EWEA response to the ERGEG Public Consultation on the draft revised ERGEG Guidelines of Good Practise for Electricity Balancing Markets Integration (GGP-EBMI)

1. General remarks:

EWEA fully supports the view of the European Commission that the inadequate integration of balancing markets is a main impediment to the development of a single European electricity market. At present, the full integration of balancing markets faces various constraints such as regulatory, market-design and technical restrictions.

ERGEG rightly points out that the integration of balancing markets will provide the following key benefits:

- Provide TSOs with access both to a more diversified generation technology mix and further opportunities to offset mismatches in actual electricity generation in relation to demand, thereby helping them to lowering the total amount of necessary reserves, minimise balancing costs and increase efficiency (assuming that transmission capacity is available);
- Contribute to the sharing of reserves and the reduction of the risk of supply interruption as each TSO will be able to call upon balancing power from neighbouring TSOs in a market-based way. Integration will also be an opportunity to further consider reinforcing the extent to which balancing markets provide a sufficient degree of transparency to market players and regulators.

EWEA fully agrees with the above mentioned benefits of balancing market integration. In addition, the benefits such markets would have for the large scale integration of Renewable Energy Sources (RES) should be emphasised. An increasingly small number of stakeholders from time to time seek to highlight a supposedly negative impact that variable RES, such as wind power, have on system operation, more specifically an allegedly unfair release from balancing responsibilities in some countries causing an undue preference for RES and a distortion of cross-border balancing markets.

However, in order to give a complete and accurate picture of the relationship between balancing markets and variable electricity generation from wind, a number of factors must be taken into account when estimating additional balancing costs:

- The level of wind power penetration in the system, as well as the characteristic load variations and the pattern of demand compared with wind power variations;
- Geographical aspects such as the size of the balancing area, the geographical spread of wind power sites and aggregation;

- The type and marginal costs of reserve plants (such as fossil and hydro);
- Costs and characteristics of other mitigating options present in the system, such as storage;
- The possibility of exchanging power with neighbouring countries via interconnectors; and
- The operational routines of the power system, for example, how often the forecasts of load and wind energy are updated (gate-closure times) and the accuracy, performance and quality of the forecast.

Accurate forecasts of the likely wind power output, in the time intervals relevant for generation scheduling and transmission capacity, allow system operators and dispatch personnel to manage the variability of wind power in the system. Predictability is key to managing wind power's variability and improved accuracy of wind power prediction has a beneficial effect on the amount of balancing reserves needed, so the accurate forecasting of wind power is important for its economic integration into the power system.

Today, wind energy forecasting uses sophisticated numerical weather forecast models, wind power plant generation models and statistical methods to predict generation at five-minute to one-hour intervals, over periods of up to 48 to 72 hours in advance and for seasonal and annual periods.

Forecasting wind power production differs from forecasting other generation forms or forecasting the load. Wind, being a natural phenomenon, is better suited to reliable statistical treatment and physical forecasting than conventional plants which are subject to physical faults.

Wind power prediction can be quite accurate, more so for aggregated wind power, as the variations are leveled out; and the larger the area, the better the overall prediction. Present day accuracy levels of forecast tools for regionally aggregated wind farms are of the order of magnitude of 5-6% (RMS error as percentage of rated power) and 3-5% 1-4 hours ahead[1].

The quality of the short-term forecast should be considered in relation to the gate closure times in the power market. Reducing the time needed between scheduling supply to the market and actual delivery (gate closure time) would allow shorter-term forecasts to be used, which could dramatically reduce unpredicted variability and lead to more efficient system operation without compromising system security. Changing from day-ahead to intra-day commitments has a dramatic impact on accuracy and the cost of balancing the system. It is important to understand that for system operation, it is not just wind forecasting accuracy that is relevant for balancing the system, but also the sum of all demand and supply forecast errors relevant for system operation.

Cross-border wholesale trade and balancing exchanges will improve significantly when organised in functioning intra-day markets with a certain amount of market design harmonisation. Such market design prerequisites should include the

[1] Lange, Matthias; International workshop on wind power forecasting, Portland, July 2008

harmonisation of gate closure times (as close to real time as possible in order to minimise the forecast horizon) and the harmonisation of technical characteristics of balancing services (e.g. activation time).

The Nordic cross-border balancing initiative can serve as an instructive example as it has shown that different gate closure times will lead to asymmetric market opportunities and different imbalance exposures at each side of the border.

In conclusion, the functioning and liquidity of wholesale markets together with the forecast horizon influences to what extent wind farm operators can be at all in balance.

In general, the implementation of a cross-border balancing market is a worthwhile and achievable goal that does not entail unrealistic or overly expensive preconditions. Cost reductions that should occur with cross-border balancing due to netting and cross-border procurement of relatively cheaper services can expected to be significant. Allowing for intra-day rescheduling of cross-border exchange will lead to savings in operational costs in the order of € 1-2 billion per year compared to a situation where cross-border exchange must be scheduled day ahead[2].
Cross-border balancing implementation in most cases does not require specific network investments, at least in the short term[3]: intra-day capacity is far from being fully used at the moment and given that profitable exchanges in real time can have an opposite direction to those in the day-ahead and intra-day stage, more capacity sometimes becomes available in real time due to capacity netting.

Cross-border balancing will not only lead to lower imbalance prices and lower costs of balancing wind, but will also create win-win situations for:

- Wind aggregators i.e. incumbents in countries that are given the responsibility for wind energy balancing such as EdF in France, but also aggregators in all countries where wind is supported with green certificates and not with feed-in tariffs, e.g. the UK and Belgium. For them, the key issue will be a well functioning intra-day market with many gates as well as cross-border balancing opportunities, so that they can fine-tune their positions.
- TSOs who will be able to access cheaper resources for secondary control through functioning cross-border balancing markets. The ideal approach would be a common bidding ladder for all balancing resources from different control zones. This will lead to lower balancing costs and should generally speaking, be beneficial for system security and include positive side effects such as increased cooperation between TSOs.

[2] TradeWind Final report, 2009.
http://www.trade-wind.eu/fileadmin/documents/publications/Final_Report_FINAL.pdf

[3] In the long run, there is no doubt that the transmission and distribution infrastructure will have to be extended and reinforced in most EU countries. However, these adaptations are necessary not only to accommodate wind power, but also to replace/connect other electricity sources to meet the rapidly growing European electricity demand and trade flows.

2. A roadmap to integrated cross-border balancing and real-time markets

Real time markets in most Member States are currently more regulation-based than market-based. There is a lack of well-functioning intra-day markets, sufficient liquidity and markets are highly concentrated due to the concentration levels in electricity generation in many wholesale markets.

These distortions already exist today and it would not be reasonable to aim at full market design harmonisation prior to cross-border balancing trade as such. EWEA therefore agrees with ERGEGs position that the implementation of a standard market design does not necessarily have to precede cross-border balancing implementation.

As a first step, cross-border balancing trade should be enabled only with minimal preconditions. These minimal preconditions with respect to market design should include:

- Harmonisation of technical characteristics of balancing services (e.g. activation time);
- Harmonisation of gate closure times as close to real time as possible to accommodate in the most cost efficient way variable energy sources such as wind.

A similar approach has proven successful for the Nordic cross-border balancing initiative and the Trilateral Day-Ahead Market Coupling between Belgium, France and the Netherlands. Both initiatives have proven capable of triggering harmonisation and centralisation, rather than requiring them from the start.

As a second step, the initial cross-border balancing implementation should be further optimised and distorting effects of inadequately harmonised imbalance settlements on day-ahead and intra-day markets should be eliminated. To this end, the imbalance settlements should be cost-reflective and market-based, i.e. no other components such as power exchange prices or penalties are included in the real-time energy price. Real-time energy or balancing prices should be furthermore based on marginal pricing as this would lead to a more efficient allocation of resources and greater incentives to avoid imbalance than average pricing. Marginal pricing will also help to yield economic benefits in terms of low power prices from wind power as it comes early in the merit order due to zero fuel cost.

Furthermore, a vital tool for smooth and well-functioning balancing market integration is improved management of the grid. A necessary level of grid security management integration should be pursued with[4]:

- An information exchange system that is capable of displaying a full picture of the power system state, allowing identification of the necessary and most efficient control actions;

[4] See also : Study on the interactions and dependencies of balancing markets, intraday trade and automatically activated reserves, Tractebel Engineering (Suez), 2009: http://ec.europa.eu/energy/gas_electricity/studies/doc/electricity/2009_balancing_markets.pdf

- Sufficient situational awareness on the part of the system operators, allowing identification with a high level of certainty of the effects of different actions on the whole power system;
- Coordinated and integrated security analysis, ensuring that the actions taken by TSOs are screened from a grid security point of view.
- Efficient cross-border transfer capacity calculation and allocation schemes, enabling the interdependencies of power flows in the meshed interconnected grid to be taken into account.

In this respect, EWEA expects the newly established ENTSO-E to play a crucial role and facilitate coordination between TSOs.

3. Models for cross-border balancing

EWEA agrees with the ERGEG approach of setting up a "TSO-TSO" model as the best solution towards balancing markets integration. This approach implies that neighbouring TSOs exchange balancing services directly between themselves in a most efficient manner, whereas the "TSO-balancing service provider (BSP)" approach requires the BSP to identify the best possible allocation of their services within given control areas. However, in view of the lack of system overview of each individual BSP and the short-term nature of real-time balancing, the TSO-BSP approach should be regarded only as second best.

Secondly, ERGEG points out its preference towards the TSO-TSO model without common merit order as more adequate in the short term because it does not require a high degree of market harmonisation and centralisation and ensures therefore a faster implementation of cross-border balancing trade.

The absence of a common merit order might be indeed tolerable for a time limited period during the first stage where there is little or no harmonisation of real-time market designs. However, it impedes the TSOs from activating the cheapest available resource when handling imbalances of control areas. Once differences in remuneration methods for balancing services are levelled out and a certain level of market harmonisation is achieved, the TSO-TSO model with common merit order should be seen as the optimum solution, at least in the mid to long term perspective. This will ensure that balancing bids and offers exchanged by TSOs in an integrated and harmonised internal market reflect the most efficient allocation of resources.