AEP[1] Response to CEER consultation "Regulatory Aspects of the Integration of Wind Generation in European Electricity Markets"

General

The Association of Electricity Producers (AEP) welcomes the fact that CEER is focussing on the issues raised by the increasing use of wind energy. As a result of the EU renewables targets, wind generation in Europe will expand considerably in the coming years. It is important to facilitate this expansion of wind energy, while ensuring that the impacts on other objectives, such as market liberalisation, security of supply and decarbonisation of the electricity sector are fully taken into account and that policy conflicts are avoided as far as possible.

Regulators have a central role to play in ensuring that electricity networks are developed to allow the timely connection of wind energy and other renewables. AEP would like to emphasise that adequate investment in transmission and distribution networks is the only long-term solution to the challenges of transmission access for renewables and low carbon generators. Regulators must therefore take a positive approach to network reinforcement and authorise investment ahead of need.

As regards network access and balancing arrangements, AEP believes that all generators should operate on a level playing field and that wind generation should pay a fair share of the associated charges. This will give wind generators an incentive to minimise the costs they impose on the power system. Such costs will need to be taken into account in renewable support schemes, but it is much better that the costs should be explicit in the overall level of support rather than being hidden behind favourable access regimes.

ANSWERS TO SPECIFIC QUESTIONS

Question 1:

How will the expected growth in wind generation affect the markets in which you operate? What are the key challenges you foresee?

[1]The Association of Electricity Producers (AEP) represents large, medium and small companies accounting for more than 95 per cent of the UK generating capacity, together with a number of businesses that provide equipment and services to the generating industry. Between them, the members embrace all of the generating technologies used commercially in the UK, from coal, gas and nuclear power, to a wide range of renewable energies.

The expected growth of wind generation will have significant consequences for security of supply. The intermittency of wind output means that it is important to ensure that adequate capacity of short-term response is available to provide back-up for variations in wind output.

A key challenge from a market perspective will be to provide the appropriate investment signals to secure the investment needed in stand-by plant. This will be particularly important in markets such as the UK, where substantial flexible generating capacity is scheduled to close over the next ten years.

Greater output from wind capacity is likely to make investing in alternative forms of low carbon generation more challenging. Less baseload plant will be needed when the wind blows and major investment in renewables is likely to push down the carbon price, which provides the investment signal for other low-carbon energies.

It is worth highlighting that the specific impacts are likely to differ from country to country. We recognise, therefore, that there may not be a 'one size fits all' solution to these challenges which is appropriate to all European markets.

Question 2:

What are the implications for market rules? Can you identify changes which would better facilitate integration of wind generation, including management of intermittency?

A major issue in AEP's view is price volatility. When there is high wind output and low demand, prices are likely to go low or possibly even negative. Conversely, when there is low wind output and high demand, prices need to be high enough to encourage the necessary low-load-factor plant to come into production for these times. It is important to ensure that the market prices are allowed to reach these high levels to encourage investment and that price capping is avoided. If not, plant margins may suffer and the very high levels of reliability enjoyed by UK and other European customers may decline.

Market arrangements should be suitable for a future generation capacity mix that will have more high-capex and low-marginal-operating-cost plant, such as wind and nuclear, but will also include substantial peaking capacity (typically lower-capex, higher-marginal-operating-cost plant) in order to balance supply and demand on a day-to-day basis.

An appropriate balance between encouraging flexible and controllable generation and making use of demand flexibility (via smart meters / smart grids) together with increased interconnection to other systems is the best way to cope with the variable nature of some sources of generation. Governments and regulators should therefore encourage the development of electric vehicles and storage technologies, which over time could play a major role in dealing with supply variability. A supportive framework for interconnector investment is also essential.

Question 3:

Would moving the market's gate-closure closer to real-time facilitate the deployment of wind generation? Would this have any adverse consequences on the functioning of the electricity power system?

Moving gate-closure times nearer to real-time should benefit all market participants, since this would much diminish the impact of wind forecasting errors. As a result, wind generators would have less exposure to imbalance charges and overall system balancing costs would be reduced.

As Europe moves towards more integrated markets, efforts should be made to harmonise gate closure times, at least on a regional basis.

Gate closure in the GB market is one hour ahead of real time and this has not had an adverse impact on security of supply.

Question 4:

Are emerging cross-border congestion management models compatible with wind generation? Should further attention or priority be given to intraday capacity allocation mechanisms and markets, in light of the issues associated with forecasting wind generation?

AEP supports efforts to make greater use of interconnector capacity and ensure further integration of the EU electricity market. Greater interconnection should make it possible to accommodate increased amounts of wind generation in the European market. However, it should be noted that the variability of wind output can cause TSOs to manage the transmission network more conservatively and to reduce cross-border capacity (see also our comments in question 12). Interconnection should therefore not be seen as a panacea.

The major difficulty posed by the proposed congestion management models is the fact that in many European markets liquidity is concentrated at the day-ahead stage. This does not fit well with the large-scale development of wind generation because of the wind forecasting errors mentioned above. AEP therefore agrees that progress needs to be made towards continuous allocation of intra-day capacity, with a view both to promoting economic trade nearer to real time and to accommodating increased wind output.

Question 5:

Should wind generation be subject to the same balancing obligations and the same types of charges as other types of generation?

All types of generation (including wind) should compete on a level playing field in terms of balancing and network access arrangements. It is important that balancing costs are transparent and fairly allocated and that "special deals" for renewables, or indeed other forms of generation are avoided. This gives all generators an incentive to reduce imbalance costs. The imbalance charges incurred by wind generators

should be taken into account in the general renewable support scheme. Over time the aim should be to align renewable support schemes, transmission access rules and balancing obligations on a regional basis and ultimately across Europe.

Question 6:

Should TSOs engage in research and development (R&D) to address issues associated with a large share of wind generation included in the network? If so, how should the regulatory framework require or support this?

AEP supports continuing research and development to help address further issues arising from large-scale wind generation given its potential impact on system stability and integrity. The regulatory framework to support this should be primarily via incentive based payments for running the network more optimally and also via specific R&D and innovation funding schemes.

Question 7:

Should wind generators face the same types of network charges as other new generators, calculated using the same methodology? What is needed to provide a sufficient incentive for generation in choosing where to locate? What is needed to provide an appropriate balance of risk among market players? When should this not be the case?

Access to electricity networks should operate in a transparent, non-discriminatory manner and be based on a charging methodology which allocates costs transparently regardless of generation technology, voltage, location or network asset ownership. Wind generators should therefore pay the same network charges as other generators. It should be emphasised that stable and predictable network charging is a major factor in creating the appropriate climate for new generation investment.

Question 8:

Broadly, what is the appropriate allocation of responsibilities, risk and cost among market players in developing new network infrastructure (e.g. ahead of or in response to new generation connections)? Should this be different for wind generation? Where is harmonisation required?

AEP stresses that adequate investment in transmission and distribution networks is the only long-term solution to the challenges of transmission access for renewables and low carbon generators. Some regulators have in the past been reluctant to allow TSOs to take more “risky” decisions with regard to investment, for fear of “gold-plating” and/or creating stranded assets, and this is reflected in the CEER comments in section 4.4 para 2. However, if targets for connecting more renewable generation are to be met, it is crucial that regulators take a more positive approach to transmission investment and authorise expenditure ahead of need. Both TSOs and regulators must therefore take a greater share of the risk in relation to network reinforcement than has so far been the case in the UK market for example.

The connection dates for new wind projects should as far as possible line up with overall project development timescales. TSOs should be sufficiently incentivised to deliver the necessary works on a timely basis. This will require a proactive investment policy from TSOs, but national and regional government must also ensure that their planning processes do not impose unnecessary delays on transmission network extensions. AEP therefore supports CEER's call for governments to speed up authorisation processes.

AEP would like to see the European regulators giving greater consideration to the issue of harmonising approaches to transmission charging and connection. The CEER document expresses concern about distorted incentives within national markets (e.g. the lack of locational signals if generators do not pay connection costs), but does not examine the distortions between national markets if different connection regimes apply. In AEP's view, network charging and connection arrangements across Europe will need to converge if renewables are to be developed in a cost-effective manner.

Question 9:
Do you agree that the "supergrid" issues for regulators identified in 5.1 are relevant? Is there anything else European regulators should be considering?

As mentioned in section 5.1, regulators should primarily seek to remove regulatory barriers to the development of offshore grids, particularly where differing national regimes are an obstacle. Regulators should also work to support the various initiatives being taken by governments and TSOs.

A further issue to be considered is that point-to-point connection of large windfarm clusters is probably not an optimum solution. In the future, the integration of onshore and offshore transmission planning may well be necessary.

Question 10:

Is the current ownership structure of the offshore lines or their regulatory framework a potential issue for the integration of offshore network? Are there other considerations affecting this ownership structure?

There are broadly two regimes for creation of offshore grid connections; either the developer of the wind farm builds to the shore, or the grid is brought out to meet the wind farm. Both these regimes are currently used in Europe and have their strengths and weaknesses and neither works perfectly. Offshore grids may seek to connect to renewable generation outside national waters and possibly with other countries, and this is an issue which now needs to be more adequately addressed.

Question 11:

Do you agree that the Regional Initiatives should be used to address the issues associated with the development of the regional projects? What challenges does this present?

AEP believes that wind integration should be on the agenda of the regional initiatives, given the impacts on cross-border trade, market design, transmission planning and other issues.

It should be noted, however, that some current work, e.g. the North Seas Offshore Grid Initiative, incorporates countries within several regional markets. Given the legal issues involved in developing offshore grids, it is important that national governments are closely involved and it seems sensible to reach agreement on the regulatory framework at a supra-regional level if possible. In this light, the regional initiatives should be kept informed of developments and should play a supporting role, but should not lead the process.

Question 12:

What other issues should European regulators consider in relation to the integration of wind generation?

Additional interconnection can help to mitigate increased variability of generation but the extent of this should not be overplayed. AC interconnection, e.g. in mainland Europe, allows greater scope for short term balancing such as frequency response, than in the case of DC links. On longer response time reserve, the capability for backup depends on what the interconnector flow is at the time. When the market most needs the power, price differentials between the importing market and the exporting market may mean that interconnector flows are close to maximum anyway, with little scope for increases. Additionally, if adjacent countries have high wind penetrations and are experiencing similar low output and high demand, then they may have a requirement for backup generation rather than be an available source of it.

While in the short term the major focus is correctly on integrating wind energy in transmission networks, more consideration will have to be given to the impacts on distribution networks as small-scale wind generation develops. In particular, distribution networks will need to be managed more actively and provision will have to be made for exports to the transmission network.

The major issue with wind generation is its unpredictability. This in itself places a limit on the amount of wind capacity that can be installed on the network without affecting the network stability and security of supply. We believe that more studies are needed on both the technical and commercial issues and that regulators should be proactive in commissioning studies and in supporting work done by network operators.