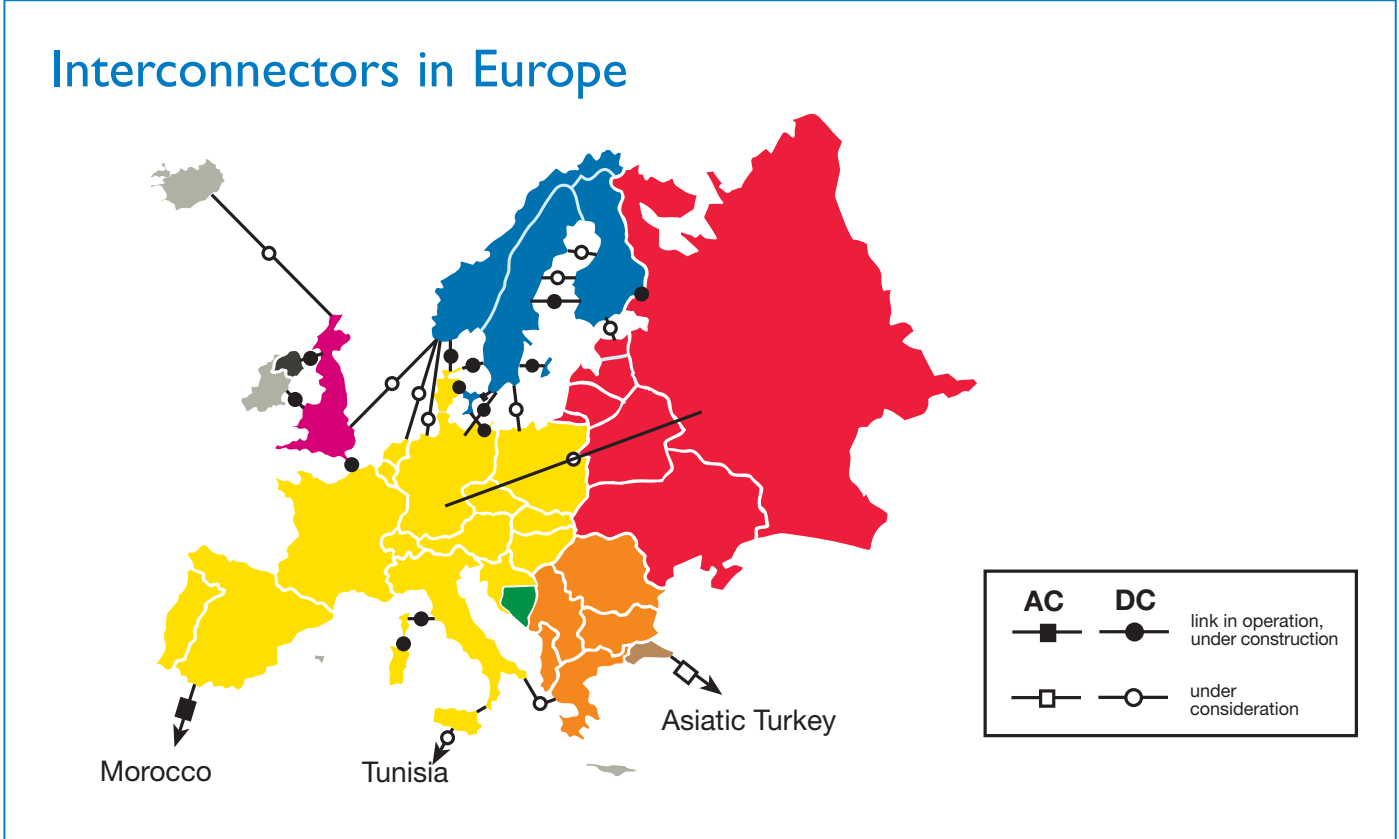


# The Moyle Interconnector and North-South interconnectors lay the foundation for a modern, competitive all island electricity market offering enhanced competition and security of supply.

The Moyle Interconnector links the Northern Ireland and Scottish electricity grids, through a submarine cable running from Ballycronan More in Islandmagee, County Antrim to Auchencrosh in Ayrshire.

The interconnector has a capacity of up to 500MW (megawatts), approximately the same as that of a modern medium sized power station.

Prior to construction Northern Ireland Electricity conducted the most extensive survey of the North Channel and Irish Sea ever undertaken to ensure the absolute minimum of environmental damage.



# Investment

NIE has invested £150million including 35% funding from the European Regional Development Fund.

Much of the construction work was carried out by local sub-contractors, supporting jobs in the local construction industry, including NIE Powerteam.

Nexans of Norway supplied the submarine and underground cable system linking Northern Ireland and Scotland. The converter stations, connecting the interconnector to the transmission systems in Northern Ireland and Scotland, were designed and built by Siemens plc.



Ballycronan More converter station at Islandmagee under construction

# Creating opportunities

The Moyle Interconnector is a real watershed project for electricity customers and the economy of Northern Ireland because it will end our isolation from the much larger electricity systems and markets of Great Britain and the European mainland.

Interconnection will help the drive for lower electricity prices in Northern Ireland by increasing competition in the generation market.

The electricity regulator Ofgem and NIE have emphasised on many occasions that additional competition in the generation market is needed to bring lower electricity prices to customers in Northern Ireland. This upgrading will provide up to 375MW available for third party access, ie to anybody who wants to trade electricity between Northern Ireland and Scotland, or beyond.

The enlargement of capacity of the Moyle Interconnector to 500MW, in conjunction with the enhancement of the North-South interconnection, has created a strongly interconnected two-island electricity system. This has brought Ireland into line with the rest of Europe where the interconnection of national electricity systems has been the norm for many years.



Converter transformers



Current transformers

## Strategic benefits

- Competition in the generation market
- Trading with neighbouring systems
- Enhanced security of supply
- Fuel diversification
- Strengthens quality of supply
- Optimised transmission infrastructure
- Improved efficiency of NIE electricity infrastructure

# Cable laying

In May 2001 the two submarine cables arrived in Portmuck, connecting the transmission systems between Northern Ireland and Scotland. Welcomed by Irish and Scottish traditional musicians and toasted with the whiskey of both countries, the arrival of the cable was an important milestone for the long running project.

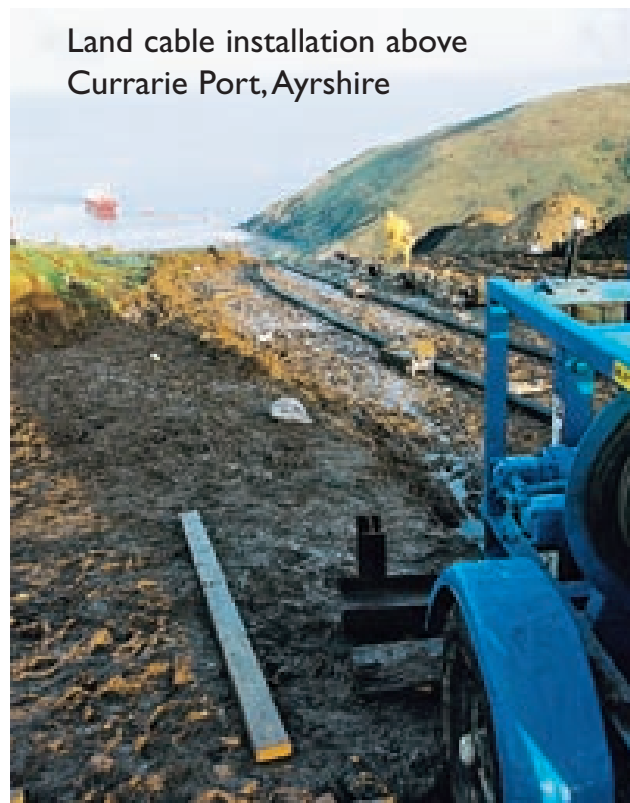
The event marked the culmination of a 53km voyage across the North Channel for members of the Moyle project team monitoring the trenching and cable laying process along the satellite controlled route on board the Norwegian ship 'Havila Skagerrak'. Crossing points with other telecommunications and gas pipelines were meticulously located and tracked to avoid causing any damage.

Progress was observed on the ship using monitors and satellite receiving equipment which showed exactly what was happening on the seabed down to depths of 150 metres. The operation continued 24 hours a day and the cable laying exercise was finally completed mid May at Currarie Port, north of Cairnryan.

Cable landing

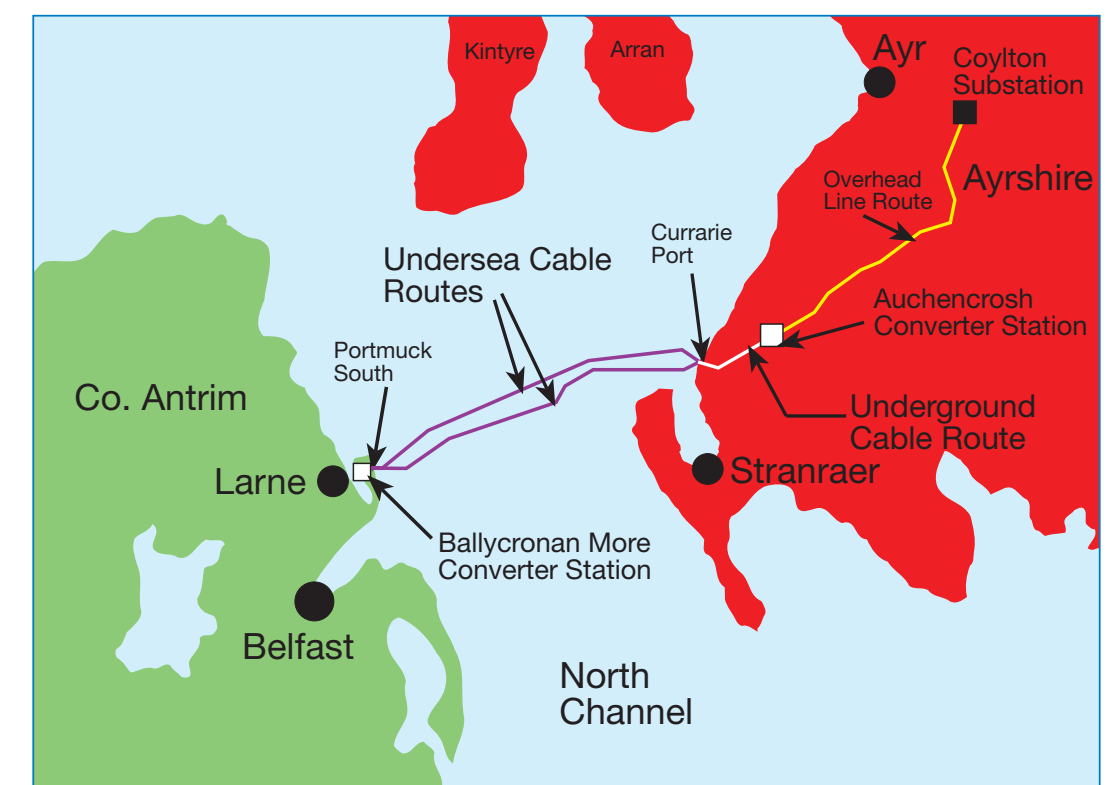


Land cable installation above Currarie Port, Ayrshire

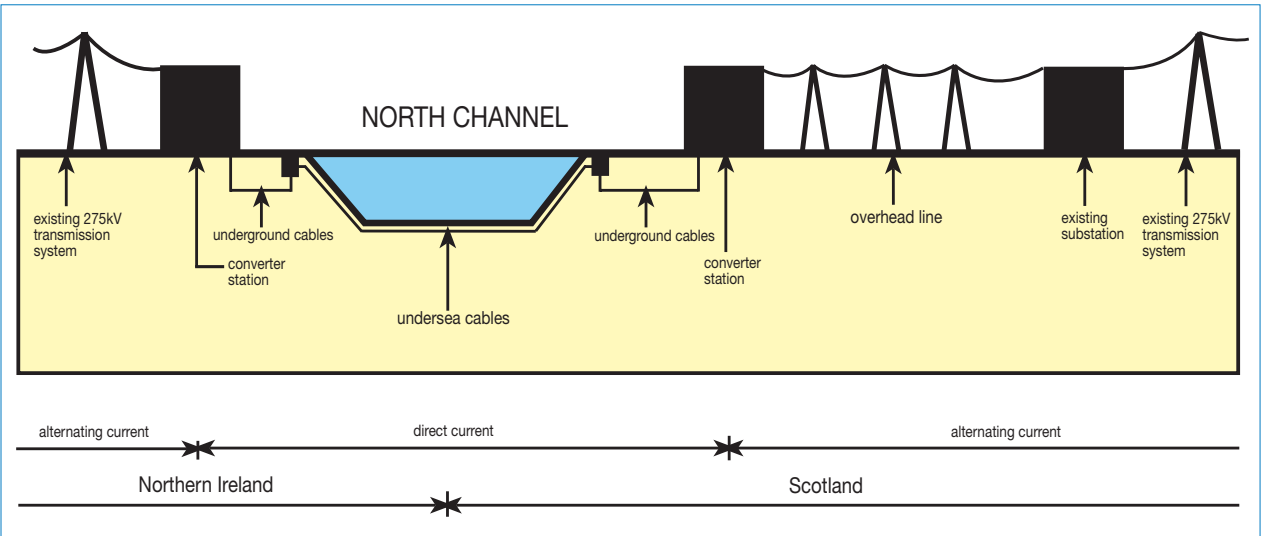


## Interconnector route

The map shows the complete Moyle Interconnector route, including the Scottish overhead line



# Moyle Interconnector Schematic Design



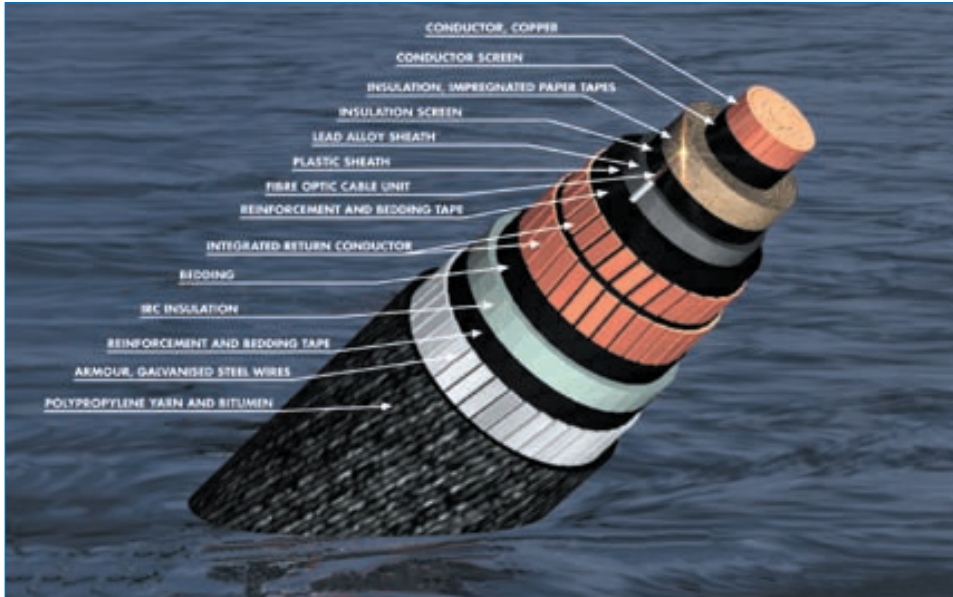
The schematic shows the various elements of the interconnector. The converter station on Islandmagee is connected directly onto the existing transmission system in Northern Ireland. This converter station, together with the one on the south Ayrshire coast in Scotland, provides appropriate conversion between alternating and direct current. A 64km length of new overhead line connects the converter station in Scotland to the existing transmission system in Scotland. The converter stations are connected by 2 x 64km of underground and submarine cable systems.

## Submarine cable

Each of the two cables connecting the converter stations is a 250kV DC mass impregnated cable with integrated return conductor. The main copper conductor is 1000mm<sup>2</sup> and can carry 1000amps. The cable is approximately 114mm in diameter and also contains a fine stainless steel tube carrying optical fibres which allow control and communication between the converter stations and between the control centres in Northern Ireland and Scotland.

## Key dates

1990	First seabed survey
1991	Initial interconnector agreement between Northern Ireland Electricity and Scottish Power
1993	Applications made in Northern Ireland and Scotland for consent for the converter stations, cables and overhead line
1994	Consent granted for installation of undersea cables by the Department of Transport
1994 / 1995	Public enquiries held in Scotland and Northern Ireland
1997	Consent granted for overhead line construction
1998	Outline planning permission for converter station on Islandmagee granted
1999	Contract awarded to Siemens for construction of converter stations Contract awarded to Nexans for submarine and underground cables
2000	Detailed planning permission granted for converter stations Scottish overhead line contract awarded to Balfour Beatty
2001	Construction and testing
2002	Full operation



Nexans cable

# Interconnected with history

The Moyle Interconnector project team were always prepared to deal with the discovery of ancient history when work began removing topsoil along the underground cable route in Islandmagee. But no one, including the archaeologists, who were on site since the site work began, thought that the excavations would uncover both medieval and bronze age settlements, which would bring a huge amount of previously undiscovered information about the history of the local area.

In late June 1999, animal bone and green glaze pottery was uncovered near the site of an old abbey in Portmuck. The archaeologists were able to date this early medieval settlement at around 1100-1400.

A unique 3,000 year old Bronze Age house was uncovered a few weeks later and has been hailed as unique in Ireland and indeed, one of the most important finds in the UK.



All that remains on site are the foundation stones showing the outline of what was quite a substantial building. The house was about 10 metres in diameter, made of stone with a thatched roof. The yard outside the entrance, which faced southeast, away from prevailing winds, was paved with stones, as was most of the interior.



Relics found include a rare bronze axe head and jewellery of lead beads. A very precious and rare example of lead jewellery, has also been unearthed. Lead was known to exist in Scotland, proving clearly that trading between Scotland and Ireland was going on even then.

The team at Moyle worked closely with the Department of Environment and Heritage, as well as the archaeological team all along. It shows that with proper planning, a major engineering project for the future benefit of Northern Ireland can go hand-in-hand with respect for our heritage.