PRESS KIT

RTE and Elia reinforce electrical interconnection between France and Belgium

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ANNEX: MAP 10

RTE is the operator of the French electricity transmission grid. As a public service company, RTE is responsible for the operation, maintenance, and development of the high and very-high-voltage grid. It also ensures the electricity system is both correctly operated and reliable.
RTE transports electricity between electricity suppliers (from France and elsewhere in Europe) and consumers, whether electricity distribution operators (ERDF and local distribution companies) or industrial consumers connected directly to the transmission grid. RTE operates the largest network in Europe, with 100,000 km of lines (including 45 cross-border lines) transporting electricity at between 63,000 and 400,000 volts. In 2009, RTE posted turnover of €4,130 million and currently employs around 8,500 people..

Elia is the Belgian transmission system operator, transmitting electricity from producers to distribution system operators and major industrial users, as well as importing and exporting electrical energy to and from Belgium's neighbouring countries. Elia owns the entire Belgian very-high-voltage grid (150 to 380 kV) and some 94% (ownership and user rights) of Belgium's high-voltage grid infrastructure (30 to 70 kV). Elia's grid consists of 5,614 kilometres of overhead lines and 2,765 kilometres of underground connections and is a key link between electricity markets in northern and southern Europe. The company also controls the German transmission system operator 50Hertz Transmission, in which it holds a 60% stake. Belgium's recent investments in interconnection capacity with its neighbours make it one of the most open and interconnected countries in Europe.

I. Reinforcing the electrical interconnection between France and Belgium

On June 25, 2010, RTE and Elia have inaugurated the reinforcement of the electrical interconnection that connects Moulaine (Meurthe et Moselle) with Aubange (Belgian Ardennes) over 15 km.

The French and Belgian transmission system operators have installed, on an existing electrical line that is already equipped to receive two circuits (or three-phase circuits), a second, 225 000 volts, circuit. They will therefore increase the interconnection capacity between France and Belgium, thereby avoiding the construction of a new electrical line.

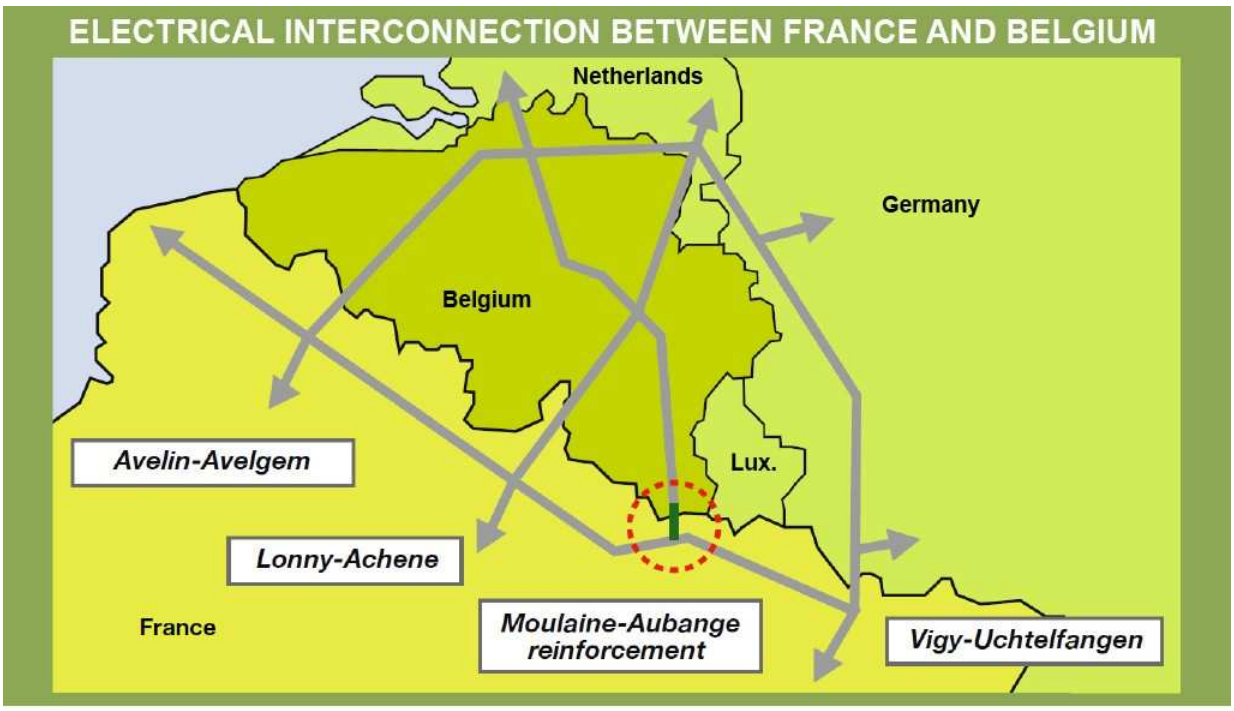
Reinforcing the electrical supply to this frontier region will secure the two networks by increasing, by around 10 to 15 %, the capacity for exchanges between France and Belgium.

A. An increase in electricity exchanges between France and Belgium

Reinforcing the existing Moulaine-Aubange line allows the exchange capacity between the two countries to be increased. This is why it forms part of the priority projects and has been recognised as being of European interest in the electricity sector[1] in 2002.

Increasing exchange capacities also allows the possibility of mutual assistance to be reinforced between the two countries if there is a major incident. It contributes to the development of the integrated European electricity market.

[1] Decision No 1364/2006/EC of the European Parliament and Council of September 6 2006 establishing orientations relating to trans-European energy networks and abrogating decision 96/391/EC and decision no 1229/2003/EC (JOUE of 22.9.2006)



Key : — *15 km electrical line, Moulaine-Aubange, double circuit, 225 000 volts.*

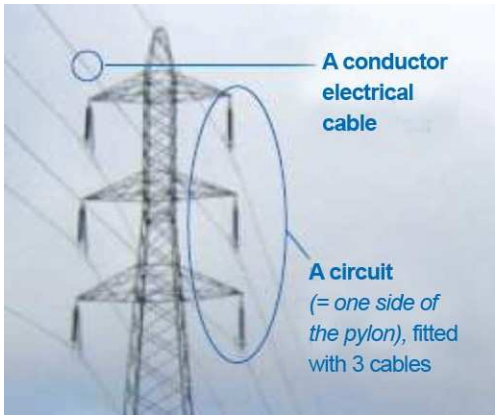
B. An electrical interconnection that can withstand storms better

In France, following the 1999 storm, RTE has committed to an ambitious programme of "mechanical securing" of the electricity transport network. Over a period of 15 years (2002 to 2017) and at a total cost of 2.4 billion Euros, this programme is designed to reinforce the structures so that it can re-establish the RTE network electrical supply within 5 days following a climate event with winds higher than those in 1999, and to maintain the electricity supply to all its electrical substations if winds are equivalent to those in 1999.

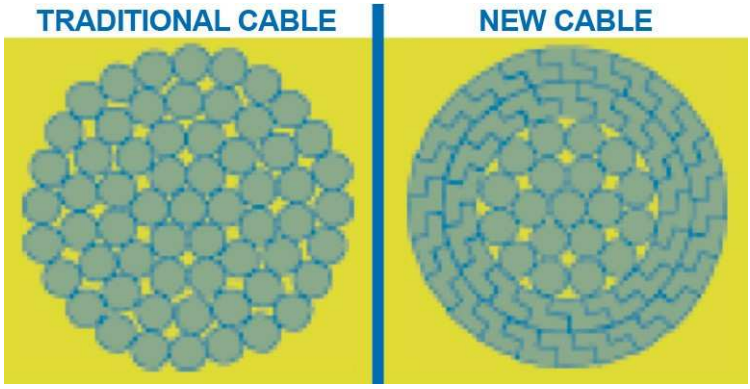
Within the context of this programme, the Moulaine-Aubange electrical interconnection has been secured by reinforcing foundations and replacing pylons.

C. A technological innovation: more effective cables

Constructed in 1971, a 15 km electrical line already linked the Moulaine and Aubange electricity substations. Since its creation, pylons have been set up to receive two 225 000 volt electrical circuits. On part of its route, this line included a second circuit of 63 000 volts, which supplied a large part of the Longwy basin, through the Mont-Saint-Martin substation. The project consisted of installing new 225 000 volt conductor cables, of recent technology, over the two circuits for the entire length of the line, with the Mont Saint Martin line now being supplied with 225 000 volts.



The electrical cables on both circuits use an innovative technology: they are cables that allow more power to be transited, without increasing their weight. Their geometry and the way their strands are arranged have been optimised. This new cable technology means that electricity transit can be increased by over 20%.



The new cables are identical in diameter, optimise strand geometry and reduce energy losses.
In fact, the electrical current is distributed ("skin effect") and mainly circulates on the periphery of the cables. The "AZALEA" structure of the new cables, with z-shaped strands on the periphery means that the effective surface can be increased and, therefore, the transit capacity.

Electrical equipment has been added to the Moulaine and Aubange substations to allow the new electrical circuit to be connected to these substations.

D. New and successful industrial cooperation between RTE and ELIA

2005 saw the start of the cooperation between RTE and Elia in terms of this project, which can be broken down into several phases. In 2005-2006, the two transmission system operators carried out a joint study to assess possible gains in terms of the France/Belgium exchange capacity, financed by the European Union with regard to the trans-European networks[2] , before deciding to implement the project. The work was then carried out, in 2009 and 2010.

On May 28 2010, RTE and ELIA successfully brought online the reinforced electrical interconnection between Moulaine and Aubange.

All the project phases have been completed in strict collaboration between the two transmission system operators.

There was also concertation throughout the project, in association with local players, which allowed the nature of the works to be explained and information to be provided on the challenges facing the relevant French and Belgian areas.

Key project figures

-**15 km of line carrying 225 000 volts over two circuits** between Moulaine and Aubange (with 13 km in France and 2 km in Belgium)

- overall project cost: **13.2 million Euros**, of which the French transmission system operator (RTE) paid 11 million Euros -most of the line is implanted on the French side- (6 million Euros for works relating to the electrical lines and 5 million Euros relating to work carried out on the Moulaine and Mont-Saint-Martin substation) and 2.2 million Euros by the Belgian transmission system operator (Elia) for the work carried out at the Aubange substation and electrical lines.

- commissioning date: **28 May 2010**

[2] "New France – Belgium interconnection: feasibility and environmental studies", Trans-European Networks – Energy ref. 2005-E205/05-TREN/05/TEN-E-S07.59129

II. More secure electrical supply to the Longwy basin and southern Belgian

The reinforcement and securing of the Moulaine-Aubange electrical line is also part of the modernisation project for the transmission grid from the Longwy basin (Meurthe et Moselle) to the frontiers with the Belgian Ardennes. This ambitious project means that the increased consumption of electricity in the Longwy region can be met and the security of electrical supply be improved.

In addition to the increased number of exchanges at the frontier between France and Belgium caused by the reinforcement and mechanical securing of the Moulaine-Aubange electrical line, RTE has also modernised its network in the Longwy basin (Meurthe et Moselle) to consolidate the regional electrical supply.

With this objective in mind, the movement to 225 000 volts for the second circuit of the Moulaine-Aubange electrical line has also allowed:

- the modernisation of the Mont-Saint-Martin electricity substation. Two transformers (63 000/20 000 volts) have been removed and replaced by a single 225 000/20 000 volts transformer.
- the operation of this substation's transformers to be guaranteed, even if one of its two supply sources has been lost.
- the modernisation of the Aubange substation (installation of a new switch bay, completion of works to enlarge the substation, setting-up of new digital telecommunication instruments).

These works will result in better electricity supply for the entire Longwy basin, for individuals and industrial companies (FVM Technologies and Lorraine Tubes) in this sector.

A bonus for the countryside: the removal of 15 km of lines

In addition, thanks to the transit capacity between Moulaine and Aubange, 15 km of other older electrical lines, particularly between Moulaine and Herserange, carrying 63 000 volts, have been dismantled.

RTE has, therefore, been able to remove from the landscape 15 km of high voltage lines.

The local environment has been taken into account when creating new network infrastructures and had the benefit of reducing the visual impact on the region's landscapes.

A year's work was required to reinforce the existing Moulaine-Aubange 225 000 volts line, dismantle 15 km of overhead lines (63 000 volts) and modernising the Mont-Saint-Martin substation.

2008	Concertation with State deputies and services
June 2009	Public Inquiry prior to works
August to December 2009	Initial phase of works: - creating access tracks - reinforcing existing pylons (foundations and structures) - raising three new pylons - stringing new, higher performance electrical cables in place of existing cables.
March to June 2010	Second works phase: - modernising the 225 000 volts/20 000 volts Mont-Saint-Martin substation - stringing the second circuit of 225 000 volt cables between Moulaine and Aubange via the Mont-Saint-Martin substation. The installed cables are also cables allowing increased transit performances. - dismantling 15 km of 63 000 volt lines in the Longwy basin.
28 May 2010	Commissioning of the Moulaine-Aubange electricity line

III. The interconnections, at the heart of the European electricity market

Within an interconnected European network, the development of electrical infrastructures at international level is designed to share generation units and take maximum benefit from environmental and economic complementarities between power plants (mainly hydraulic in Switzerland, nuclear in France and classic thermal in Germany, Belgium and Great Britain, etc...).

Europe has set itself ambitious targets in terms of energy based on three essential axes:

- reinforce **security of supply**
- ensuring the **competitiveness of the economies** in Europe and the availability of energy at an affordable price.
- finally, promoting the **integration of renewable energies** to achieve the targets of reducing greenhouse gas emissions set for 2020. Interconnections have a key role to play in this initiative, because they also allow generation, which by its nature is irregular, from very significant wind farms and solar panels to be optimised.

The interconnected network therefore allows consumers to access, at any time, the energy produced by a vast array of generation units, reinforcing the security of supply and allowing the most economic means of generation to be used or those that are better in terms of the environment.

Annex: Map

Moulaine – Aubange interconnection line and modernisation of the electricity transport network in the Longwy basin