

WIND GENERATION – SYSTEM SECURITY ISSUES

SUBMISSION BY AIRTRICITY

Friday 19th December 2003

This submission is in response to an invitation from CER to comment on relevant issues relating to wind connections following the CER decision of 3rd December 2003 to approve ESBNG's request to cease issuing offers on wind connections between 3rd December and 31st December 2003.

Airtricity participated in the industry forum on 17th December. We ask the CER to take due account of the facts and arguments presented by Airtricity representatives at that forum. The presentation made by Dr. Paddy O'Kane made a number of important points regarding the issues under consideration and we have therefore included a copy of the presentation as part of Airtricity's submission.

Response to ESBNG Letter

In the ESBNG letter to the CER dated 1st December 2003, the following is stated:

“We propose that no further wind generation is connected to the system until the technical issues outlined in the attached document have been resolved. We suggest that the CER implement this policy as follows:

- 1. Immediately direct both the TSO and DSO to cease issuing offers on wind connections between now and year end.*
- 2. CER to review the proposed policy and consult with industry between now and year end.*
- 3. Assuming CER agreement with the policy proposals, issue no further offers to wind connections until the until the technical issues have been resolved.*
- 4. For the approximately 530 MW of generation with connection agreements and due to connect to the system over the next 2/3years, issue authorisation strictly on the basis of such plant complying with revised interim technical provisions to be proposed by the TSO and approved by the CER.”*
- 5. CER to consult with Ofreg with a view to co-ordinating a policy on wind generation for the whole island.*

Airtricity's Response:

- In the view of the context created by the ESBNG letter, Airtricity agrees with point 2 above. Indeed Airtricity pointed out in its letter to the Commission dated 10th December 2003 that consultation with the industry should have been undertaken by ESBNG prior to its call for a suspension of issuing wind connection offers.

- However as made clear at the forum Airtricity strongly contests the basis for and validity of point 1 in ESBNG's letter.
- Airtricity is strongly opposed to point 3 in the letter, which can be treated as an open-ended proposal to cease all offers pending solution of technical issues.
- Airtricity cannot accept the proposal in point 4, to the extent that it can be interpreted as a proposed change to existing connection agreements. It appears to be seeking industry compliance with unspecified revised interim technical revisions to the Code, as proposed by the TSO and approved by the Commission.

Overview

Airtricity's position is that the ban by the Commission on the issuing of any new wind connection offers, after lapsing automatically on 31st December, should not be renewed in any form.

The process of constructive dialogue, which has been on-going on various technical issues for some time, should be broadened and accelerated without delay. This involves the CER, ESBNG, SEI and the wind industry in the first instance. The consultation paper to be published by the Minister for Communications, Marine and Natural Resources will also be directly relevant to the issues under review.

Airtricity agrees with the view expressed at the forum that a practical action plan, with a series of potential solutions, a timescale and a cost is now required. However the requirement to devise such plan should not be used to justify a "no wind connection offer policy" in the interim.

ESBNG proposal is not justified

Airtricity would like to make the following points with respect to the current review of wind generation and system security issues:-

- The basis for the emergency type measure undertaken by the CER on 3rd December was that there is an urgent threat to the system security and stability, arising from an anticipated further growth in wind connection agreements.
- ESB National Grid has not demonstrated in either its papers nor in the presentation that there is an urgent issue today with system stability as a result of connection offers to the grid for wind.
- Airtricity contends that the emergency measures are neither necessary nor essential at this time. Consequently the CER should request the TSO and DSO to resume issuing connection offers to wind farm developers. A failure to do so would be clearly discriminating against wind.
- There are no technical issues which are cannot be addressed and resolved well in advance of the current connection offers becoming operational. They are all

solvable and can be dealt with in parallel in the issuing of grid connections. The Garrad Hassan report identified some technical issues that need further work to resolve. However, in the report, it is stated; **“none of the technical issues are considered insuperable”**.

- It is disingenuous to claim that suddenly the amount of wind generation will increase from 166 MW to 1200 MW in a time-frame which will threaten grid stability and prior to the resolution of the more critical technical issues. Many of these wind farms will not be connected to the grid until 2005 & 2006, due to time-frames associated with project financing and equipment ordering.
- The major issues associated with wind generation, in terms of grid code compliance and modelling of power system stability are currently being addressed by the industry, both developers and manufacturers. Wind turbines that comply with a revised grid code for wind are now being produced by the manufacturers and Airtricity will be installing them at the Meentycat windfarm in Co. Donegal.

Issues for a System with High Wind Penetration

Airtricity recognises that there are a number of issues which will need to be addressed. We regard this as necessary in the medium term to ensure that significantly higher wind penetration levels can be successfully connected, without causing system security issues. This should not impact the short term. Infrastructure by its nature requires long term planning. The fact that no such long-term plans are being put forward for consultation is in our opinion negligence by those with the responsibility to do so. To date it appears that ESBNG has no plan to tackle these issues. Airtricity would therefore propose to the CER the following:-

- the CER should request ESBNG to urgently prepare, in conjunction with the industry, a 5 year development plan for the grid, taking into account existing and planned generation, grid infrastructure and demand, as provided for in S.I. No.445 of 2000.
- that the ESB Distribution Code be urgently revised to ensure that it reflects best practice and that any issues regarding wind generation connections at the distribution level are addressed, before taking discriminatory action.
- that CER addresses the issue of curtailment framework agreements and the interaction with MAE. Airtricity has experience of such agreements given the connection agreement of Snugborough wind farm with NIE.
- that CER addresses the issue of wind forecasting and obtains industry views as to whether this issue should be dispersed to each wind farm operator or co-ordinated at a national level.
- that CER requests a benchmarking exercise of ESBNG's proposed operating strategies with higher levels of wind farm connections, be undertaken against international best practice, immediately.

- that in line with the purpose and contents of Directive 2001/77/EC of the European Parliament and of the Council, the CER should consider mechanisms for encouraging construction of fast reaction power plant onto system (e.g. open cycle gas turbines) and determine criteria for any new generation plant, taking into account projected generation mix, in order to enable higher penetrations of wind generation.
- that CER insists that any new grid connection offers made should comply with those elements of the revised Grid Code which are already largely agreed; e.g. fault-ride through.
- that recognition be made in the existing Trading & Settlement system for system support services (e.g. voltage and frequency support) which are currently provided by wind generation. (In this context, Airtricity's Kingsmountain wind farm is being requested by ESBNG to provide grid sources from the capacitor bank on a full-time basis, at no cost to ESBNG, when the original agreement was to provide such services on an as needed basis.
- that CER requests ESBNG to develop with the industry a clear and unambiguous specification for data exchange and control systems. At an imposed additional cost of some €100,000 (PLEASE CHECK THIS) Airtricity has installed sophisticated control and communications equipment on Kingsmountain wind farm. However during this process, it became clear that ESBNG is itself uncertain as to its requirements.
- that CER requests ESBNG to discuss with each individual company which currently has a connection offer and ask such companies to demonstrate a realistic timeline for construction of such wind farms and estimated first date for power output, prior to any suspension of connections.
- that CER examine the grid connection process and examine whether specific conditions be inserted into grid connection offers, in terms of reasonable requests for information, equipment to be installed and a date before which there would be no output from the wind farm.

Airtricity would also like to make the following points:-

- Unless the current restriction on connection offers is removed, ESBNG will not gain the expertise it requires to operate the grid with higher levels of wind penetration. This point was made forcibly at the forum by the Garrad Hassan representative when she said that it was important that ESBNG and the industry gain further experience at higher levels of wind penetration.
- Most conventional fossil-fuelled plant takes 2-3 years to build. Wind farms can be built in a shorter time frame and provide generation capacity, which will address the issues raised in ESBNG's Generation Adequacy Report.

- ESBNG's general technical arguments regarding stability, security and reliability need to be made more specific. Specific technical issues, which need to be resolved, need to be spelt out in more detail, particularly if they are different from those highlighted in Airtricity's presentation at the public forum.

In conclusion, Airtricity strongly recommends that:-

- The interim decision of 3rd December on offering new grid connections be allowed to lapse.
- ESBNG be asked by the CER to address the issues outlined above.
- ESBNG be requested by the CER to work with the industry to resolve the outstanding technical issues, with all due haste, in a co-operative manner and that a timetable be agreed.
- there should be as an obligation on ESBNG to upgrade technical capability of grid e.g. dVar voltage control equipment to facilitate wind generation.
- the situation be reviewed by the CER in a public form in 6 months time to identify with the industry if there are any outstanding technical issues.