regulatory independency and question the mandate that the regulators have on behalf of the public to review the overall performance of the TSOs and other responsible parts within the electricity supply infrastructure.

2.2 Requirements on connectees

It might be understood from the GGP and from other arguments in the current discussion on authority over rules and codes that it is sufficient only to regulate the performance of the transmission grids and the TSOs to achieve a satisfactory security of supply. This is by far not a viable view. On the contrary, the physical interaction between the grids and its connected installations, mainly power stations, is extremely vital for the integrated power systems to survive more or less serious disturbances without loss of supply to the customers. To achieve this, power stations must be designed and operated with a certain degree of resilience to external incidents on the grids. At the same time the grids must be able to loose any single generation unit when internal faults occur and when protection devices are activated to prevent damages to the power station equipments.

During major disturbances, it is physically inevitable that dynamic perturbations appear in the grid voltage, frequency and other parameters of importance for the endurance of the power stations. By imposing standards for various deviations that must be accepted, and provided that they are complied to, serious cascading sequences can be avoided. Otherwise numerous power stations might unnecessarily disconnect themselves from the grid and thereby aggravate the disturbance situation.

A clear example of such a sequence is the major disturbance and black-out that occurred in continental Europe on November 4, 2006. It is apparent from the UCTE analysis report from the event that nearly half of the amount of disrupted consumption was due to subsequent disconnection of power stations within the deficit area (south-western Europe) after the separation from the other areas. It should be noticed that the frequency in that afflicted area did not drop substantially below 49.0 Hz, which is a quite moderate deviation in relation to normal resilience standards for power stations. That indicates that the major part of the disconnected generators may have gone away unnecessarily due to inappropriate design or functionality of control and protection devices.

Every such disconnection of generation implied an equal amount of disrupted supply somewhere in the afflicted area through the activation of the under-frequency load-shedding system that successfully saved the system from breaking down completely. This analysis is also acknowledged by ERGEG in its evaluation report on the disturbance. Correspondingly, it is apparent that the lack of control facilities for the vast windpower generation in the north-eastern area was very close to lead to a collapse of that sub-system, shortly after the separation.

The conclusion from this is that it is vitally important to enforce a satisfactory technical performance of power stations to achieve a comprehensive security level. This goes far beyond the operational instructions mentioned in section 4.4.1 in the GGP. The instruments for this must be observed in the formation of the legal framework for the electricity infrastructure in Europe. The TSOs have a direct interface with the major power station and the technical competence to deal with these procedures on a system level. It is natural that they are given the authority to impose necessary technical requirements on power stations and other connected installations of importance in this respect.

The legal and economical implications of such an arrangement must of course be subject to attention and appropriate instruments from the regulators, both on ACER and national level.

2.3 Information and data to be published

In the GGP it is assumed that extensive and detailed information on the process of determining the transmission constraints in the grids currently shall be made public on a continous basis. By definition, this process is dealing with the most sensitive parts of the grids that are most vulnerable to technical or other failures. It is obvious that this would be welcomed by such antagonistic forces that may have an interest to cause damage and interruptions to the energy infrastructure. It would certainly violate the interests of protection of critical infrastructure that is subject to proposed regulation on EU-level through a new Directive.

The authors of the GGP do not seem to observe the vulnerability aspect of giving publicity to this information. The understandable demands from regulators and market actors for increased transparency in this process must be satisfied in other forms that do not inflict security hazards of the electricity supply to the public society.