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By email



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Decision on long-term repair of Moyle Interconnector cables

Dear Shane

Background

Since September 2010 Moyle has experienced four cable faults, three of which have been repaired and the fourth we are still trying to precisely locate. Consequently 250 megawatts of Moyle's 500 megawatt capacity is currently available.

Our current understanding is that the faults came about as a consequence of issues with the polyethylene that insulates and waterproofs the return conductor and which would appear to have been ruptured when particular and fortuitous seabed movement bent the cable causing cracks which allowed seawater to enter and create an electrical short. Furthermore, from our investigations it would appear that there may be ten more potential areas offshore that could be affected by similar issues. This level of risk is unacceptable for critical submarine cables.

Achieving long term reliability for customers

Following analysis of the damaged cable sections removed from the previous fault locations it is evident that the conventional cut and splice repair of the cable is no longer suitable for these types of potential faults. Handling the cable during these repairs increases the risk of causing further damage to the cable or weakening, currently robust, cable components. Furthermore, due to the potential for multiple problem points, the high cost of repairing each one as they arise and the addition of two further cable joints per repair, this is neither a technically nor economically viable solution.

Our primary focus has therefore been to remove our reliance on the potentially defective outer insulation altogether and the feasibility of a number of alternative options has been considered. The best solution is to lay new low voltage submarine cables along a similar route to augment the existing cables and replace the existing return conductor. This would avoid any cable handling risks and address the resilience of the return conductor across the full length of the submarine cables.

Such a project would typically take 4-5 years. In order to condense the project programme as much as possible and restore the valuable interconnector benefits to customers we are

proposing to run the consents process and cable procurement process in parallel. The latter process includes the detailed design and specification of the cable. Appointment of consultants to assist with these work streams is already underway. There are numerous significant risks to the programme: we are particularly cognisant of the need for timely achievement of consents, available cable manufacturers' facilities and the manufacturing schedule completion coinciding with suitable site conditions to lay the cable. We are proceeding with all prudent haste: with speedy planning/environmental consents and favourable factory availability then an Autumn 2016 commissioning date is possible although a more prudent base case would be Autumn 2017. The programme should become much more certain by the end of 2013.

We estimate that the cost of the low voltage cable replacement project could be £60 million, although at this stage there is a high degree of uncertainty.

Customer Financial Impact

In considering the value of interconnection to consumers, we asked energy market experts, Energy-Link Partnership Limited to come up with a ballpark estimate of how much power costs would have increased in Northern Ireland over the last 3/4 years if the Moyle interconnector had not been available at all. The results are indicative only and more in-depth analysis may be desirable. However the current indication is that wholesale market costs would have typically been £28m higher per annum in Northern Ireland (£112m All-Ireland) and reserve costs £8m higher per annum in Northern Ireland (£32m All-Ireland) without the Moyle interconnector. Consequently, in addition to security of supply benefits it would appear from the study that the future customer financial benefits would far outweigh the cost of the cable replacement project.

Moyle Interconnector Ltd was established in 2003 as a mutual company, wholly debt financed with no shareholders and no allowed return on investment. That process locked in significant savings for consumers through to 2033. The arrangement provides for Moyle to charge all electricity suppliers (and thereby consumers) an annual use of system fee, known as CAIRt, to cover the costs of operating the interconnector. These costs are expected to be approximately £20m per year on average for the 2013/14 to 2015/16 period. The fee is reduced by any revenue which Moyle earns through its capacity allocation auctions, such auction revenue being proportional to the electricity price difference between the SEM and Betta markets. Up until 2012/13 Moyle had earned sufficient capacity auction revenue to allow it to waive the CAIRt fee completely.

Applying auction revenue to reduce the costs of the new low voltage cables we estimate that the required unexpected additional CAIRt fee required should not be more than £10m in 2014/15 and £20m in 2015/16. £10m equates to approximately 1% of consumers annual electricity costs.

We are continuing to progress a number of claims in relation to the cable failures and any contribution from these has not been factored into the above calculations, we are also trying to avoid or delay some normal one-off operational expenditures during that period. If

we are successful in these areas we may be able to meet the unexpected CAIRt fee and to possibly waive part of the normal CAIRt fee.

Interim Measures

The risk to the system of a further fault on the currently in service cable has been mitigated by the successful design, installation and testing of a conductor reconfiguration. The reconfiguration, tested successfully in late 2012, allows the interconnector to run at 250 megawatts using both high voltage conductors (one acting as a low voltage return) and without the need to rely on the incident prone return conductor insulation. The reconfiguration can be set up in a matter of hours. Effectively this contingency protects 250 megawatts of Moyle capacity against further similar faults.

We also continue to progress the feasibility of two possible interim solutions to return to full 500 megawatt capacity ahead of installation of the new low voltage cables. These interim solutions are unconventional and may not be feasible and critically, they rely on the integrity of the incident prone return conductor insulation. In one solution the interconnector is set up in bi-pole mode (as one 500 megawatt unit instead of two 250 megawatt units) but as mentioned would rely upon the currently available return conductor.

The other possibility is to develop an experimental underwater repair of the current fault. This would be lower cost and reduce concerns about handling in the conventional manner damaging the reliable parts of the cable. However it does rely on being able to precisely pinpoint the fault and some pioneering technology is being applied at present to help do so. Offshore work is planned for early May in a final attempt to precisely locate the current fault.

In broad terms it is likely to take six months to design and ultimately confirm the feasibility of these two options and a further twelve months to install and commission.

Regulatory support

Moyle's decisions with respect to the remediation the cables impacts on consumers in terms of both quality and cost of their electricity supplies. We are therefore keen that our decisions and plans are fully transparent and open to regulatory challenge and ultimately that the regulatory authority is supportive of our approach.

We have kept you informed throughout our work to date and now request that you consider our approach as outlined and provide your views on these matters.

Yours sincerely



Paddy Larkin
Director