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Arthur Cooke,
Ofgem,
9 Millbank,
London
SW1P 3GE

Your Ref 123/05

Dear Mr Cooke,

This is the New and Renewable Energy Centre's response to your consultation "The regulatory implications of domestic scale microgeneration" dated April 2005. NaREC will also be responding to the Microgeneration Strategy Consultation that the Government is undertaking presently and may make some of the same points. Ofgem may ignore the confidentiality automatically attached to the covering email and can feel free to publish, act upon or use as seen fit this document in response this consultation or for other purposes.

Our Background

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.

One of NaREC's interests is microgeneration. We have laboratories undergoing commissioning that are capable of undertaking fundamental research and development of high efficiency, coloured or shaped photovoltaic panels and have a team of scientists who have held the world record for

developing the most efficient solar cells several times. We also have a laboratory nearing completion that is designed to test generators in networks. Items such as G83 or G59 compliance testing can be undertaken in our laboratory, as can power curve characterisation and measurement of noise, loading and vibration. Demand Side Management/Participation activities and products can also be tested or developed in the laboratory with our flexible network.

Our other interests are in the areas of Wave and Tidal energy, using our dry docks and wave making machines for testing; High Voltage testing using the Clothier High Voltage Laboratories; Power Take Off optimisation and Network Evolution using our EnergyLINK Laboratory. We also have consultancy offerings related to these areas and for example, we are working with Econnect on a DTI project researching RPZs.

We would like to make the following specific points:

Section 1.6

The current transmission upgrades planned for Scotland to connect renewable generators to the National Grid systems will cost around £250/kW connected [1]. The distribution costs associated with connecting renewable generators to the system are around £50/kW [2]. The costs for connecting micro-generation to the network should be zero for the bulk of customers, assuming the rules are changed to allow the microgeneration installer to fit an import/export meter at the same time as they fit the generator.

The transmission and distribution systems are designed to be able to carry peak loads. Since the changes to the TUoS charges from deep to shallow, the financial incentive to avoid Triads has been largely removed, further reinforcing the desire to invest in networks to meet demand. There is an opportunity here with the possible changes to metering to move towards an actively managed network where demand side participation takes place without the customer being aware. This could help at times of maximum network stress (high load, post fault, etc) and/or could be used to react to multiple price signals. This should ultimately result in less network investment and better value for the customer and other stakeholders.

NaREC would like to see Ofgem recognise these benefits as well as those in your document and use them as part of the yard stick against which your plans to allow investment (or not) in new meters and to change procedures are judged.

[1] National Grid Transmission Upgrade costs
Quote from Lewis Dale, NGT, at the IEE Security of Supply conference, 21/6/05 for the cost of connecting Renewable Generators in Scotland.

[2] Distributed Generation Network up-grade costs
Ofgem Launch event on IFI & RPZ; Presentation 10th May 2004.

Section 4. Connection Procedures

NaREC notes that G83/1 is a technical document, not available free of charge from the ENA, and this may be a barrier to it being adopted as a procedure to be followed by customers. NaREC has taken delivery of seven of the nine micro-generation components on its laboratory and none of them has a pre-written letter to send to the DNO informing them of the installation of micro-generation. NaREC also has evidence of the DNO procedures not being in place to deal with the letter arriving at their customer services centre. This has been raised with one of the DNO's technical director.

None of the seven pieces of kit claim G83/1 compliance, but do claim compliance to DIN standards. It seems that the UK has written its own standard rather than adopting international standards. This could well be a problem for consumers but is a market opportunity for NaREC!

NaREC suggests that a pro-active approach is taken to ensure that G83 is obtained for all microgeneration connecting to the public electricity network by an appropriate body, for example the clear-skies grant funding administrator. NaREC would be keen to manage the development of a suitable independent compliance / accreditation system and to undertake proving tests, however this is a wider issue than just metering and we will raise this as part of the wider microgeneration strategy submission we make to the DTI.

Section 5. Selling exports from microgeneration

Consumers installing micro-renewables generally have a choice to sell surplus electricity to their import electricity supplier, or to sell it separately to independent suppliers such as 'Good Energy'. Consumers installing CHP units will find their export electricity worthless, unless they are fortunate enough to buy a licensed supplier's piece of equipment, at which point that supplier only will probably make an offer for the energy. Clearly this is anti-competitive since the customer is tied into a single electricity supplier until the marginal cost of the export is worth less than the next best quote from an alternative supplier for their import load only – i.e. a premium worth around £50 can be made from the customer by the supplier. Independent suppliers of micro-generation equipment will also find this is a barrier to market entry and it is a barrier to a competitive generation market at the micro scale.

NaREC believes that this situation will be resolved by normal market forces if Ofgem takes steps to remove the high transaction costs associated with export meter reading by implementing our or other suggestions, and as the market grows. NaREC will keep a watching brief on this. NaREC will also watch for potential barriers to Energy Services Companies since they may also be part of a solution in this area.

Section 6: Microgeneration Providers.

NaREC has purchased four commercially available wind turbines, four commercially available PV panels and a commercially available CHP unit. While NaREC has sufficient knowledge to ensure it stays within the law with respect to installing these technologies on site, it is clear that the guidance and advice given in the accompanying documentation is insufficient to ensure that members of the general public do the same.

Some micro-generation technologies will be purchased by enthusiastic amateurs who could fail to appreciate the many requirements placed upon them by the various laws and engineering recommendations. Indeed G83/1 is not available to the general public without paying the ENA for the document so its recommendations will largely be ignored by those outside the industry. This is probably most important for multiple generator connection situations.

Most micro-generation technologies are imported (Only one of our nine purchases is UK sourced) so there is also influence to be exerted away from the UK manufacturers. Most of the micro-wind manufacturers are small companies who may not be as aware of the importance of documentation as the larger players.

NaREC will continue to test the DNO and supplier's procedures as appropriate and will, due to its contacts, make those companies aware of any shortcomings. NaREC will also independently vet manufacturer's documentation and inform them of any shortcomings.

Section 7: Licensed Suppliers & microgeneration.

With regard to the issues of meter reading, it appears from personal anecdotal evidence that the current system has lost the synergies associated with the old integrated electricity boards and not been replaced by effective competition from meter reading companies. As examples, the author changed to a dual fuel provider (NPower) a couple of years ago. The situation prior to a dual fuel contract was perpetuated and Gas and Electricity meters were read by two different individuals. The Author recently changed again (to Powergen) and now both meters are read at the same time. The meter reader does not however then go on to read the rest of the meters in the street. Further, when the author leased a flat for 6 months and changed the flats supplier from Npower to Powergen, they changed the meter, despite the meter (and flat) being less than 5 years old. This seems like an inefficient consequence of competition.

NaREC thinks that further efficiencies can be achieved if meter operators were to be appointed to install, maintain and read (Electricity, Gas, Water and ROC) meters on a geographical basis, with competition being held for those geographical areas.

Section 8. DNOs and Microgeneration

It seems appropriate that DNOs notify the owners / occupiers of the premises of export MPANs and that they inform the meter operator / Supplier.

Section 10. Metering Issues.

NaREC has received one enquiry from a domestic purchaser of a Proven Wind Turbine as to where to obtain an export meter. The purchaser had been referred to NaREC from Scottish Power! Their Technical Director (Alan Laird) has been informed and is investigating the issue.

Meters could do much more for the industry if they were equipped for example with SMS messaging or power line communication technology, load management control relay (could also be linked to low frequency), low tariff control relay and time stamped data capture. Demand side management, to avoid network investment would then be possible, with the home owner being appropriately rewarded for their contribution. These active network techniques require some investment in new metering technologies, however if the industry undertook to replace all meters with new types in the next 10 years say, then this would allow for the these techniques to be exploited.

NaREC suggests that moves are made by Ofgem or the Electricity Networks Strategy Group to justify, specify, and oversee replacement of all meters by meter operators over a timely period as part of the changes suggested by NaREC to meter operator duties.

NaREC welcomes the opportunity to contribute to this Ofgem consultation and hopes its comments are useful and informative. If you require any further clarification then please don't hesitate to contact the author.

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