# Clashavoon Dunmanway
# 110 kV
# Power Line Project

This document outlines answers to questions sent to EirGrid by the local community group "Communities Before Pylons" in relation to the Clashavoon Dunmanway 110 kV Power Line Project.

**1) Can EirGrid categorically state that there are no adverse medical implications of this project to the affected communities?**

*EirGrid is a company owned by the State. EirGrid has the exclusive function to operate and ensure the maintenance of and, if necessary, develop a safe, secure, reliable, economical and efficient electricity transmission system with due regard for the environment in Ireland. The World Health Organisation and ICNIRP (the International Commission on Non-Ionizing Radiation Protection) continually monitor the results of scientific studies into EMF, and all other EMF related studies. From the totality of these studies ICNIRP developed its 'Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields (up to300GHz)'. Both the World Health Organisation and the European Commission have endorsed these guidelines. They form the basis of EU Council Recommendation1999/519/EC which set out the relevant European Union Guidelines. EirGrid designs and operate the Irish transmission network in accordance with these EU Guidelines.*

*EirGrid are satisfied from the totality of studies and the views of international authoritative agencies, and international experience of best practice in transmission system development, that the balance of evidence is that overhead transmission lines proposed for use do not have any adverse effect on human health or animal health.*

*The proposed Clashavoon Dunmanway project will operate at all times, even standing directly under the line, well below the levels set by the International Commission on Non-Ionising Radiation Protection (ICNIRP) regarding EMF exposure and public health and endorsed by the World Health Organisation, the EU and the Irish Government.*

*For more information about EMF's and overhead lines view EirGrid Booklet on EMF & Electricity on www.eirgridprojects.com*

**2) Can EirGrid outline the criteria used to assess the visual impact on the proposal on the environment?**

*The process for submitting a planning application for the proposed Clashavoon Dunmanway Project has been divided into four key phases as follows:*

| | | |
|---|---|---|
| *Phase 1* | *Information Gathering* | *Complete* |
| *Phase 2* | *Route Corridor Evaluations* | *On-Going* |
| *Phase 3* | *Route Design* | *Estimated June- July 2011* |
| *Phase 4* | *Application Submission* | *Estimated September 2011* |


*As part of phase 1, EirGrid's Environmental consultants, AOS Planning have prepared two reports on visual/landscape impact. Both reports have been published on the project website (www.eirgridprojects.com). The reports set out the methodology and information sources used in the assessment of visual/landscape impact at phase 1.*

| | | |
|---|---|---|
| *Report 1* | *Constraint Report Landscape - Visual Impact* | *August 2010* |
| *Report 2* | *Assessment of Corridors Report Landscape -Visual Impact* | *September 2010* |

*I attach a copy of both reports for your information.*

*As part of phase 2, EirGrid's consultants, ESBI will identify an indicative line route within the preferred corridor, again based upon an evaluation of the findings of the visual impact assessment, as well as impact assessment of other environmental topics. A Phase 2 report will be published once an indicative line route has been identified and verified.*

*As part of phase 3, EirGrid's lead consultants, ESBI will complete the detailed design of the line. This phase includes the detailed siting of polesets along the identified alignment. As part of this phase, EirGrid's consultants will commence preparation of a more detailed Environmental Report, that will identify any potential impacts, proposed mitigation measures and residual impacts (if any) for all aspects of the environment, including visual/landscape impact.*

*At phase 4, when the detailed line design is complete, EirGrid's consultants will complete the detailed expert Environmental Report. This Report will be submitted as part of the planning application to An Bord Pleanála.*

**3) Can EirGrid explain the rationale behind the route chosen and in particular the decision to avoid, in so far as possible, lake/river crossing**

*EirGrid's consultants, ESBI have prepared a "Phase One Lead Consultant Report" which details the methodology used to identify potential route corridors, and the conclusions that led the Consultants to identifying which route corridor, in its expert view, was the emerging preferred option. This report was made public on the 11/10/2010 and published on the project website (www.eirgridproejcts.com)*

*A public information day was then held in the Castle Hotel, Macroom on Wednesday 13th October between 2.00pm and 8.00pm. Members of the public were invited to provide submissions, comments, information or queries in relation to the "Phase One Lead Consultants Report" including the Consultants emerging preferred option. The open day was advertised in the Corkman, Southern Star and Irish Examiner Newspapers.*

*Public & statutory bodies had a period of 4 weeks to make submissions to EirGrid after which the project moved to phase 2. As part of this, EirGrid and its consultants have engaged in detailed discussions with the National Parks and Wildlife Service (NPWS) and an expert ornithologist (bird study). Both expressed concern that the planned development should avoid designated wetlands, and in particular The Gearagh complex, in order to minimise potential impact upon concentrations of bird species protected under European Legislation.*

*EirGrid's consultants, AOS planning prepared expert environmental reports which form part of the "Phase One Lead Consultant Reports". These expert environmental reports detail the lakes/river crossing constraints and expert environmental assessment of the proposed route corridors crossing lakes/rivers. In summary, following the advice of the NPWS and other experts, the preferred route corridor avoids identified key sensitive areas for birds. However,*

*such route corridors also avoid, to the greatest extent possible, clusters and concentrations of settlement and dwellings*

*For your reference I have included a copy of all environmental reports.*

**4) Can EirGrid provide a comprehensive statement to the effect that no significant areas of architectural and archaeological importance will be damaged in the erection and maintenance of the proposed pylons and that the access to these sites will not be restricted by the existence of same?**

*As per question 2 above, the process for submitting a planning application for the proposed Clashavoon Dunmanway Project has been divided into four key phases.*

*At phase 3, when the detailed line siting and design is being undertaken, EirGrid's consultants will prepare detailed expert environmental assessment, that will address and identify any potential impacts, proposed mitigation measures and any residual impacts (if any) for all aspects of the Environment.*

*One of these reports will be a Cultural Heritage assessment. This will be submitted as part of a comprehensive Environmental Report with the planning application and made publically available on the dedicated application website.*

*EirGrid has developed a Code of Practice in conjunction with the Department of the Environment, Heritage and Local Government. This Code of Practice highlights that EirGrid is fully committed to ensuring that developments are carried out in an environmentally sensitive manner, protecting our cultural heritage. I attach a copy for your reference.*

*As part of phase 1, EirGrid's consultants, AOS planning have prepared two reports on Cultural Heritage for the proposed Clashavoon Dunmanway project. These expert environmental reports detail the constraints and expert environmental assessment of the proposed route corridors.*

*Both reports have been published on the project website and are attached for your reference.*

| | | |
|---|---|---|
| *Report 1* | *Constraints Report – Cultural Heritage* | *August 2010* |
| *Report 2* | *Assessment of Corridors Report - Cultural Heritage* | *September 2010* |

*EirGrid and ESB Networks have overseen the installation of thousands of kilometres of overhead line across the country, often in areas containing potentially very significant cultural*

*and architectural heritage. The construction methods employed will be fully set out in subsequent documents and in particular the application documents.*

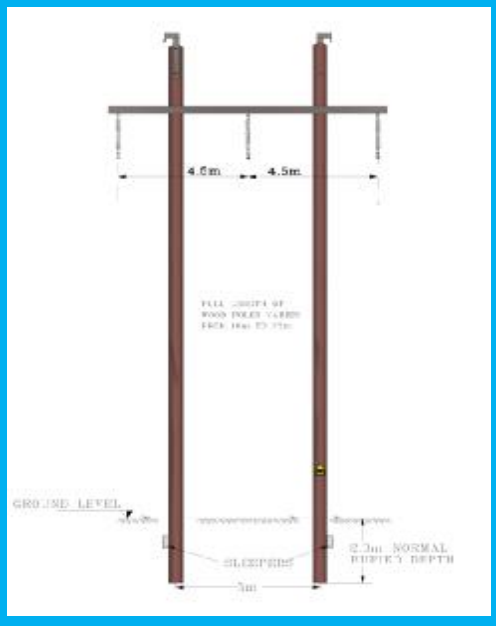
**5) Can EirGrid explain the difference between 110 kV and 220 kV in the context of the erection of any power lines and pylons?**

*A summary explanation is detailed below but for more comprehensive information see Section 1.5.1 (pages 10 - 15) of the Phase 1 Lead Consultants Corridor Identification Report which describes the structures to be used on the proposed single circuit earthwire 110kV overhead line for this project.*

*Please note that Clashavoon Station is a 220 kV and 110kV station. This means that Clashavoon Station is connected to the 220kV transmission network via Clashavoon-Knockraha and Clashavoon-Tarbert 220 kV Lines. The new proposed line is going to connect to Clashavoon 110kV station.*

***Single Circuit 110kV Overhead Lines***

*A 110 kV single circuit overhead line will require that the overhead line conductors be supported on a combination of lattice steel masts and double wood polesets. The lattice steel masts are required where the line changes direction or terminates. The average span between these poles for a line of this type is approximately 250 metres, but the actual span achievable depends on local topography. The pictures below show both the wooden poleset and lattice steel mast structures to be used on this project.*

| 110kV Wooden Poleset | 110kV Steel Mast |
|---|---|
|  |  |

*Key design features:*
*Height range (double wood pole sets) = 16m to 23m*
*Height range (steel angle masts) = 18m to 24m*
*Average span = 250m*
*Concrete foundations required for all steel masts (base installation time approximately 1 week)*
*No concrete foundations required for pole sets (normal conditions) (installation time approximately 2 per day)*

***Single Circuit 220kV Overhead lines***

*A 220kV line requires that the overhead line conductors be supported exclusively on lattice steel structures.*

220kV Steel Mast

220kV Steel Mast

*The average span on a line of this type is 320m but again the actual span achievable depends on local topography.*

*Key design features:*
*Height range = 21.1m to 37.1m*
*Average span = 320m*

*Concrete foundations required for all steel masts (base installation time approximately 2 weeks)*

**6) Is it standard procedure to have a back-up line to a back-up line? If so, can you please provide details of similar instances?**

*EirGrid has the exclusive function to operate and ensure the maintenance of and, if necessary, develop a safe, secure, reliable, economical and efficient electricity transmission system with due regard for the environment. The electricity transmission network is designed to comply with a formal Transmission Planning Criterion (TPC) which is designed to ensure security of supply for all electricity consumers of Ireland, in line with international standard practice. The TPC requires that specific levels of transmission reliability be maintained.*

*In accordance with the TPC:*

- *Sufficient capacity must be available to supply existing or committed demand or generation*
- *Sufficient redundancy needs to be available to accommodate one circuit failing at peak demand*
- *Sufficient redundancy must exist to accommodate the loss of a circuit during maintenance, that is typically performed during the summer months of lower demand*

*As such, the proposed Clashavoon Dunmanway project is required for two reasons as follows:*

*1) Security of electricity supply*

*Currently the electricity supply in South West Cork is maintained by two 110kV transmission lines, the Dunmanway – Macroom 110kV line and the Bandon – Raffeen 110kV line. During routine maintenance of either line, the subsequent loss of the other line would mean that South West Cork would lose its electricity supply and leave the towns of Bandon, Ballylickey, Dunmanway and extended areas around them, without power.*

*2) Connection of renewable generation*

*There is a significant amount of renewable generation connected and seeking to connect in the South West Cork area. The current transmission network configuration and capacity is not capable of accommodating the connection of this amount of renewable generation. EirGrid is responsible for ensuring that the necessary grid infrastructure is in place to allow this renewable generation access to the transmission system to export power to where it is needed.*

*It is therefore the case that the planned development is not a back-up line as might be commonly understood such as an emergency generator; rather it is in fact, a vital element of the electricity system of the South-West region.*

**7) Can EirGrid provide detailed structural plans of the proposed pylons to be erected?**

*As part of the "Phase One Lead Consultant Report", detailed typical structure descriptions and drawings were included in the report.*

*Section 1.5.1 of the "Phase One Lead Consultant Report", describes the typical design of three structures (Intermediate wood poleset, braced wood poleset, steel angle structure) proposed for the Clashavoon Dunmanway project.*

*Detailed typical design drawings of the three structures were included in Appendix I of the "Phase One Lead Consultant Report". All appendices were published on the project website (www.eirgridprojects.com).*

*I have included a copy of the following for your information;*

| | |
|---|---|
| *Appendix I Part 1* | *Braced Wood Poleset* |
| *Appendix I Part 2* | *Wood Poleset* |
| *Appendix I Part 3* | *Angle Structure* |

**8) Is it not possible for the existing pylon infrastructure to be used to facilitate this project?**

*EirGrid has considered upgrading the existing infrastructure to determine if this would address the networks problems identified above.*

*Utilising the existing electrical infrastructure would not solve the network problems as described above.*

**9) Why is this project not going underground?**

*EirGrid has the exclusive function to operate and ensure the maintenance of and, if necessary, develop a safe, secure, reliable, economical and efficient electricity transmission system with due regard for the environment Whenever a new high voltage circuit is proposed, EirGrid's Policy on the use of Overhead Line and/or Underground Cable guides the decision on whether to use overhead line or underground cable.*

*EirGrid policy confirms that an underground cable will only be used if all of the following four conditions apply-*

1. *An overhead line is not environmentally feasible;*
2. *A technically and environmentally acceptable route for underground cable can be found;*
3. *The effect that the electrical characteristics of underground cable have on the transmission network is acceptable, and the relative 'availability' of the underground cable is tolerable; and;*
4. *The relative greater cost of the underground cable above that for overhead line can be justified;*

*In relation to condition (1) above, Chapters 3 & 4 of of the Phase 1 Consultants Report confirms that there are three environmentally feasible corridors, within which to route an 110kV overhead line circuit, and that the predicted environmental impacts of such overhead development are sustainable. Therefore EirGrid proposes an overhead line solution for this project. As such condition (1) does not apply. Notwithstanding this, the use of underground cable has been considered for this project.*

*In relation to condition (2) above, EirGrid commissioned ESB International to carry out a feasibility study to investigate underground cable route options and environmental studies to assess the impact of installing underground cable on these routes. Technically feasible cable route options were identified and the environmental impacts are sustainable. As such condition (2) does apply.*

*In relation to condition (3) above, a project specific 110kV technical screening study has examined the electrical characteristics of using a cable for the proposed circuit. The electrical characteristics of cable are deemed tolerable based on the 110kV technical screening study.*
*The reliability of both the overhead line and underground cable has been assessed based on a combination of fault data from the Irish transmission system and CIGRE (The international council on large Electric Systems) data on 110kV faults. Over the lifetime of the proposed circuit, the overhead line has a better reliability and a significantly better repair time of faults. Therefore, it follows that the overhead line will provide a better availability than underground cables.*

*In relation to condition (4) above, EirGrid has estimated the costs associated with an overhead line and underground cable solution. Based on the emerging preferred overhead line corridor and the emerging preferred underground cable route, it is estimated that, the underground cable would cost approximately 100% more than the overhead line. As such the relative high cost of an underground cable cannot be justified for this project. As such condition (4) does not apply.*

*In summary, EirGrid's Policy on the use of Overhead Line and/or Underground Cable states, that all four of EirGrid's conditions should apply for an underground cable to be used within a proposed circuit.*

*As a number of these conditions do not apply EirGrid is proposing an overhead line solution for this project.*

**10) What strategic factor influenced you to choose this route and when was this decision taken?**

*EirGrid's consultants, ESBI have prepared a "Phase One Lead Consultant Report" which details the methodology used to select an emerging preferred corridor. This report has been published on the project website. The identification of various route corridor options, and the Consultants preferred option arises from an initial evaluation of a range of often competing technical, environmental, community criteria, and also from feedback arising during public and other consultation on this project. However, the eventual route of the planned development will be confirmed following consideration of ongoing consultation and feedback, ongoing environmental surveys, and other matters.*

**11) Can you give an undertaking that the proposed 110kV line, if granted permission, will never be upgraded to a 220kV line?**

*It must be noted at the outset that the need for, and nature of, the project was identified initially by studies carried out by EirGrid's expert system planners, who forecasted the maximum carrying capacity that would be required for this project. It is from such studies that it was concluded that the proposed 110 kV project would meet the identified need for the project. The proposed 110kV line if granted planning permission would be constructed using the pole structures described in section 1.5.1 in the "Phase One lead Consultants Report". Once constructed, the line can be operated at nominal voltage of 110kV. It would not be possible to upgrade the line to 220kV using the structures described in section 1.5.1. It should be also noted that Dunmanway transmission station is an 110kV station and as such would not be capable of accommodating a 220kV line.*