

## **ENTSO-E response to the CEER call for evidence on ‘Generation adequacy treatment in electricity’**

27 April 2010

ENTSO-E welcomes the invitation of CEER to submit evidences regarding the generation adequacy treatment in electricity.

ENTSO- E intends to comment on some of the topics mentioned by CEER in this paper and to contribute in outlining the key issues for both generation adequacy but also for adequacy of the overall electricity system.

As known, according to Art. 8.10 of the Regulation 714/2009 ENTSO-E was mandated to publish every 2 years the Community-wide network development plan that shall include beside the modelling of the integrated network, scenario development, and an assessment of the system’s resilience also, an European generation adequacy outlook.

Many of the subjects debated in the document are incorporated in the recently Ten Year Network Development Plan that can be accessed through our website at: <http://www.entsoe.eu/index.php?id=232>.

With regard to the document in discussion ENTSO-E structured its point of view as followed:

1. Introduction
2. Chapter by chapter comments
3. Answers to the questionnaire

### **1. Introduction**

In addition to the EU legislation mentioned in the CEER document, ENTSO-E would like to underline that generation adequacy as a “concept” is embedded in the Union Policy objectives in Energy set by the Lisbon Treaty (art. 194): *“aiming to ensure, in the spirit of solidarity between Member States, the functioning of the energy markets, the security of energy supply in the Union, the development of new renewable energy forms and investments in interconnections”*.

According to the Treaty, the EU shall establish the measures necessary to achieve such objectives without affecting the Member State’s right to determine the conditions for exploiting its energy resources, the choice of energy sources and the general structure of its energy supply. However, measures that significantly affect a Member State choice of energy sources and the general structure of its energy supply could be adopted upon unanimous decision of the EC Council.

While each Member State is responsible for its own security of supply and generation adequacy, solidarity between them and common strategies to share and mitigate any risks affecting system adequacy become, in the liberalised market, a prerequisite for reliability in the electricity system in Europe.

Generation adequacy is one key driver to ensure Security of Supply at European level. However, within integrated electricity market, it might be inefficient to ensure that every Member State has a generation capacity that meets all possible demands (all peak load situations) within this Member State, especially in case of several interconnections to other Member States. In this respect, the adequacy evaluation should also consider adequacy of the grid to transmit the generation to supply, not only generation adequacy.

In their core activities, Transmission System Operators are committed to provide efficient tools to enhance market integration and allow flexibility to all Market Parties, including generators. Efficient cross-border capacity allocation methods, development of intraday markets, development of (national) balancing markets and further work on cross-border balancing schemes provide a sound framework to facilitate the development of the electricity market as a whole and of generation capacity in particular. TSOs are committed to further develop these tools, taking into account specific needs of Market Parties and appropriate measures to be taken to mitigate risks borne by Market Parties, along with necessary measures to ensure grid and generation security of supply.

Measures to be taken into account to ensure generation adequacy should strive for market based solutions. If some additional measures are needed they should be adapted through market design and regulatory approaches should be avoided. However, licensing and environmental regulations should be considered in the light of risks they might introduce to those investing in generation capacity.

Demand response should be considered as a real cost-efficient alternative for decreasing the need for generation capacity during peak load situations. Market design should contribute to this development. Another important issue in encouraging the overall adequacy of the electricity system, including generation adequacy at EU level, is the reporting system towards EU and Member States, including forecasts and outlooks on both a short term and long term period and the forecasts of investment decisions of TSOs.

In that respect, ENTSO-E in addition to the considerations raised by CEER, wishes to highlight that the EC Directive n. 2005/89 has also improved transparency introducing the concept of a reporting system between Member States and the Union on the forecasts and outlooks for the overall adequacy of the electricity system. Under that framework the reporting competences was specifically assigned at national level.

Notwithstanding that, TSOs reinforced their cooperation on a voluntary basis among them in order to report EU wide perspectives for system adequacy even on a short term basis through summer outlook and winter outlook reports. These reports, submitted by ENTSO-E to the EC Cross Border Committee of Electricity upon request of the EU Commission, are aimed to facilitate the monitoring of security of electricity supply in Europe even on a short term basis.

The new tasks assigned to ENTSO-E in the framework of the Third Energy Package in order to enhance the overall EU adequacy of the electricity system comprise also the competence to provide European System Adequacy Outlooks, and summer and winter generation adequacy outlooks.

Supply and demand forecasts and outlooks constitute the assessment grounds on which TSOs make decisions to invest in transmission networks and interconnections.

They imply technical, economic and market issues and represent one of the important challenges for ENTSO-E in developing the next release of the EU Community TYNDP and for the national development plans of individual TSOs.

## 2. Chapter by chapter comments

ENTSO-E would like to contribute to a number of key issues outlined in the CEER paper with additional issues and concerns from TSOs perspectives.

### **Chapter 2 - liquid, efficient electricity market and regulatory framework**

Generation adequacy, in the liberalised market, is closely correlated to transmission adequacy and market integration. Regulatory measures and incentive schemes to foster investment in transmission networks and interconnections should be established at EU level. ENTSO-E will support the process that leads to the definition of such incentive schemes.

ENTSO- E would also like to underline that market behaviour is very much affected by market conditions and regulatory certainty and, as such, is subject to changes in the future. The benefits of market monitoring can help overcome the uncertainty that TSOs must address, with reference to the following tasks:

- predicting the future amount of generation and consumption needed and the limited availability and quality of this information available to TSOs;
- the changes over time in the way electricity is generated (from embedded generation to large off-shore wind-power clusters, etc.), transported, and consumed (new high-speed trains, heat pumps, electric vehicles, etc.);
- the medium and long term impact of separate policies (and also different policy implementation options) such as energy demand reduction and efficiency, renewable energy sources integration, CO2 emissions reduction, decommissioning of polluting units, etc.

Generation adequacy implies the need to assess the amount of generation, for different main technologies, is necessary for a system to be adequate. The fragmentation of the decision making process on the evolution of the level and localisation of demand and of generation and transmission availability raised the difficulty to forecast the needs in terms of generation capacity and in terms of evolution of the demand on a long term period. System adequacy forecast must help to identify possible problems regarding generation adequacy at both national and EU level.

ENTSO-E underlines that information on actual consumption as well as forecasts for demand and generation capacity is strategic for the investment decisions of both market operators as well as of TSOs in planning the transmission network. TSOs, in the liberalised electricity market and according to EU and national legislation, have the responsibility to forecast the overall evolution of demand, to plan the development of the transmission network including interconnections and to connect generation plants to the grid. TSOs are then allowed to have access to information in order to make such forecasts.

In that respect the availability of accurate and precise information to predict and forecast generation capacity and demand by TSOs is an important asset to be considered in the framework of regulatory measures to be adopted for ensuring generation capacity at national and EU level.

A number of key issues may be raised in respect of the need for accurate and precise information for system adequacy forecasts:

- Generation forecasts may be influenced and result too optimistic if generation assets decommissioning are underestimated and new generation asset commissioning overestimated. Some information regarding decommissioning and investments may be commercially sensitive.

Date for decommissioning may be for instance sensitive and kept therefore confidential. If decommissioning information are made available too late to TSOs within the relevant year of decommissioning, TSOs use default time life values to deal with that uncertainty as generators are usually not compelled to inform about them earlier. Exceptions occur, when shutdowns are triggered by legislation (such as: emissions thresholds, nuclear phase-out, etc.);

As far as new generation asset commissioning is concerned, timing announced by generators for new projects risks to be too optimistic and TSOs are not obliged to abide by the same rules to consider if a new project is relevant for the system adequacy forecast;

In order to assess the additional generation capacity need to cover the load, it is also very important to have information on the actual flexibility of generation units.

The data collection process for decommissioning as well as the proper accountability of the shutdown of generation units and of new investments and the assessment of the impact of large combustion plant directive are considered important to strengthen the reliability of system adequacy forecasts;

- Time horizons for building generation scenarios are considerably relevant due to the time gap in providing information. Generation scenarios are often built according to a bottom up approach (i.e. based on the projects announced by the generators to the TSOs). However this information regards a limited time horizon only (i.e. normally seven year forecasts for major investments, two year forecasts for wind farm connection to the transmission grid). Many generation units taken into account for the above mentioned scenarios are often connected to distribution level with information given to DSOs only six month before actual construction or entry into operation as the latest;
- In order to construct a relevant demand scenario, TSOs need to make assumptions on the impact of the introduction of heat pumps, plug-in electric vehicles, energy efficiency measures and demand flexibility on the shape and magnitude of the electricity demand. This information is not always available. Future policy measures that amplify the impact are not known by the TSOs. Even existing demand flexibility measures are not always known by the TSOs e.g. contracts between generators and large industrial clients. Accurate predictability of intermittent generation is also a very important issue to be considered;
- The construction of a European adequacy criterion based on interconnection is finally a critical matter because it may lead to results which are different from those set by using a national generation adequacy criterion.

ENTSO-E welcomes any action towards helping to solve the above mentioned issues and to ensure more transparency in the market including commitments (or incentives) to ensure that accurate and reliable information are made available to TSOs.

In chapter 2.3 demand side management is presented only as a tool for cutting high prices during tight supply periods. However, the ability of managing loads in a greater scale is a key element of an integrated smart grid approach for increasing energy efficiency, grid reliability and security of supply. Controllable loads may contribute to ancillary and balancing services just like flexible generation assets and thus have a positive impact on liquidity and pricing of ancillary service products.

However, within a liberalized market environment there is a lack of integrated planning of generation and transmission capacity. From a system view perspective this might lead to an inappropriate allocation of power plants. Hence, alternative methods, such as locational marginal pricing, might be considered for providing signals to adequately address grid issues in power plant investment and dispatching decisions. With an increasing level of market integration location signals should be compatible and harmonized at a European level. Whereas location price signals will motivate certain

generation capacity dispersion, grid operators also demand for a sufficient availability of different types of generation (flexible, high availability, black-start capability...) to guarantee the existence of ancillary service providers.

### **Chapter 3, barriers to investment in new generation capacity**

With reference to the uncertainty regarding the regulatory framework emerging in Member States to reach the EU 20-20 targets, ENTSO-E would like to highlight that this uncertainty may make very complex the construction of generation - demand scenario for evaluating new transmission assets. The construction of scenarios, as also indicated in the pilot TYNDP for 2010, will be very much impacted by the top down approach in the framework to respond to the EU target (20/20/20) in terms of RES and CO2 Emissions as well as in the way how each country will respond to them. TSOs could base their generation and load forecasts on NREAPs. Risks of uncertainty still exist as those national plans primarily focus on energy, no information is given on non renewable units, and RES information given in such plans should be considered sure.

With reference to the delays in building new power plants and reinforcing the grid, ENTSO-E would like to stress the increased number of uncertainties and a globally complex legal and regulatory context, especially for permitting procedures stemming from a multitude of different authorities. The main concern is the lack of social acceptance that severely delays or jeopardizes the realization of transmission projects.

Grid reinforcements are essential for generation adequacy. Generation location is a key point to be considered. Due to the greater variations of the generated power, an efficient market integration and cross border congestion mechanisms are key to ensure that wherever power is available it can be efficiently brought to consumption areas. Grid development and adaptation of grid access rules are complementary to the market framework.

**In Chapter 4, on additional measures (and criteria) facilitating the provision of new generation capacity**, the issue of dependency on gas is analysed.

In that respect ENTSO-E would like to remark the importance of this issue also in terms of monitoring and reporting system adequacy. ENTSO-E is willing to cooperate closely with ENTSO-G to work on reporting mitigation measures for the increasing gas supply dependency of electricity generation throughout Europe.

### 3. Answers to the questionnaire

#### 1. What are the key elements for ensuring generation adequacy in the competitive electricity market in EU MS and the EU as a whole?

In developing the annual adequacy forecasts and planning the future investments, TSOs are confronted, as stated also in TYNPD with the following uncertainties;

- The inherent uncertainty in predicting the future location of generation and consumption and the limited availability and quality of this information available to TSOs;
- The changes over time in the way electricity is generated (from embedded generation to large off-shore wind-power clusters, etc.), transported, and consumed (new high-speed trains, heat pumps, electric vehicles, etc.);
- The medium and long term impact of separate policies (and also different policy implementation options) such as energy demand reduction and efficiency, renewable energy sources integration, CO<sub>2</sub> emissions reduction, decommissioning of polluting units, etc.
- And also the increase of storage capacity due to the growing number of stochastic behaviour generation units (especially wind).

Looking at the necessary time to actually build a line that is in average 5-15 years and the time needed to commission a power plant, 3-5 years, one can easily notice the importance of in advance transmission planning and building.

Reducing this time discrepancy is a key element in ensuring the future generation adequacy. In this respect ENTSO-E proposes the following solutions:

- Introduce appropriate measures which reduces the uncertainty( mainly generation – capacity, location, commissioning time, decommissioning time) and guarantee TSOs in their function to provide system adequacy forecasts on a long term basis and planning of transmission network ;
- Simplify and harmonize the permitting procedures for transmission development and interconnection, especially for the tie lines;
- Commit (also through market measures) generators to make available generation capacity on the long term period for system adequacy;
- Built new generation facilities at places with sufficient grid capacity;
- Use methods that provide appropriate signals on power plant sitting / dispatching decisions (as acknowledged in section 4 of the CEER call for evidence) in order to avoid inefficient grid development;
- In particular the regulated return on investments should reflect the regulatory and market uncertainties which are highlighted in this paper;
- Provide TSOs sufficient resources to finance infrastructure projects compatible with European and national objectives. This is only possible with appropriate investment incentives.

**2. Do you observe any barriers for investing in new generation capacity? If yes, please list and explain them.**

The following barriers were identified:

- Power plant building permissions are a key obstacle. For TSOs this has immediate consequences as for their grid planning they are not able to rely on power plant construction announcements. Such announcements may be withdrawn in case permissions are not obtainable by generators. Uncertainty on these announcements might hinder the long term development of efficient (grid) investments;
- Licensing new grid infrastructure is also a critical process. Since an appropriate combination of generation and grid infrastructure developments is necessary to ensure Security of Supply at European level, it is of utmost importance that licensing procedures allow for the timely development of generation and grid infrastructures;
- Volatile legislative and political support combined with the uncertain trend in generation fuel type.

**3. In case of additional measures for ensuring generation adequacy, what would be the key issues to take into account?**

With the increasing level of market integration additional measures (e.g. location signals) should be compatible and if needed harmonized at a European level. Before introducing such mechanisms, a careful consideration of all potential consequences should take place (as pointed out in section 4 of the call for evidence).

With regard to the publication of data, administrative burdens for gathering and preparing the required information should be considered. Significant reporting requirements for TSOs are already in place. Any extension of these obligations should be justified with a clear demonstration of the market benefits, as well as of an identification of the party who is best-placed for this publication.