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Subject: Automatic frequency disconnection settings of installed photovoltaic
(PV) panels in some European countries.

18 July 2011

Dear Mr. Oettinger,

This letter is to brief you on a security of supply issue arising from the automatic frequency disconnection settings of installed photovoltaic (PV) panels in some European countries and to request your support in encouraging the national Regulatory authorities in impacted countries to facilitate the timely implementation of remedial actions.

Due to the interconnected nature of the transmission system until such remedial actions are implemented the synchronous Central European power system is at increased risk to significant frequency deviations of a magnitude that would generate a widespread loss of supply.

In several European countries, connection standards applicable to photovoltaic panels and other distributed generation have been or are still specifying that the panels automatically disconnect from the grid whenever the system frequency reaches 0.2 or 0.3 Hz deviations from the required normal value of 50.0 Hz.

Current information from our Member TSOs, including for example Germany and Italy, indicate that the significant growth in photovoltaics in recent years has resulted in a PV installed capacity (with such settings) approaching 25 000 MW. At these levels there is clearly a risk of an instantaneous generation loss far in excess of the 3000MW generation loss 'ride-through' design limit for the Continental European system.

Some countries have already changed their distribution connection standards appropriately, but others have not yet been able to do this due to complex standard setting procedures involving manufacturers and other parties. The "Requirements for Grid Connection Applicable to all Generators" Network Code should address this when it becomes binding across Europe (expected for early 2013, perhaps with transition periods) but the severity of the issue requires action to be taken ahead of this.

In addressing the current frequency disconnection settings on installed PV panels a two phased approach has been proposed (although every TSO should define the best approach for its responsible area):

1. PV units which have the capability for (low cost) on-site re-programming or standard inverter swaps should be modified to achieve graduated disconnection frequencies at small increments, e.g. 100 mHz, between 50.3 and 51.5 Hz.
2. Design and implementation of a PV retrofitting program in each affected country so that the existing units also align with the new connection standards harmonised with those for conventional units (to stay connected in the frequency ranges of 47,5 – 51.5 Hz and, in case of overfrequency, active power reduction in proportion to the

overfrequency, (as stipulated in the draft Requirements for Grid Connections Applicable to all Generators Network Code).

Phase one will reduce the risk and should be readily achievable giving some comfort whilst phase two is implemented. Given the risks to system security of the Continental European power system we recommend these actions are progressed without delay.

However, before these actions can be implemented there are a number of issues relating to ownership, accountability and cost recovery that would need to be resolved by the national regulatory authorities of the affected countries.

We are therefore requesting your support in highlighting the importance of this issue to the relevant regulatory authorities and consequently the need for any regulatory issues precluding the implementation of the remedial actions to be addressed as a priority.

Given that this issue impacts a significant number of member states and will take some time to resolve it may be opportune to include it as a briefing item on the agenda for the July member state meeting on grid stability/security of supply with an update at the September Energy Council meeting. Should you consider this to be appropriate I will action the production of suitable presentation material.

Sincerely,



Daniel Dobbeni
President
ENTSO-E

Cc:

Lord Mogg, the Chairman of the ACER Board of Regulators and
President of CEER

Mr. Alberto Pototschnig, the Director of ACER

National Regulatory Authorities