

**Remarks of PSE Operator S.A. to the CEER document entitled “Regulatory aspects of the integration of wind generation in European electricity markets” from 10 December 2009**

Since the goal of the document entitled *Regulatory aspects of the integration of wind generation in European electricity markets*” consists of the presentation of the opinions of European regulators on the possible methods of integrating the developing wind generation with the energy market and the necessary network investments as well as their consultation with the interested electricity market participants whereas the conclusions of such consultations shall serve the regulators in their further work and in understanding the issues related to the impact of wind generation, in order to supplement the ENTSO-E standpoint naturally representing compromise opinions of many TSOs, we would like to mention a few issues related to the development of wind energy that are important from the perspective of the Polish transmission system operator:

- When taking into account the operational security of the network one should also consider the scale of the maximum permissible share of production volume from wind farms compared to the current production volume of conventional power plants and the condition of network development and, therefore, also the issue related to the possibility of TSO control of wind generation (limitation to a safe level of the volume of installed wind generation or its current reduction) in individual national systems or their areas. Perhaps it is also worth considering the need to introduce certain limits (caps) relevant to countries as well as to regions in these countries (the German case shows an unequal distribution of wind generation within that country and the resulting problems which also affect neighboring systems). Besides the obligations imposed on TSO in respect to the connection of such investments, it is also necessary to adequately oblige the investors to strict cooperation with the TSO in this scope and to coordinate these actions with conventional power generation.
- Support should be considered not only for wind energy producers but also for companies managing the network infrastructure (correct tariff mechanism, clear legal regulations enabling quick implementation of network investments, mainly in urban areas or areas protected under environment protection regulations). The preparation

and implementation of an incentive system for network development investments aiming at the connection of distributed energy producers could also improve their market standing and create a more competitive energy producer market. This would be effective as often favorable conditions for wind power source construction exist in areas that are scarcely covered with network infrastructure and sparsely populated.

- Preferential conditions for environment protection investments excluding other equal priorities have led to a situation of excessive expectations in the scope of wind farm construction in comparison to the possibility of their connection to the national power grid whose development in the scope of network construction is limited. We would also like to mention that the average technical lifespan of power lines is much longer than that of the wind power plants connected to them. This may render commitment in the development of power lines unprofitable and result in the ineffective use of invested funds if the construction or modernization of the lines results solely from the location of the wind power plant and if operators shall not have the possibility to coordinate the location of wind power sources with the existing or planned power network. Under such circumstances, the issue of coordinating the development of wind power and power networks also requires relevant regulations since complete freedom in the development of wind power shall entail difficulties related to the planning of the direction and method of power network development (particularly of the transmission network and distribution network of 110 kV) as well as problems with controlling the power systems and ensuring the operational stability of these systems.
- We would also like to mention the considerable problem related to the uneven distribution of wind generation in Europe due to factors such as the country's economic situation, RES support systems, energy industry structure, system character and atmospheric (geographic) conditions. This entails mutual and owed to the laws of physics impact of that generation on the systems of neighboring states (in particular on systems connected synchronously) in the form of the occurrence of circular and parallel flows in these countries (in the case of synchronous systems, such flows are very difficult to control) resulting in difficulties with system control and related costs. For example, wind generation in Germany (particularly in the Northern part of that country) forces considerable circular and parallel energy flows through several countries simultaneously, including Poland, which accept such flows on the basis of agreements aiming mainly at the protection of the German system. Such high and

unplanned flows, if not limited, may reduce the reliability of system operation by overloading the lines and reducing the voltage thus exposing the power grid to the risk of cascade shutdowns and its collapse in the event of disturbances. The aforementioned aspects of wind generation development result not only in a risk to the operation of other countries' systems but also generate costs for which there are still no defined allocation mechanisms. The only partial solution to this problem in the case of synchronously connected systems may consist of the installation of additional controllable network elements (for example phase shifters). We believe that the most effective solution in such cases is continuous monitoring and the possibility of direct steering of wind farm capacities by the TSO in conditions of increased risk to system safety. The authors of legislation and regulators should create a legal and regulatory framework that would ensure the possibility of the aforementioned actions to the TSO and define the conditions of covering the resulting costs.

- Hitherto experience of operators from the region of Central and Eastern Europe proves that unilateral (by one TSO) or bilateral (by two TSO) network remedy measures are not always enough to eliminate transmission risks. Therefore, it is increasingly important to prepare and apply relevant (providing the correct stimuli) regional market measures that would be more effective than the presently applied measures. Their implementation and use however requires the commitment of not only a few operators (including some that are located far from the limitation location) but also the parallel commitment of regulators particularly in solving the issue related to the coverage and recovery of costs by individual operators.
- High involvement in wind power projects with the current obstacles related to easement of passage, social inclinations and acquisition of funding sources will result in a limitation of capacity introduction or in the lack of connection possibilities and limitation of the possibility and financial means for other investments in generation.

**Conclusion:**

The development of wind power should be coordinated with and dependent on the method of compensating capacity fluctuations generated by wind power generation through a parallel development of conventional sources and network development and not the other way around. The question is whether such strong promotion of wind generation agrees with the market principle of competitiveness, particularly in the case of some countries, and does this not benefit some countries at the cost of others?