

February 2010

IFIEC Response to:

ERGEG Consultation C09-SDE-14-02a Regulatory aspects of the integration of wind generation in European electricity markets.

Introduction

The International Federation of Industrial Energy Consumers represents companies in energy intensive industries in Europe for which the cost and availability of energy and power are significant factors affecting their ability to compete in world markets.

General Remarks

IFIEC welcomes the issues around wind balancing being raised, and the opportunity to contribute to the establishment of a robust strategy to optimise energy supplies whilst minimising Europe's carbon intensity.

IFIEC has concerns, however, which are as follows:

1. Balancing across Europe can only be achieved if there are market structures in place to allow near-time trading for cross-border interconnectors
2. Such market structures will only be of practical use if there is adequate interconnection capacity to deliver the required balancing flows
3. Historic progress towards achieving market harmonisation has been slow and must be accelerated if the above are to be achieved in time
4. The enormous cost of these investments, in generation, grids, interconnection and, eventually, in storage
5. Fair sharing of the cost burden between all types of consumers; this should reward ability to forecast demand accurately and to reduce demand, both assisting balancing requirements
6. The overall impact of Wind on security of supply, which is fundamental for baseload industrial customers and other essential services
7. The extent to which high energy costs and insecure supply would lead to carbon leakage, and hence to unemployment, unrest and the impoverishment of the EU.

Responses to Consultation Questions

Q1 How will the expected growth in wind generation affect the markets in which you operate? What are the key challenges you foresee?

The effects on the markets will be to increase the uncertainty of the reliable and controllable supply to consumers. This unreliability is long-term as well as short. The dominant shorter term problem is in balancing the generation: supply interface in unpredictable wind conditions. The key long term issues are the

- *Availability of socially/ environmentally acceptable on-shore locations for wind generation and transmission investments*
- *Reliability of the turbine operation and cabling systems in corrosive offshore locations*
- *Security of generation equipment in unsupervised remote locations*
- *Funding the development of energy storage mechanisms to smooth out the uncertainties in generation.*

Furthermore, wind energy is characterised by high capital cost, but very low operating costs. Under supply regimes which use a “merit order” or “pool price” system, this low marginal cost of generation should result in their being called upon to run; however, this may lead to oversupply and negative pricing if it displaces inflexible conventional baseload plant. It is far from certain whether this will lead to an overall increase in variable (energy) costs to consumers, as individual MSs have different subsidy regimes and/ or capacity payments to ensure that generators recover their capital investments. Congestion will also affect the power: heat balance and hence reduce efficiency on CHP generating plants.

The market challenges include

- *Development of true lifetime cost model for offshore wind generation, including its protection from piracy, vandalism and terrorism.*
- *Harmonising RES support mechanisms across Member States to pass that cost to consumers in a consistent, transparent and cost-reflective manner*
- *Development of credible weather forecasting tools allowing generators to plan wind output accurately several days before delivery is required.*
- *Incorporating the growing cost of the “spinning reserve” capacity required*
- *Development of common short-term national, sub-regional and cross-border markets to allow wind power to be balanced around the EU and its neighbours.*

Q2 What are the implications for market rules? Can you identify changes which would better facilitate integration of wind generation, including management of intermittency?

More than any other factor, the need to develop rapid, flexible and transparent cross-border balancing will drive the pace of market reform across Europe. Irrespective of how long-term baseload is traded, it will be this intermittency which

is harder to accommodate and will require MS commitment to remove internal road-blocks and to make rapid progress.

Market rules will need to have much greater consistency, including:

- 1. Trading period will need to be small, as wind can drop suddenly at dusk or for other reasons (suggest half-hourly rather than the hourly implied in 3.3.2)*
- 2. Gate closure will need to be brought close to delivery; a maximum of 2 hours.*
- 3. Balancing mechanism charging will need to be incentivised to favour those who are good at it; otherwise the necessary skills and systems will not be developed fast enough. A system buy/ system sell (or spill) price (as used in the UK currently) is essential here, as a same-value price/ cost model (as in Germany) will not focus participants towards accurate forecasting*
- 4. It is inevitable that Suppliers will encourage Consumers in turn to enhance their volume forecasting processes. This is seen as time well spend, as it will provide further focus on time-shifting of energy intensive operations, and will serve to reduce CO₂ emissions further.*

In the strategic sense the market is affected by the subsidy mechanisms applied by MS governments, which results in significant distortions in the wider Renewables sector. This is

- 5. not consistent with the intent of a Single Market for goods and services, and*
- 6. suggests that (despite generations of evidence to the contrary) several governments still believe that they can "pick winners" better than the market*

Q3 Would moving the market's gate-closure closer to real-time facilitate the development of wind generation? Would this have any adverse consequences on the functioning of the electricity power system?

Yes, closer gate closure would be essential to reduce the gap between generation forecast and delivery, and hence that element of the Balancing cost.

Yes, an increased percentage of wind generation may mean

- More thermal units (mostly gas) are kept on spinning reserve ready to deliver power if required at the last moment, which consumes energy to no benefit, requires incremental capital investment, and reduces the lifetime of the thermal plant in question. This has a cost which will be borne by consumers, and must be taken into account when measuring the overall CO₂ impact of a wind-based policy.*
- Greater levels of reserve will be required in hydro-electric reservoirs for the same purpose. To achieve their expected returns, independent hydro suppliers will need to be paid a larger capacity charge or not to generate as well as to generate when required. This would be made simpler by having all balancing systems use a buy/sell differential.*
- Consumers will have to be found/ incentivised to take the periodic surpluses of power which will be available when the wind blows but general demand is low (warm weekends and night-times)*

- *Energy storage systems will need to be developed rapidly to help the grid flex to meet balancing requirements. Inevitably these will have to be sized for large storage and maximum instantaneous production, so will represent a further hidden capex cost which must be paid for by consumers.*
- *Distribution and Transmission systems have to be upgraded massively to reduce constraints in moving the power from windy corners of the EU to concentrations of population. This particularly applies to the cross-border interconnections which represent much of the current institutional bottleneck.*
- *Balancing systems have to be made more transparent so that the TSOs' wind generation forecast is available to all market parties, in advance of gate closure on a level playing field basis*

Q4 Are emerging cross-border congestion management models compatible with wind generation? Should further attention or priority be given to intraday capacity allocation mechanism and markets, in the light of issues associated with forecasting wind generation?

Yes; but are they emerging fast enough? Rapid progress on cross-border capacity allocation /auctioning and consistent market models is essential to make wind balancing workable. Such a market should include:

- *Allocated capacity for long-term contracting to allow consumers to purchase in a harmonised and simplified market*
- *Competitive and adequately liquid short-term market for unified balancing in the short-term*
- *Transparency to ensure regulatory oversight of market behaviours*
- *Incentive structure to penalise TSOs that are slow to adapt*

Q5 Should wind generation be subject to the same balancing obligations and the same types of charges as other types of generation?

Yes, why not? Most wind generation is already heavily subsidised by other mechanisms and much is owned by vertically integrated Energy companies who could and should manage balancing risk as part of their portfolio. Charges should be structured to favour users who are good at forecasting their demand and suppliers who can manage their portfolios.

MS's obligations to ensure that dispatch is skewed towards Renewables will be open to local Regulatory interpretation, and local distortion. In reality a TSO/BRP is going to find many "operational security" excuses not to call off a baseload nuclear plant simply because it is windy.

Q6 Should TSOs engage in R&D to address issues associated with a large share of wind generation included in the network? If so, how should the regulatory system require or support this?

Yes, TSOs and BRPs, like any other business should always commit R&D funds to anticipate and reduce future business risk as far as is foreseeable.

The regulatory framework should set a cap on losses for which each TSO can charge based on their existing Transmission infrastructure, with improvement targets. Any TSOs that fail to innovate in new technology, and/or to invest in cables or storage will fail commercially and should then be taken over by successful TSOs that do have the necessary technology and management systems. That is how a Common Market for Goods and Services should work.

Q7 Should wind generators face the same types of network charges as other new generators, calculated using the same methodology? What is needed to provide sufficient incentive for generation in choosing where to locate? What is needed to provide an appropriate balance of risk amongst market players? When should this not be the case?

Yes; from a market/ regulatory perspective all technologies should pay the same, as identified in 4.3. As 2.3 points out, the focus on wind generation is a national political rather than a regulatory issue. Current MS policies already subsidise connections to varying extents; the first priority is to make the funding mechanisms consistent, then to address their levels. The only occasion when it is politically safe to challenge this would be when choosing between offshore wind and offshore tidal; in this case, tidal should not be penalised, as it is more reliable and predictable, and hence of more value to the wider system.

Q8 Broadly, what is the appropriate allocation of responsibilities, risk and costs among market players in developing new network infrastructure (eg ahead of or in response to new generation connections)? Should this be different for wind generation? Where is harmonisation required?

Distribution and Transmission players should operate within a Regulatory rate-of-return cap and a losses cap to optimise their investments. By doing so they may wish to take a modest risk of oversizing connections to allow for future expansion, but hopefully not to build cables to nowhere on a speculative basis. Ultimately the cost of investments, balancing and subsidies is paid by consumers, whether industrial or residential.

The consequence of mistakes, not least over-enthusiasm for one perceived "winning" technology, will be Carbon Leakage. In human terms this could translate into unemployment in European manufacturing, closely followed by impoverishment, unrest, and political upheaval.

Q9 Do you agree that the "supergrid" issues for regulators identified in 5.1 are relevant? Is there anything else that European regulators should be considering?

Yes, very important and relevant. An international Transmission System without bottlenecks is key to using wind-generated power as widely and as effectively as possible across Europe.

Yes, EU regulators should be working towards an open market for TSOs as noted in Answer 6 above.

Q10 Is the current ownership structure of the offshore lines or their regulatory framework a potential issue for the integration of offshore networks ? Are there other considerations affecting this ownership structure ?

In a truly open/free/common market, a wind farm in the North Sea should be able to have several outlets, and function as a de facto interconnector, able to export to any one of several MS markets with a common standard of electrical supply, forecasting and market conditions. To manage this effectively a truly independent TSO is required, which will increasingly become an international player rather than a national champion.

Many international companies already purchase commodities on a pan-EU or Global basis, including fuels like coal and oil; such flexibility for electricity must be part of the long term goal of EU energy companies, TSOs and Regulators. There is a long way to go.

Q11 Do you agree that Regional Initiatives should be used to address the issues associated with the development of regional projects ? What challenges does this present ?

Yes, as with market harmonisation this is the right stepping-stone; for balancing and the creation of a cross-border TSO.

Obvious hurdles are economic nationalism (desire of certain MSs to ensure "their" TSO is the transmitter rather than allow the market to decide) plus the normal international trade issues of language, bureaucracy, liabilities within multi-party consortia, credit availability and so forth.

Q12 What other issues should European regulators consider in relation to the integration of wind generation?



Section 6, Conclusions and next steps, is a neutral and diplomatic assessment of the situation, it may, however,

- 1. be insufficiently critical of the bias shown to wind so far, and*
- 2. under-estimate the challenges of balancing, system de-bottlenecking, and raising investment capital*
- 3. not have stressed the importance of an optimised approach to ensure maximum balancing ability for minimum investment between new generation, new independently owned transmission systems, new interconnections and untried new storage.*
- 4. be too quiet about the immense cost of each of these investments, and that the challenge arrives at a point when the economies of Europe are in recession.*

In conclusion, IFIEC believes that urgent action on process integration is needed to ensure that MSs do not develop free-standing national solutions which achieve security of supply but at even greater cost.


Appendix 1:

1 Supplementary documentation presented by IFIEC to December meeting of the Florence Forum to illustrate consumer concerns about slow progress.

<p style="text-align: center;">A “target model” on market integration from the perspective of industrial energy consumers</p> <p style="text-align: center;">Florence Forum Rome, 10 – 11 December 2009</p> <p style="text-align: center;"> <small>securing competitive energy for industry</small></p>	<p style="text-align: center;">What do industrial consumers expect from a “target model”?</p> <ul style="list-style-type: none">• Facilitate the creation of a single, integrated, European electricity market, by strengthening regional integration and harmonising methods for regional integration<ul style="list-style-type: none">– Maximise existing cross border capacity for markets and provide signals for efficient grid investments– Improve TSO-cooperation towards a Regional system operator, paving the way for one European system operator– Enable final consumers to purchase electricity where they wish, irrespective of national borders– Support progress in regions, ahead of EU-developments• Facilitate the creation of a competitive European electricity market, for all consumers, incl. base load<ul style="list-style-type: none">– Increase liquidity and transparency– Reduce entry barriers for new entrants– Improve long term visibility and enable long term contracts <p style="text-align: center;"> <small>securing competitive energy for industry</small> 3</p>
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Remarks on PCG “work in progress” (1)

- Capacity calculation: concern about reducing available capacity
 - Increase transparency on common grid model and calculation methods
 - Use re-dispatching when it increases capacities efficiently
 - Resolve the issue of loop flows, resulting from national transactions, by removing discrimination between national and international flows
 - Apply “netting” under all circumstances
 - Assess feasibility of flow based coupling (Intransparency of available capacities, dispatch information requirements, and GSKs)
- Governance: concern about information dispatch and process management
 - Include clear time line: what are the consequences for TSOs if deadlines are not met?
 - Ensure that all relevant grid investments are carried out without delays
 - Publish market monitoring and progress reports regularly
 - Ensure timely transfer of information to end consumers about changes in market procedures
 - Ensure formal approval by NRAs before implementing “target model”

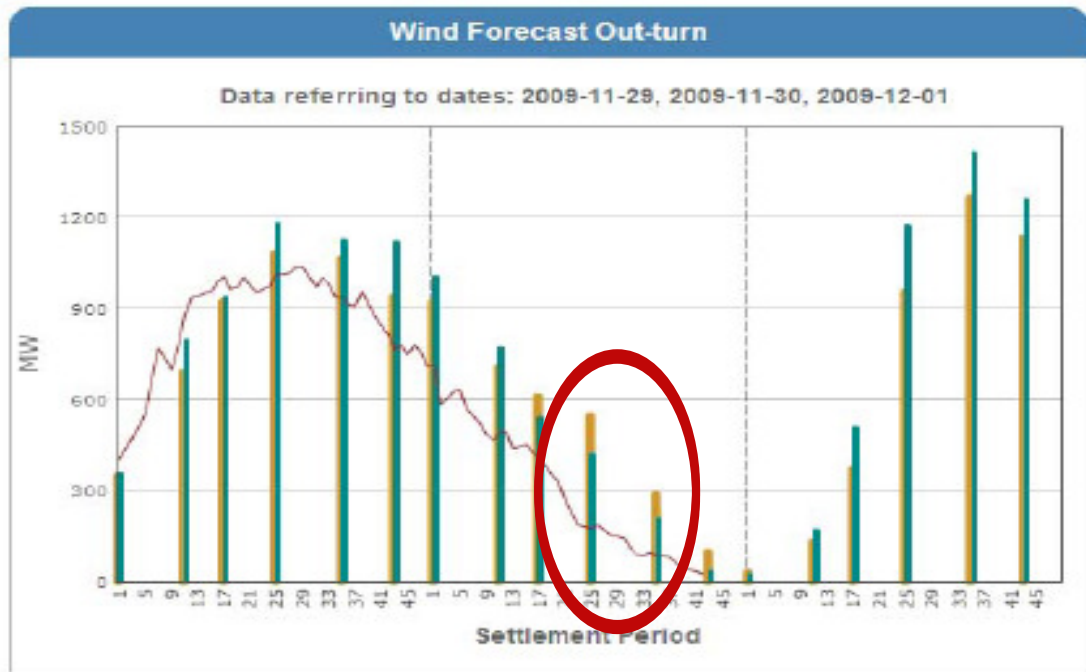
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Remarks on PCG “work in progress” (2)

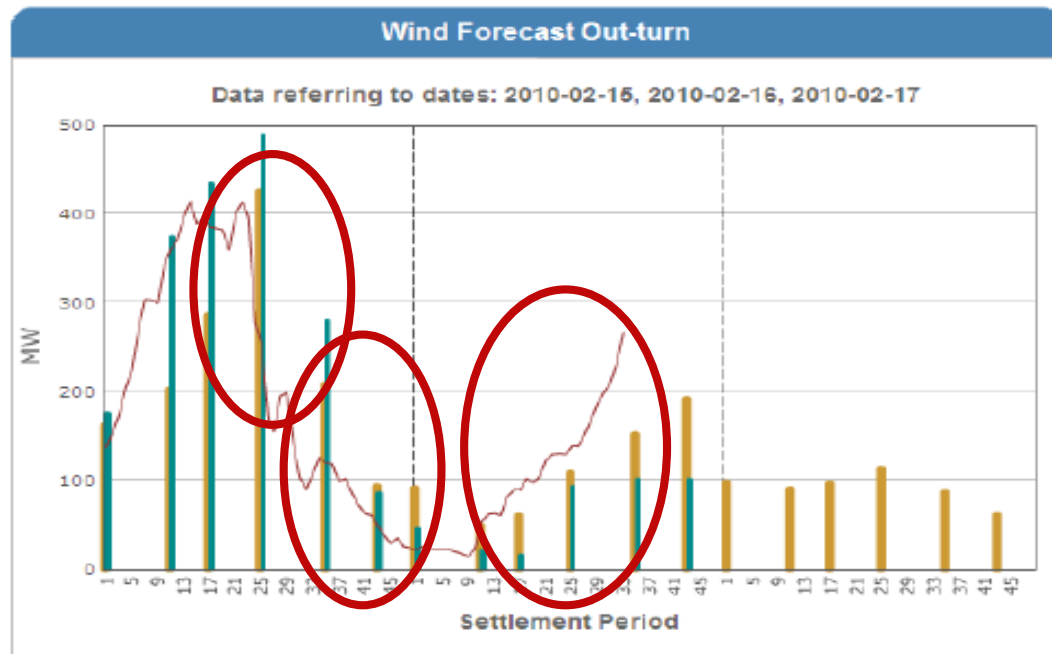
- Forward Cross Border: concerns about contract duration and administrative procedures
 - Allocate a significant part of cross border capacity (PTR + FTR) on long term basis (year and multi-year)
 - Remove barriers to pan-European purchasing by end-consumers (harmonised and simplified administrative procedures)
- Day Ahead Cross Border: concerns about fair price formation, liquidity and size of markets
 - Improve competitiveness and liquidity of spot markets and remove barriers for market coupling
 - Ensure adequate market monitoring (economic behaviour of market actors regarding available capacity and pricing)
 - Address issue of regulatory oversight on power exchanges, by including objective, transparent and effective rules

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Appendix 2: GB snapshot of wind forecast v out-turn 29Nov09 and 16Feb10. Though generally more accurate, the 50% errors highlighted matter little when total wind output is <1% of demand, but when wind reaches 30%, then in GB this error would require 10GW spinning reserve.



Initial Forecast Value Latest Forecast Value Out-turn Forecast Value



Initial Forecast Value Latest Forecast Value Out-turn Forecast Value