



Development and investment plans centred on the future of the high-voltage grid

Elia draws up development and investment plans in order to anticipate changes on the energy market and foresee ensuing grid developments. The plans set four major objectives: security of supply, sustainable development, efficient operation of the market, and economic optimisation. Against this backdrop, using the probabilistic method means that the choice of investments can be fine-tuned and their total cost reduced. There are four plans in line with the division of powers regarding energy matters between the federal government (for 380 to 150 kV networks) and the regional governments (for networks of 70 kV and less) – a plan has to be submitted for each region.

I. Development and investment plans: principles

The reliability of the high-voltage grid of tomorrow very much depends on developments being planned today. Against this background, drawing up development and investment plans allows Elia and the authorities responsible to have an efficient tool for supporting decision-making when it comes to choosing and planning investments.

Therefore, as the electricity transmission system operator in Belgium, Elia draws up – at the request of the federal and regional authorities and in conjunction with the responsible governments – development and investment plans for the networks managed by the company. The plans aim to anticipate trends on the energy market over the next few years and to optimise the Elia grid as a whole.

Four major objectives

The development and investment plans with their four major objectives dovetail perfectly with the energy policies developed by the European Union and by the Belgian federal and regional authorities.

I.1. Security of supply

Security of supply is one of Elia's priorities. Thus the transmission of electricity is considered from a long-term perspective in the development and investment plans, i.e. they take account of the available production facilities and of consumption. Geographical location and prospects for development are also examined in great depth. Security of supply also makes it essential for the development and investment plans to look at the capacity necessary for interconnecting multiple production facilities (in various configurations).

I.2. Sustainable development

In its development and investment plans Elia makes a priority of sustainable solutions that have a minimal impact on the environment and spatial planning. Similarly, investment policy takes into account the advance of renewable energy sources and local production.

I.3. Efficient operation of the market

The way that Elia develops its grid must contribute to efficient operation of the market. Therefore Elia does everything it can to assure access to its grid for existing producers and consumers and for newcomers. In addition, Elia ensures that its grid slots efficiently into the European interconnected system so as to facilitate operation of the international market.

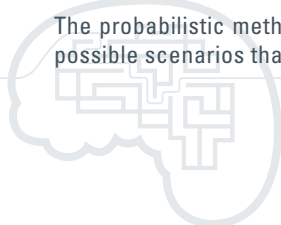
I.4. Economic optimisation

In the interests of the community, it is essential that the "economic efficiency" criterion is made a priority in grid investments. Therefore Elia – in consultation with the distribution system operators – checks how every investment is handled. Elia makes cutting the costs passed on to the end user a priority in this process.

Again for reasons of economic efficiency, Elia uses the latest developments in information technology to draw up its development and investment plans. This increases the economic efficiency of investments, thanks to probabilistic methods that fine-tune the traditional deterministic approach.

The probabilistic method: overall economic optimisation guaranteed

The probabilistic method enables Elia to fine-tune its assessment with a view to choosing future investments: it aims to identify possible scenarios that will involve peaks of intensity, estimate their probability (or frequency) and foresee the measures to



take (including resizing of the grid) so as to deal with these situations. The probabilistic method, then, is a refinement of the deterministic method, which provides for grid resizing in order to react to peaks of intensity in the high-voltage grid, but does not take account of other scenarios. On the contrary, the probabilistic method makes a projection of actual scenarios. These take account of the frequency of peaks and assess the impact of all the existing measures for dealing with them. By carrying out such an analysis, Elia can choose the most economically efficient of the possible measures. For example, one possibility is for the Elia control centre to handle peaks instead of more expensive resizing investments.

Appropriate resizing of the grid

Economic optimisation and using the probabilistic method provide Elia with extra precision in its grid resizing work – a precision that is essential to the development of the Elia grid: oversizing entails higher costs, and so more expensive tariffs for the end user, whilst undersizing has a negative impact on the reliability of the grid.

II. The four development and investment plans in depth

Elia draws up both federal and regional plans (in line with the division of powers in Belgium). The federal and regional governments are each responsible for different voltage levels.

I.1. Federal development plan

Elia draws up a "Development Plan" for networks with voltage levels of 380 to 150 kV across the whole of the Belgian grid. The plan looks at investments for the ten years to come. It is updated every three years, matching the frequency of the prospective study (concerning production facilities) drawn up by Federal Public Service Energy.

There are two main strands to the Development Plan:

- a detailed estimate of transmission capacity requirements;
- the investment programme that Elia will carry out in order to meet transmission capacity requirements.

The plan also examines other issues, in particular the following matters:

- assessment of the grid's reserve capacity which Elia needs in order to manage its grid;
- common-interest projects concerning trans-European systems – projects that have been selected by the European Union.

The plan is drawn up with the Federal Public Service Energy and the Federal Planning Bureau. It must be approved by the Minister for Energy and it must have been submitted to the federal regulator, CREG, for an opinion.

I.2. Three regions, three investment plans

Elia also draws up specific plans for the parts of its grid with voltage levels of 70 to 30 kV. For each region, a specific plan is put together that covers the whole of that region:

- a seven-year "Investment Plan" for Brussels-Capital Region;
- a three-year "Investment Plan" for the Flemish Region;
- a ten-year "Adjustment Plan" for the Walloon Region.

The broad outline of the three plans listed above is the same as the federal "Development Plan". They feature an estimate of transmission capacity requirements and an investment programme that the system operators have to carry out. They are drawn up with the regional regulators (Brugel for Brussels-Capital Region, VREG for the Flemish Region and CWaPE for the Walloon Region) and have to be approved by the responsible regional authorities.

I.3. Set time-frame

All the development and investment plans are drawn up in a set time-frame, as shown in the summary table below.

	Development Plan	Investment Plan	Adjustment Plan	Investment Plan
Regulator	CREG	Brugel	CWaPE	VREG
Area of responsibility	Federal	Brussels-Capital Region	Walloon Region	Flemish Region
Voltage level	380-150 kV	36 kV	70 - 30 kV	70 - 30 kV
Period covered by the plan	10 years	7 years	10 years	3 years
Frequency	3 years	1 years	3 years (+ information provided annually to CWaPE)	1 years
Approval	Approved by the Minister for Energy	Approved by the government of Brussels-Capital Region	Walloon government	No formal approval

The four plans take stock of the progress of the investment programmes presented in previous years.

III. Benefits of development and investment plans

The development and investment plans that Elia draws up are a real asset for the whole energy market and all the market players:

- they provide comprehensive and transparent information on grid development prospects;
- the philosophy and the content of the plans provide guarantees as to the robustness and reliability of the grid, as well as support for development of the market and also economic optimisation;
- when planning grid development, Elia takes account of the market and consults with the other system operators;
- Elia takes into account sustainable development obligations when developing its grid while minimising the cost for the end user.

IV. Legal and contractual basis

The legal basis for the federal "Development Plan" is the Law of 29 April 1999 concerning organisation of the electricity market, as amended by the Law of 19 May 2005.

The Walloon Region's "Adjustment Plan" is based on the Decree of 12 April 2001 concerning organisation of the regional electricity market and the Walloon Government Decree of 24 May 2007 concerning the grid code for operation of and access to the local electricity transmission grid in the Walloon Region.

Brussels-Capital Region's "Investment Plan" is based on the Ordinance of 19 July 2001 concerning organisation of the electricity market in Brussels-Capital Region, amended by the Ordinances of 1 April 2004 and 14 December 2006.

The Flemish Region's "Investment Plan" takes as its basis the Decree of 17 July 2000 concerning organisation of the electricity market, complemented by the Flemish Government Decree of 15 June 2001 concerning electricity distribution system operators.

Development and investment plans in 5 key points

- Elia draws up development and investment plans that serve as a tool to support decision-making and that will boost the reliability of the high-voltage grid of tomorrow.
- The plans set four objectives: reliability of the grid, sustainable development, economic optimisation and efficient operation of the market.
- The plans look in particular at transmission capacity requirements and investments needed to meet these requirements.
- Using the probabilistic method, Elia can fine-tune development and investment decisions as well as define the right grid size – all against the backdrop of market liberalisation.
- Elia draws up four plans. Each of them is implemented at the request of a government authority: the federal government or the government of Brussels-Capital Region, the Flemish Region or the Walloon Region.

