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16<sup>th</sup> November 2010

The Office of Gas and Electricity Markets (Ofgem)  
9 Millbank,  
London.  
SW1P 3GE

Dear Sir

**SUBJECT: Project TransmiT – A Call for Evidence.**

Aegir Wave Power Ltd (Aegir) is a joint venture between Pelamis Wave Power, a Scottish based world leading wave energy technology developer, and the Swedish utility Vattenfall; Europe's fifth largest generator of electricity and largest generator of heat.

In recognising the huge potential for harnessing offshore wave energy for the generation of low carbon, renewable electricity, and the political commitment in both UK and Scottish Government's to enable a commercial market for wave energy; Aegir was established in 2009 to explore and develop a wave farm project in the waters off Shetland. The Shetland Islands were identified as of strategic importance due to the available wave energy resource off its coastline. Aegir appreciates Ofgem's call for evidence on the present consultation issue of transmission charging and underwriting within the UK as this issue has significant and direct impact on project investment decisions relating to the Shetland Wave Farm.

General Comments:

In response to European, UK and Scottish Government signals and mechanisms Aegir is committed to delivering commercial wave projects to provide a reduction in carbon emissions associated with current electricity generation in the UK as well as assisting in the delivery of a new industry sector which is expected to generate substantial economic and industrial opportunities for the UK. Aegir believes that, in the future; wave energy has the potential to make significant contribution to this de-carbonisation of the UK's generation mix, however this is reliant on the near term success of the sector in demonstrating it's viability at more modest deployment levels.

In this context Aegir finds the current locational charging methodologies imposed on use of the UK transmission system incompatible with these objectives, chiefly as it heavily penalises projects installed at the peripheries of the UK network, such as the Shetland Islands, which are currently not connected to the UK transmission network. In addition to this; the methodologies relating to user

commitments and liabilities associated with upgrading, or building new transmission infrastructure needed to deliver wave energy projects in the locations where they must be located, have been found to be prohibitive for Aegir.

As such Aegir believes that the UK Government and Ofgem must prioritise the resolution of this failing of the current regime in order to allow the private sector to invest in this important emerging sector. Delay or failure to do so will substantially undermine the sectors ability to deliver a successful industry in the UK, potentially terminally.

*Transmission Use of Network System:*

With the objective to connect a wave farm into the Shetland network; Aegir has a full appreciation of the economic impacts associated with the currently estimated levels of TNUoS. Aegir feels it appropriate to highlight that, even at early stage and modest scale (c.10MW), wave farm projects will be reviewed for investment decisions under the same commercial criteria as other generation projects. Accepting that an early stage wave farm project will already have substantial technical risk relating to their delivery and operation, reducing projected revenue streams through unparalleled TNUoS charging (estimated to be in the region of £1m p.a. for a 10MW project off Shetland) will make such projects unviable from a commercial investment perspective.

Therefore Aegir believes there needs to be immediate action taken by UK Government and Ofgem to reduce the financial impact of what are projected to be prohibitively high use of systems charges in regions such as the Shetland Islands. There are a number of options which the Government and/or Ofgem could pursue to achieve this:

- Capping of Transmission Network Use of System (TNUoS) charges levied on use of island connections. Aegir would recommend this avenue is worth exploring in further detail within this review. Current TNUoS levels for the northern region of the Scottish mainland have been proven not to adversely impact on renewable project investment decisions and Aegir's own financial assessment of a wave farm operating off Shetland under similar charging levels would indicate a sufficient rate of return to meet a positive investment criteria. Therefore Aegir would suggest this charging level be applied as a cap to charging associated with an island connection to Shetland.
- Compensate annual transmission charging by an additional "island/transmission" ROC, or similar revenue support. It's anticipated that this would require a separate multiple calculated on an interconnector-by-interconnector basis. This is likely to add complexity to project investments, and may have further reaching impacts on the RO market that would see considerable industry opposition.

*User Commitment and Underwriting:*

In addition to the current charging methodology, Aegir would also like to take this opportunity to highlight that it has found the process of user commitment and underwriting to be unfit for purpose and presents and similarly high barrier for investment into projects at the peripheries of the UK. Key areas of failing within the current approach are outlined as:

- Timing for user commitment- in 2010, at the commencement of project development activities for the wave farm site off Shetland, Aegir approached the local distribution network operator (SHEPD) to request a connection offer for the project. As the project was marginally above the threshold of a large generator Aegir was informed that a statement of works would be required from National Grid and commitment to this process would ultimately expose Aegir to a proportion of the liabilities relating, and scheduled against the existing, far larger Viking Energy onshore wind farm. In reality this exposed Aegir to either absorbing the proportional costs of the engineering works if upgrades were not committed to by Viking Energy or committing to final sums liabilities which could ultimately crystalize at £1m/MW at an early stage of site development when there remains a high risk of failure to attain necessary consents and licenses. As such Aegir had no option but to decline the offer and risk not attaining a firm connection on the island, a risk which remains. For further evidence Aegir has attached the letter which it submitted to SHEPD, National Grid and Ofgem stating the reasons why it found it prohibitive to progress its grid connection; and believes this highlights a short coming of the current methodologies and processes relating to user commitment.
- Scale of user commitment- at £1m/MW of liabilities; the financial commitment required to secure a grid connection for even a c.10MW wave project would represent an unrivalled private sector commitment to the wave energy sector, and as such is regarded as prohibitive to Aegir. Aegir would suggest, in the same vein of capping TNUoS; user commitments are also capped.
- Profile of user commitment- current underwriting profiles produce peak exposure for projects investors just prior to connections being energised for export; at exactly the same point where investors have maximum capital exposure from construction of the project. In reality; the peak risk to Ofgem is far earlier within the transmission build programme and reduces as generation projects near completion of build. Ofgem and Government should seek to review and revise underwriting profiles accordingly.

Aegir would like to re-iterate how significant a barrier it understands the issues raised above pose to enabling investment into delivering this strategic new industry for the UK and hopes that this response proves useful for Ofgem in its current review of transmission charging and underwriting methodologies, and that steps to resolve issues raised are taken forward as priority works deserving of immediate action.

Yours sincerely,



Andrew Scott

**Project Manager, Aegir Wave Power**



John Price

**Project Director, Vattenfall**