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NaREC
NEW and RENEWABLE ENERGY CENTRE

Mr Jonas Törnquist
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11th June 2004

Dear Sir,

Re: Transmission Investment for Renewable Generation.

The New and Renewable Energy Centre Ltd (NaREC) was established in 2002 as a Centre of Excellence for the new and renewable energy technologies under the auspices of the DTI and One North East, the Regional Development Agency. NaREC's mission is to foster the growth, development and commercialisation of new and emerging renewable energy technologies. NaREC's UK-wide objective is to provide tangible leadership and practical technical assistance that will enable emerging technologies to be harnessed commercially to solve the UK's future energy requirements.

Our government is keen to encourage long term investment in new and renewable energy sources, since they see this as part of a balanced approach to meeting the country's future energy needs. NaREC shares the key aspirations contained in the government's White Paper published in February 2003.

The country's electricity network was designed and built to support electricity generated in large (centralized) power stations being distributed to customers. The transmission system is designed to take electricity predominantly generated in locations adjacent to coal fields and gas inter-connectors to areas where the electricity is consumed. This network supported the lowest cost generation technologies at the time it was built and has of course evolved over time.

There is a need now to ensure that future investment in transmission and distribution networks continue to promote choice and value for money for customers over the long term while meeting the government's objectives for a low carbon economy.

Renewable energy can provide the lowest marginal cost electricity generation since it is often powered from energy sources without fuel costs (wind, wave, tidal, marine current, hydro, etc) although capital and maintenance costs per MW may well be higher than carbon consuming alternatives. As capacity connected increases, this will be a driver for lower prices since renewable energy will want to generate assuming its Operation & Maintenance costs are met.

One of the barriers to installing renewable energy is that the transmission network between the country's best renewable resources and the areas of demand is insufficient to exploit these resources. Current electricity prices cannot justify investment now in transmission assets paid for by renewable energy developers, however the projections for future gas and oil prices and the work up time for replacement nuclear power stations will in our view result in higher electricity prices and less consumer choice in the medium term unless a way is found to ensure the transmission and distribution networks are suitable for our future energy needs.

In response to your particular questions, therefore we feel the following approach should be adopted:

Control of capital spend

We believe that the basis of the NGC contract for new spend should be against an independently audited fixed price estimate with contingencies stripped out. A revenue incentive payment should be paid to cover profit and contingencies, which could be flexed (with some form of cap at either end) on the basis of the capital spend delivering the criteria specified by the government/Ofgem (Good value connections). We want NGC to utilise the grid effectively, plan ahead, work efficiently and yet increase the amount of renewable energy connected so we suggest those criteria should be:

- The amount of new generation capacity actually connected to the installed grid capacity (including at existing connection points) – this will encourage NGC to get new invest in the grid capacity and to try and ensure that connections to strong areas of network are maximised (for a quick return).
- The number of agreed connections pending the necessary capacity reinforcement (i.e. those who have paid for a connection option but cannot have one due to a lack of capacity – this will encourage timely capacity build). There needs to be a target time (say 5 years) between application and build complete to allow for planning and other issues.
- The actual cost of build compared to the realistic targets. We recognise that there is a possibility that NGC could exploit this so there is a need to provide externally audited, realistic targets for capital spend.
- The cost per installed MW (so that prohibitively expensive requests do not penalise NGC).

In general terms, the investment costs should be passed through with a variable mark-up charged within the Transmission use of System Charge (TuoSC) depending upon the degree to which the objectives have been met. We recognise that on an annual basis, the criteria will measure items that have timescales over several years however we expect that pooling the criteria against several projects will smooth the revenues that NGC receive.

The real cost of capital is just one of the allowable charges and the planning issues are common to all large developments and should be tackled in a timely way to minimize the number of outstanding connections. We do however recognise that the timescales for planning consents for windfarms and new grid builds are not likely to be aligned and this needs to be taken into consideration when setting the 'offer to connect' expiry dates and the incentive payments.

NaREC recognises that there is considerable concern over allowable costs as seen by the previous consultation on 'Transmission Investment for Renewable generators'. It would like to associate itself with the RPA response to this current consultation and their suggested solutions to the issues surrounding the assessment of costs associated with network reinforcement.

Forecasting requirements

Clearly National Grid cannot effectively meet the above requirements without a forecast of required connection requirements, however it can elicit these from a number of sources, including:

- the seven-year statement review,
- applications for and take up of transmission grid capacity,
- forward plans of renewables developers,
- progress with phase 1 & 2 offshore wind development plans,
- data on actual plant construction progress,
- correlation of currently planned schemes with developers progress.
- the DNOs' plans.
- the government's plans to allow for future offshore windfarm developments.

The DTI JESS committee is collecting a lot of this information to help assess security of supply issues.

NGC should of course consult with government (DTI / Ofgem) to ensure locations for future power stations are close to existing connection points if possible, especially considering the decommissioning of heavy industry and existing power stations, and the resulting decrease in employment. For example, currently 50 to 55% of Scotland's power requirements are supplied by three nuclear power stations. All three stations will be closed down under current planned timetables, Chapel Cross (192MWe) by 2005, Hunterston (1190MWe) by 2011 and Torness (1250MWe) by 2023. New generation capacity will be needed to replace the capacity lost as these stations close.

The costs for transmission scheme reinforcement should of course be reflected in the TuoSC signals, and perhaps these should be indicatively forecast for the next 10 years to allow developers to get a future handle on these costs. Recovering transmission upgrades in this way will encourage electricity generation from diverse sources, improving choice and through competition improving long term value for customers.

Contractual and charging arrangements

To increase the level of currently marginal renewable energy connected in time to meet our carbon emission reduction targets, promote choice and to ensure medium and long term value for customers, contractual and charging arrangements for connection to transmission and distribution systems for renewable generators need to be cost-signalling to ensure efficient connection location, yet low enough to encourage absolute connection volumes.

To meet these needs, NaREC suggest that connection charges are as shallow as possible (i.e. the final transformer say) with the balance of the network build and reinforcement necessary picked up by the Use of System charges. The increased Use of System charges, especially if forecast for some time into the future, can be used to enhance the geographical signals. The current 'triad' method of charging for generation is appropriate.

Stranded assets should not be a problem since if the transmission network is extended to the best renewable energy sources, if a connection offer is not taken up, the connection could be auctioned in the future. This would work especially well if the crown estate land were linked to the same time scales. If individual developers are to require significant investment by transmission system operators it would seem fair to share the risk involved by requiring a long term commitment on both sides. The structure of such a contract would have to be carefully worked through to reflect the fair apportionment of risk and would have to depend on individual project circumstances.

Energy storage devices which can be a load or a generator should be exempt from TuoSC since they support Grid Stability. Enhancing long term and short term grid support would increase the amount of renewable energy that could be connected, again moving us towards the governments targets, enhancing choice and promoting value for customers, but in particular improving (or maintaining) supply quality, ultimately in the best interest of customers. Fundamentally an energy storage device in the correct location (demand areas) allows better use of the grid (because energy can be moved outside of peak demand periods) and requires a smaller grid at the moment of peak demand.

Embedded generation in distribution networks should be charged in an identical way to transmission networks, i.e. minimum connection charges and identical use of system charges to Transmission. This will encourage the optimum connection to be used for any development while keeping transaction costs to a minimum. There exist at present differing standards for connection at transmission and distribution levels in terms of technical requirements and financial costs – these should be harmonised. An analysis of the financial costs reveals the following:

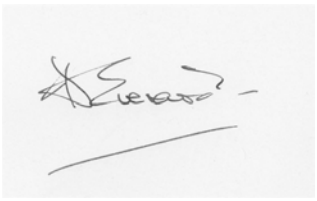
Payment Type	Deep	Shallow	Use of System	None
Connection Type				
Existing Connection, Transmission system (Capital Charges)	✓			
Existing Connection, Transmission system (Ongoing Charges) *post 1990		✓*	✓	
New Connection, Transmission system (Capital Charges)		✓		
New Connection, Transmission system (Revenue Charges)		✓	✓	
Existing Connection, Distribution system (Capital Charges)	✓			
Existing Connection, Distribution system (Ongoing Charges)				✓
New Connection, Distribution system (Capital Charges)	✓			
New Connection, Distribution system (Revenue Charges)				✓

Deep = Full payment for connection & any reinforcing necessary
Shallow = Payment only for dedicated assets – rest from Use of system
Use of system = TuoSC for generators.

The ongoing distribution charging review is likely to result in IFI and RPZ initiatives to allow RD&D into low cost connection options. Similar funding for NGC may result in lower cost connections at the transmission level and represent better value for consumers. Fault current limiters and other technologies may result in lower cost solutions.

NaREC welcomes the public debate on Transmission Investment for Renewable Generation. It is our hope that the new arrangement is going to induce the development of new and renewable energies, and help to meet the UK emission targets towards which we all work together.

Yours sincerely,



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