



## **ETSO position paper on TSO role in maintaining balance between supply and demand**

### *Summary*

Prior to the restructuring and liberalisation of the European electricity industry responsibility for security of supply and, in particular for the provision of sufficient generating plant to meet demand in all timescales was generally the role of vertically integrated companies with an obligation to supply. Unbundling of the activities has resulted in the establishment of new structures and organisations, including TSOs and changes in roles and responsibilities.

The purpose of this paper is to set out ETSO's views of the role of TSOs in respect of maintaining the balance between supply and demand in a liberalised electricity market. It concludes that the role of the TSO in balancing supply and demand should be, in general, limited to acting in operational timescales<sup>1</sup>. The provision of adequate generation and of demand that is price responsive is the result of market incentives on and individual responsibilities of generators and suppliers working in a competitive market environment. While TSOs have a role to play in contributing to the establishment of the rules and structure of such markets by Governments and regulatory authorities and to facilitating their operation, it is not generally the role of the TSO to be involved in the provision of generating plant or of price responsive demand arrangements, except to the extent that they are required to meet operational requirements.

While it is recognised that in some countries TSOs have roles to play in respect of the balance between supply and demand that extend beyond operational timescales, these roles are either transitory in the countries in question, reflecting the need for market arrangements to reach maturity and particularly the development of demand side response, or are seen as only being operative in extreme circumstances of imminent market failure.

The remainder of this position paper sets out in more detail the views of ETSO on these issues as a contribution to the ongoing debate and development of market arrangements across the European Community.

---

<sup>1</sup> Market players are economically responsible for meeting their planned individual balances in each settlement time frame. The settlement time frames vary from 15 minutes to one hour. Operational timescales are defined generally in terms of the point at which the TSO becomes responsible for physical balancing of the market (known generally as gate closure). While market players are commercially responsible for their actions in all timescales, after gate closure it becomes the role of the TSO to keep demand and generation physically in balance. In some countries generators and suppliers are allowed to alter their positions after to gate closure in response to these commercial responsibilities, while in others they are precluded from doing so. In all cases, the commercial incentives on generators and suppliers encourage them to be individually in balance. The actions of the TSOs to keep the balance can include, in extremis, the disconnection of demand. Gate closure times vary across Europe from almost real time to day ahead. The phrase operational timescales is therefore used in this paper to reflect the TSOs responsibility for balancing supply and demand after gate closure. This of course does not preclude the TSO from entering into long term contracts or other arrangements with generators, suppliers or end-users for services to be used post gate closure.

## ***ETSO Position on Maintaining Balance between Supply and Demand***

Liberalisation of the European electricity market is a big change for all industry actors, generators suppliers, TSOs and final users, as well as Governments and regulatory authorities, and has presented and continues to present a challenge in respect of market design. It has meant a change to decentralised decision-making and different roles and responsibilities from those that existed in previous structures. All market players have a responsibility to cover their own commercial commitments both in the short and long term. None of the individual market players, however, has, on its own, an obligation to maintain system or subsystem balance between supply and demand. System or subsystem balance is a collective responsibility involving all industry actors. Market structures have been put in place to provide commercial incentives to generators and suppliers to provide adequate generation capacity to meet demand primarily either through direct contractual relationships between generators and suppliers or through trading via power exchanges. Through either mechanism, the market structure should ensure that it is in the commercial interests of market players to meet their customers' demand for electricity. In particular, for generators to ensure that they have sufficient generating capacity to meet their contracts to supply and for users to ensure they have contracted for sufficient capacity to meet their likely level of demand.

After gate closure the TSOs are physically responsible for securing power system operation and maintaining balance between supply and demand by having access to operational reserves. However, market players remain economically responsible for individual imbalances after gate closure<sup>1</sup>.

Against this background ETSO has identified 5 key issues of utmost importance for the maintenance of the balance between supply and demand in a liberalised electricity market. These relate either to the direct role of the TSO or to attributes required in ETSO's view of the market arrangements:

1. Establishment and maintenance of an efficient electricity market
2. Market based pricing of electricity in competitive markets
3. Clear definition of the roles and responsibilities between the TSOs, market players and authorities
4. Consistency of definitions of the TSOs' system responsibility
5. TSOs' active involvement in market design to ensure system integrity

ETSO's positions on these issues are presented below.

### ***1. Establishment and maintenance of an efficient electricity market***

A well functioning market is essential for the availability and price of each commodity. ETSO believes that a well functioning and efficient electricity market is a necessary condition for ensuring adequacy of generation capacity to meet demand. The efficient functioning of the electricity market is dependent on the regulatory framework, market structure as well the products to be traded by the market players. The nature of electricity and its importance for the modern society makes electricity market design a technically challenging task.

A stable investment climate and regulatory framework with transparent and enforceable rules both for existing and new market players as well as a competitive market structure are the corner stones for an efficient and attractive market.

Investors' trust in the regulatory framework is crucial. Uncertainties in the regulatory framework mean bigger risks for investors and increased required rates of return on investments, which can delay or reduce the level of investment. Consistent rules and regulation in a regional market should be targeted in order to ensure a neutral and level playing field for competition in the region.

The market is expected to exchange sales and purchase bids both for physical power trade and to facilitate risk management using financial instruments. Bilateral contracts over an unconstrained time frame are an essential part of the product portfolio to manage risks and complete the needs that cannot be covered by the standard products in the market.

The market should be designed to secure the availability of electricity in all time frames:

- in the mid and long term through providing signals for investments in new power plants
- in the short and mid term through providing the basis for efficient trade
- in the operational timescales through providing incentives to generators and suppliers to contribute to the achievement of instantaneous balance

Balancing power is the tool used by TSOs to maintain the instantaneous physical balance. The price paid for the provision of balancing power plays an important role as the primary real time incentive for the market players to provide these services, although the commercial arrangements for generators and suppliers to meet their market commitments provide additional incentives. As the price paid for balancing services may also influence prices in the energy or commercial market prior to gate closure a market-oriented approach for trading of balancing power is therefore necessary.

Sufficient liquidity in the market increases the credibility and efficiency of the market while requirements for some forms of generation (e.g. renewable energy) to be traded or to be dealt with otherwise outside the market can reduce liquidity or interfere with the efficient operation of the market. The market players must have the freedom to choose the market places and the products they will trade as well as the instruments for their risk management.

## ***2. Market based pricing of electricity in competitive markets***

Decision making in the liberalised market is based on the economic signals /incentives in the market. The electricity price is the main driving force for the decision making of the market players. The credibility of the price in all market places, including financial products, is crucial for a well functioning electricity market. Energy price reflects the generators willingness to sell electricity and, in a well developed market the consumers' willingness to pay for electricity or reduce their demand. The extent to which structures have been developed to incorporate demand side response varies across the EU with some countries having a more developed demand side than others. The development of efficient demand side capabilities is seen by ETSO as an important issue and a pre-requisite for the efficient functioning of the energy pricing mechanism. Development of demand responsiveness up to 5 % of the peak demand would substantially contribute to the balance and price during the peak hours.

In any event, price determines the equilibrium position between sellers and buyers, under given market conditions. Any intervention by the authorities or TSOs in electricity price setting will distort the market mechanism and jeopardise the credibility of the market price as an indicative sign for the balance between supply and demand.

Within Europe most of the countries rely on the energy pricing mechanism as the only driving force in the commercial market. Nevertheless, differences in approaches between countries can be problematic in respect of trading between these countries and a harmonisation of approach should be a long-term goal.

Capacity payments are widely used in the balancing market connected with the TSOs' obligations to have access to operational reserves. TSOs commonly make availability payments to generators, suppliers and end-users for the capability of providing balancing services in operational timescales. The TSOs require these services in part as a fall back to cover unexpected but infrequent events, e.g. the loss of a major generating unit or transmission line. Therefore this form of payment is essential if the necessary services are to be provided.

Additionally, some countries have established capacity payment arrangements in the commercial electricity market, either permanent or transitory, to support generation adequacy and encourage investment in new generating capacity and/or to incentivise the market players to keep existing power plants available in the critical periods. Views remain divided on the necessity for such additional incentives to those provided by prices in the energy market alone. On the one hand capacity payment arrangements in the commercial market could be considered as an intervention of the authorities affecting in an undesirable way the efficiency of the market mechanisms; on the other hand, they can be considered as necessary to remunerate peaking plant that is only used in exceptional circumstances and are necessary to maintain an adequate level of capacity. Such differences of view can reflect a number of factors like

- The extent of generation adequacy at the time that a new market structure was put in place – the greater the plant surplus the less the immediate need for capacity payments.
- The state of development of demand side response in a particular market structure – the greater the demand side response the less is the perceived need for capacity payments.
- The extent to which a liquid forward market in energy has developed – the more liquid, advanced and long term the forward market, the less need for capacity payments.

A capacity payment in the commercial market as an incentive to generation adequacy could be seen as a measure that the authorities can initiate according to EU Directive 2003/54/EC. However such measures, under the Directive, are intended for use only if the capacity being built or the energy efficiency/demand-side management measures being taken are not sufficient to ensure security of supply. On the other hand, capacity payments in the commercial market are seen by some as a necessary long -term adjunct to the energy market necessary to contribute to generation adequacy.

### ***3. Clear definition of the roles and responsibilities between the TSOs, market players and authorities***

Liberalisation of the electricity market has resulted in changes in the roles and responsibilities of the stakeholders. All stakeholders in the market have certain responsibilities and roles to ensure that resources are adequate and available to the market. There are, however, differences **in** how the roles and responsibilities between them have been defined in different countries. In some countries

Government responsibilities may have been delegated to the TSO or the TSO may have been given additional responsibilities to maintain the system adequacy according to specified rules. In order to give the appropriate signals and incentives for each stakeholder, the roles and responsibilities must be clearly and consistently defined on a European level.

ETSO's position on the roles and responsibilities:

The authorities have the responsibility for the overall market design and the legislative framework for security of supply with a duty to react if needed.

The market players are responsible for meeting their commercial commitments in power deliveries in all time scales. Market design and market mechanisms should incentivise them individually to meet these commitments and thus also meet the collective generation adequacy.

The TSOs are responsible for maintaining the operational security and instantaneous balance between supply and demand. There is no practical alternative to the TSO being responsible for the instantaneous balance between supply and demand.

The TSOs' responsibility to maintain the instantaneous balance between supply and demand should in principle be directed only to correctly applying the operational procedures and utilising the available operational reserves necessary to fulfil this task within given operational security constraints. If no operational reserves are left in the operational phase, load shedding will be the last resort for the TSOs to maintain the power system in balance.

In the event of expected market failure to provide sufficient generation, the authorities can initiate measures according to the EU Directive 2003/54/EC. In some countries this role has been allocated to the TSO. The potential involvement of the authorities or the TSOs to maintain commercial resources should be avoided if at all possible and utilised only as the last resort if the measures taken by the market players are not sufficient to ensure security of supply. Otherwise, the measures can distort the market, reducing the willingness of and incentives on the market players to invest in resources on the basis of market mechanisms. The criteria and procedures in initiating measures and the measures themselves should be consistent on a regional level at least.

#### ***4. Consistency of definitions of the TSOs' system responsibility***

There are differences in the legal status of the European TSOs, in the legislative framework and duties of the TSOs and in the rules and practices under which the TSOs execute their duties. The core of the TSOs' duty can be termed system responsibility. There is no general definition of the system responsibility in the EU Directives. The definition of the system responsibility is of utmost importance in clarifying the roles between the Governments, TSOs and market players. Consistent definition of the system responsibility in regional markets with several TSOs is a precondition necessary to avoid different risk exposures of the market players and distortions in the market. Equally important is to define how the services provided for the market players are financed in order to create the right signals and a level playing field for the market players and to avoid cross subsidies between different responsibilities.

ETSO has defined the core tasks of the system responsibility as follows:

- to maintain with the available means according to the national regulatory framework
  - the operational security of the power system including the instantaneous balance between supply and demand
  - the adequacy of the transmission system in the long term
- to facilitate efficient functioning of the electricity market

TSOs may have other duties that are not included in the core tasks of system responsibility. These duties can be due to different division of the responsibilities between the stakeholders. They can reflect special national circumstances, but to the extent that TSOs have these responsibilities, they must be clearly separated from the system responsibility and financed transparently to avoid distorting impacts on the market.

## ***5. TSOs' active involvement in market design to ensure system integrity***

The TSOs as system responsible parties play a central role in the operational security of the power system and in facilitating efficient functioning of the market. To ensure the principles for securing the system integrity, the TSOs' active involvement in the market design is important. The TSOs can contribute to the market design and market development only within the powers and means they possess according to the national regulatory framework.

The TSOs' can contribute to further development of the market mechanisms, market structures and to consistency of the regional regulatory framework, rules and practices by taking initiatives, putting forward proposals and acting as a catalyst for example in activation of demand response.

The TSOs should within their responsibility enhance utilisation of market-oriented approaches. Such approaches can be applied to the procurement of the operational reserves and the operation of the balancing market, for example. Demand side bidding can be an option for the generation resources in these cases.

The TSOs can indicate opportunities to the market players by presenting estimates of the regional power and energy balances and transmission capabilities between the regions.