David Hunt
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29 February 2008

Dear David

## TRANSMISSION ACCESS REVIEW – INTERIM REPORT

EDF Energy welcomes the opportunity to comment on the issues raised within Ofgem's Transmission Access Review Interim Report. The Interim Report is a very positive step forward in addressing the real issues around transmission access for the future.

### Investment in new transmission

We strongly agree that investment in transmission is urgently needed to accommodate new renewable and other generation sources, including renewables in more remote and rural parts. The investment, although very material, is likely to be cheaper in the long run than paying constraint compensation. This is even more so in relation to renewables, which in the future may well be permitted to submit bid prices that reflect not only lost energy income, but also lost renewables support income (lost ROCs and LECs), whenever their output is constrained down or off.

At the same time, of course, we look forward to the enactment and implementation of the Planning Bill, which will be helpful in ensuring that the necessary new transmission, as well as generation, investment really does materialise on the ground within much more reasonable timescales than has been the case in the past.

There are occasions when the investment may not seem to be being made available as readily as it should be: for example, it is questionable whether there was a need for an Ofgem consultation last year on whether to give Scottish transmission firms more money in order to pay for additional legal costs in relation to the Beauly–Denny line. Clearly, the money was needed to expedite this key line, and Ofgem had authority to make it available without the consultation.

We hope to see further exploration of the possibilities of offshore cable solutions to the need to better connect Scotland and England/Wales. There is a danger that these considerations could be unduly obfuscated or delayed if they are blended with the quite different considerations that surround the question of an additional interconnector to the continent, where several private proposals are now apparently in train according to public information, such as that on the Ofgem website.

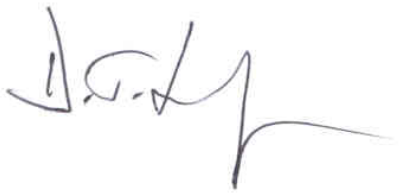
## Radical Package of Strong Measures Required

As will be clear from our detailed comments set out in the attachment to this letter, we see the solution to the transmission access issue for new renewable and other generation as lying in a radical package of strong measures that, taken together, can fully address the issue. We stress the package approach: the investment in new transmission itself is key, and sufficient money must continue to be made available in good time to the transmission owners by Ofgem for that investment to take place, but there is much that can be done that will very significantly alleviate the situation prior to (and beyond) the investment.

As Ofgem has put it so well in the Interim Report, what is needed is a clear and coherent package of further measures to realise real benefits: this interim package will precede the transmission investments which represent the end solution, and so the contents of the package may not necessarily require enshrining in enduring code once those investments are in place.

We believe that the package of measures detailed in the attachment, drawn from Ofgem's Interim Report but with some additional inputs of our own, comprises, in its entirety, a very strong package that can fully address the problems set out in the Interim Report.

Yours sincerely



**Denis Linford**
**Director of Regulation**

ATTACHMENT TO EDF ENERGY LETTER DATED 29 FEBRUARY 2008

## Improved Use of Existing Assets Prior to Major New Transmission Investments

As the first part of the package of measures recommended in our covering letter, EDF Energy believes that there is plenty of scope for better exploiting existing network capacity. We are pleased to note from the Interim Report that Ofgem has written to the transmission owners on this topic. While this does not detract from the need for significant investment in new transmission assets, it is clearly important in the meantime that we should make better use of what we already have.

## Line Ratings

In many cases, and in particular on Scottish transmission lines, the maximum permitted power flow along each overhead line is, as we understand it, still a static limit that varies only as between summer and winter. In practice, the real engineering limit does not have this characteristic at all. The physical limit is that the line must not sag beyond a certain point, for fear of shorting/arcing onto trees or other adjacent earth-points. This sagging depends on the temperature of the conductor, which in turn depends from minute to minute on ambient temperature, solar irradiation, and most strongly on wind speed.

Therefore, for most of the time the maximum power flow limit is unduly conservative: it is too low, and constraints are therefore being artificially exacerbated.

Key lines in England are having maximum power flow limits set on live or at least forecast temperature data, or even in some cases (still better) on live measurements of actual line sag, but there is anecdotal evidence that this may not be so in Scotland. Substantial investment in transmission lines will still be required to accommodate renewables in Scotland (and elsewhere – for example, the Thames Estuary), but no opportunity to make better use of existing assets should be overlooked.

The use of live line ratings should also be extended to a greater range of lines in England and Wales, although the System Operator has implied that most key lines already use live ratings (i.e. ratings related to live or near-real-time forecast weather, or to live sag measurement). It will be noted that the strong dependency of maximum power flow limits to wind leads to a strong natural synergy with wind power output in the same area as the lines – and in any event, wind speed often shows very strong correlations across wide areas (and sometimes all) of the UK.

## Hot Wiring

EDF Energy is also optimistic about the possibilities, as described in the Interim Report, of increasing maximum power flow limits on lines by the technique of hot wiring, i.e. tightening the tension at line-ends so as to allow the existing wires to run hotter (carry more power) for given wind and other weather conditions.

## Security Limits

There is some scope for the relaxation of security limits as applied to Grid operation, at least during fair weather conditions. This has been repeatedly discussed over the years, but little appears to have been done in terms of implementation. Given the extremely low incidence of customer lost minutes due to transmission system issues (there are virtually no such lost minutes) as opposed to low voltage distribution system issues, it is possible that we are unduly conservative in the security standards applied to the Grid.

If some well-considered changes to the security standards can enable us to accommodate more new generation, more rapidly, then, given the importance of mitigating the effects of climate change, such changes should be made to assist in the interim before the necessary new investment in transmission comes through. Current investment in transmission, for example the allowance of £4 billion for new transmission to facilitate renewables in the present transmission price control, has to be set in the context of the investment that will be needed to bring on around 13 GW of renewables in Scotland – some £13 billion being the currently estimated capital cost for that generation.

## TEC Sharing

**No compulsion:** We would not support a regulated solution whereby enduring transmission entry capacity (TEC) is compulsorily taken from any existing power station and offered to others of any – or of a favoured – technology at a regulated price. This would damage the confidence of potential investors in the many tens of billions of pounds of new generation capacity that is needed in the UK, because they could have no confidence that TEC would not in turn be taken away from other technologies, perhaps even renewables, in future and given to a new favourite. The UK is competing with other countries, in an international market, for capital to be invested in new generation assets.

**The voluntary approach:** There seems to be considerable scope for voluntary TEC-sharing within zones in the future. We note from Ofgem's recent document on sustainability[1] that OCGT (open-cycle gas turbine) capacity increases significantly in the Carbon Commitment scenario, 'rising from less than 2% of total capacity (1.6 GW) in 2007 to over 12% (12.7 GW) in 2020'. These new peaking generators are likely to be required to run by the System Operator (through the acceptance of offers in the balancing mechanism, or via various balancing services contracts) at precisely those times when the wind fleet, locally (where there is scarce transmission capacity into/out of a region) or nationally, is not running. Moreover, they are likely to be funded, at least in part, by balancing services contracts which would be offered in the locations where they are needed (for example, given the constraints, within Scotland) – so that is where they will be likely to be built.

[1] http://www.ofgem.gov.uk/Sustainability/Documents1/SKM2020OutcomesPaperOct.pdf

Therefore the owner/operator of the peaking generator will have a commercial interest in saving the cost of full TEC, by sharing TEC with local renewables generators whose output he is effectively backing up. There is also a good deal of evidence that wind farms do not, individually or collectively within an area, require TEC equal to the summation of the maximum generation capacity of each and every turbine, as all machines will never be operating at precisely maximum output at the same moment in time. There is also a level of TEC above which, for a given annual TNUOS charge, it is not optimal for the wind farm/s to purchase, since their output would so rarely exceed that level that the TNUOS costs associated with the extra TEC would not be justified in terms of income when generating above that level.

## TEC Sharing – Choice of Zones

We would like to see designation of voluntary TEC-sharing zones by National Grid within which TEC could be shared freely between generators with an agreement with one another to do so. This would ideally be undertaken with a sharing factor within each zone of unity, or at least of some published number without the sharing factor only being available on request, after a lengthy study and applicable only under certain conditions.

It would be likely that, for the within-zone sharing factors to have reasonable validity and to avoid adding to BSUOS costs through any inaccuracies in the approximation of the sharing factors, there would need to be two zones in Scotland. This would allow generators within each zone to agree with one another to share TEC, and hence share TNUOS costs, allowing significant extra connections prior to new transmission investments being delivered.

There will need to be some changes to the transmission charging methodology and the CUSC to facilitate this approach. There should be a sufficient number (given some 13 GW of renewables across Scotland, nearly all quite small machines) of new renewable generators in each of these fairly large zones for there to be liquidity, given the savings and earlier connections that should arise from the sharing approach.

## Short Term TEC Trading

EDF Energy would like to see some further changes to even better facilitate short-term TEC trading. We envisage that a party with TEC available for sale ('transfer-TEC') would post on a new electronic national noticeboard the MW of TEC offered, the period of time for which it would be available, the £/MWh price sought, and the relevant TEC zone plus the TNUOS zone. Willing buyers could then approach the vendor of TEC to enter into an agreement with them for transfer-TEC. There should be no barriers within industry codes to this type of agreement. We envisage that the lead party (the originator, or the original holder of the TEC) in a transfer-TEC agreement would pay TNUOS, with the transfer-TEC agreement probably normally being on an annual basis (though the basis could be whatever the two parties agreed). The transfer-TEC payment rate by the temporary holder of TEC to the original TEC holder would also be a matter for agreement between the parties.

## Non-Firm TEC and Spill (Connect with Consequence)

We would also like to see the concept of non-firm TEC developed further in relation to spill. This could be very attractive to wind developers and other new generators, particularly those of lower load factors, as they would pay reduced TNUOS. However, if they generated, they would pay for the costs of constraint and the reserve costs that they caused Grid to incur. This might be a plant-specific charge, or it might be a locational BSUOS supplement: they would still pay regular BSUOS as well. The calculation of a plant-specific and truly cost-reflective charge would be very difficult, and a plant operator would also find it very difficult to forecast such a charge: so an approach to spill charging that involved simple, broad approximations (the approach taken in the UK gas market) would be likely to have merit when considering the detailed application of non-firm TEC in the various codes.

## Commercial Intertrips Beneficial in Existing Framework

EDF Energy would like to see more use of (new) commercial intertrips. It is to be hoped that more of these can be negotiated with Grid, which would enable the connection of new generation while maintaining adequate security standards. Indeed, it would amount to a form of voluntary TEC sharing within the existing arrangements.

## Connect and Manage

EDF Energy does not see merit in the concept of a connect-and-manage regime, in which new developments would be allowed to nominally connect, and gain full transmission constraint compensation rights, prior to the construction of new transmission works away from the shallow connection works to ensure that the power can usually be taken onto the Grid. This would be a recipe for a sharp increase in BSUOS costs, with clear consumer detriment via increased retail electricity prices, as well as being to the detriment of (for example) new onshore renewables in parts of England and Wales not generally affected by transmission constraints, which would themselves have to pay the much-increased BSUOS charges arising from north of the border (and perhaps in the Thames Estuary – the problem is not only in relation to Scotland) as a result of this approach.

The concept of connect-and-manage is probably incompatible with Grid's statutory duty to run an economic and efficient transmission system.

## Auctions and Use It or Lose It

As will be clear from what we have already written in this response, EDF Energy sees no merit in auctions of TEC rights without grandfathering the rights of existing players. In relation to auctioning of TEC entry rights for new plant, the playing field would not be level if new non-renewable plant (including new zero carbon nuclear capacity, which is just as essential to our low carbon future as renewables – indeed, given potential total volume limitations on some technologies, arguably more so) had to bid for TEC access against other, renewable plant, which was able to benefit from ROC and LEC income, and hence would be in a position to bid a good deal higher than all other comers.

Auctions could thus be discriminatory in their effect, and could destabilise the necessary major investment in new generation capacity to replace the large volumes of plant that are closing.

Investor confidence may be best served if future TEC issues to new generation plant, where firm enduring TEC has been sought by the developer, continue to be enduring for the life of the plant, including any life extensions that may occur. In the absence of this, the developer faces the risk of a future stranded asset and may choose to spend his capital on new generation capacity internationally, in another more stable investment regime.

Despite the above, there is one exceptional case: measures should perhaps be considered carefully in relation to TEC that is held but literally never used – for example, that from the Moyle interconnector into the UK. Grid has to reserve this TEC in case the party that holds it ever uses it. The matter requires careful and delicate consideration so as not to undermine investor confidence, but there does appear to be an issue in this exceptional case of TEC that is never used. Use It or Lose It is a principle that can be hard to apply in practice, as by the time it is apparent that an existing right-holder does not wish to use it, the right is often useless to anybody else. Therefore, forcing an existing right-holder to nominate by an earlier deadline than he had faced before, to better facilitate Use It or Lose It, has the risk that the asset owner may then have his rights effectively devalued by the introduction of the deadline. Nonetheless, if the issue is addressed with sensitivity to the views of market participants, there may be some scope for the introduction of Use It or Lose It to ensure that transmission capacity is fully utilised.

## CUSC Amendment Proposal CAP131

On a not wholly unrelated note, CUSC Amendment Proposal (CAP) 131, which was passed by all panellists of the CUSC Panel, has been with Ofgem since June 2007, so a decision on this is well overdue. The concept of User Commitment in CAP131 will financially guarantee existing TEC (*by* generators) which is already physically guaranteed (*to* generators), and can be used by Grid to fund new investments.

**EDF Energy**
**29 February 2008**