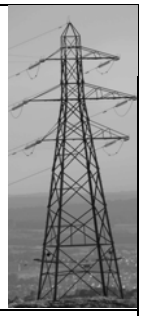
STIRLING BEFORE PYLONS



UNDERGROUNDING IN EUROPE

MARCH 2009

Introduction

This briefing covers developments related to 400kV power lines across Europe since the end of the Beauly to Denny Public Inquiry in January 2008. The issues covered here are ones which the Reporters will not be able to include in their report, but we believe are vital for Ministers to be aware of in reaching the best informed and most up to date decision. Throughout the application and Inquiry process the applicants have consistently argued against undergrounding sensitive sections of the route on the grounds of cost and it being an unproven technology. In addition they have consistently ignored or underestimated the obvious benefits. We believe that undergrounding could overcome almost all the current objections to the proposals in the Stirling area. All the information in this briefing relates to XLPE cable, now accepted by all parties as the preferred undergrounding technology.

Legislation in Germany

Due to health concerns, legislation is being proposed which requires transmission system operators to carry out a technical and economic consideration for undergrounding new overhead lines (OHLs) that pass within 200 metres of single homes and 400 metres of residential areas. This has now been put before the cabinet at the Federal Level, with a proposal that up to 50% of 4 new priority lines in Lower Saxony and Thuringen will be put underground. These lines cover over 500km in length and could result in almost 250km of undergrounding. The Beauly to Denny line is 220km and the Stirling section 30km. The German electricity regulator will accept that the additional costs can be passed on to all German consumers. The cost of undergrounding lines in Lower Saxony is expected to add 1 euro/year to household bills. Under the UK regulatory system, additional costs for undergrounding sections of the Beauly/Denny line would be spread across all 28 million British electricity customers.

Undergrounding between France and Spain

This project for an interconnector between France and Spain has been held up for 20 years with undergrounding being dismissed as too costly or not technically feasible. An EU Coordinator, Mario Monti, recommended that around 60km of DC cables be laid (25km in France and 37km in Spain) and this was accepted at a Franco-Spanish Summit on the 27th June 2008. The competent authorities and electricity grid companies in the two countries have now been called upon to take the necessary steps for immediate implementation. Monti got this deal sorted out in within months and the European Commission has stated that this approach may now be applied to several other difficult projects in Europe.

Undergrounding in Austria

There have been significant delays over similar issues on a line near Salzburg. Local politicians asked the European Commission to appoint a coordinator to try and resolve the matter and Mr Georg Adamowitsch was nominated in November 2008. In October the Salzburg Government presented draft legislation requiring partial undergrounding of OHL's within 200/400 metres of buildings, as in Germany, and in 'sensitive areas'.

Undergrounding in Holland

The Dutch Government has decided that two sections of the Randstad 380kV transmission line in the Hague area will go underground. This will amount to about 10km of cable. The company say that this is a 'responsible and innovative cable installation' that is using 'proven technology'. They say that the cost difference is around Euro10m/km

Ireland : Independent Reviews

1. Ecofys

A review was carried out in relation to undergrounding of the Cavan Meath and Tyrone Cavan Line and was released by the Irish Government in July 2008. The report was carried out by Ecofys Berlin, Golder Associates and Professor Brakelmann of the University of Duisberg Essen. The report draws heavily on recent studies carried out in Austria and Germany, together with the Jacobs Babtie report re Beauly/Denny.

It makes the following points :

- They agree that recent legislative events in Germany could lead to significant undergrounding in the future.
- That undergrounding XLPE technology is now a mature technology. Experience should be gained with this technology in Ireland as a trial.
- They conclude that the capital cost ratio for 1700MVA Underground/Overhead is 5 times, and 3 times when whole life costs are considered. This is far less than initially considered by SSE for Beauly to Denny.
- They show that for 3000MVA, underground costs have been reported in Austria at around Euro 5/km (£4m/km). Again, far less than suggested by SSE at the Beauly to Denny Public Inquiry.
- That the lead-in time for underground schemes is 4 years compared to 7 years for overhead schemes.
- They state that exposures with potential health implications from buried cables are far less than for overhead lines and can be practically eliminated.

The report fails to make reference to recent developments in Spain/France and Holland.

Ecofys appeared before the Joint Parliamentary Energy Committee on 22nd July 2008 and there was strong support for undergrounding by the deputies. The Deputy Convenor said 'At some stage somebody has to take a leap of faith and put in place the available technology in a rural setting. That is now starting to happen in Germany'. The Committee criticised transmission operators Eirgrid : ' Last year Eirgrid told us it was not possible to place cables underground but we have now been told that this is technically feasible and have been shown concrete examples of such work done in other countries, including Germany. In other countries there is a political move to place such lines underground wherever possible. If people want to have lines underground, they have the political power' said Deputy Byrne. The Committee also criticised the Energy Minister for focussing on the problems and not mentioning the positives of undergrounding.

2. The Askon Report

This was again produced by German consultants and Professor Noack from the University of Ilemnau for North East Pylon Pressure objectors. It concluded :

- Undergrounding is significantly more reliable : 'no 400kV underground cable anywhere in the world has failed'

- The probability of both parallel cables being unavailable is a once in every 1,000 years event
- Undergrounding is significantly more efficient : transmission losses are 9 times lower with cables
- Undergrounding is significantly safer : with lower electro magnetic fields (EMFs), buildings can be 11-17m from cables rather than 95m for OHLs
- Undergrounding provides obvious environmental benefits in terms of land use, visual impact, land and property valuation, tourism and heritage responsibilities
- The worst case scenario of undergrounding would be a cost of 1 euro per household per year.

London

On the 13th November, work began to remove 52 pylons (60m high) and 130km of OHL from Olympic Park in east London. Two 6km tunnels containing 200km of EHV cable have been built enabling power needed for the Games and legacy developments to be carried underground. The estimated cost of £250m is being borne by electricity customers across Great Britain.

Mayor of London, Boris Johnson said : 'For as long as I can remember the first thing that strikes you as you travel further to the east of town are these ugly structures dominating the skyline and blighting the area. Putting in first class infrastructure will bring new jobs, new homes and new opportunities for people in east London.'

Sebastion Coe, Chairman of the London 2012 Organising Committee said : 'This is an exciting moment, and is a symbol of change for the good.'

Politicians in London clearly see the benefit of underground cables on such a high profile project. We believe Ministers should look at the impact that these ugly structures, dominating the skyline around Stirling, will have on such iconic sites as the Wallace Monument and Stirling Castle.

Industry Capacity and Cost

Copper is a major cost in the production of underground cables and a major factor in the price differential with overhead lines. The price of copper fell by over 50% between August and December last year. A presentation by National Grid to its investors in October predicted that copper prices would continue to fall in real terms over the next 3-4 years. The economic downturn will also mean that the cost of civil works will have fallen well below the figures quoted by SHETL and its advisors at the Public Inquiry. Scottish Ministers should call for a review of all major cost assumptions.

Despite the economic downturn, demand for underground cables is growing and the European Cable industry is expanding production of XLPE extra high voltage cables and has the capacity to meet demand until 2015.

Conclusion

There have clearly been significant developments since the end of the Beauly to Denny Public Inquiry which Scottish Ministers should be aware of and should investigate further before reaching their decision on the Beauly to Denny line. We believe that the clear trend in Europe is for undergrounding of 400kV power lines adjacent to built up areas and where there are sensitive physical or historic landscapes. This undoubtedly applies through the Stirling area, and we believe that the Scottish Government would not wish to be left behind by other European countries on this issue which has such a high public profile.