Time to accelerate

Activity Report 2018

elia group

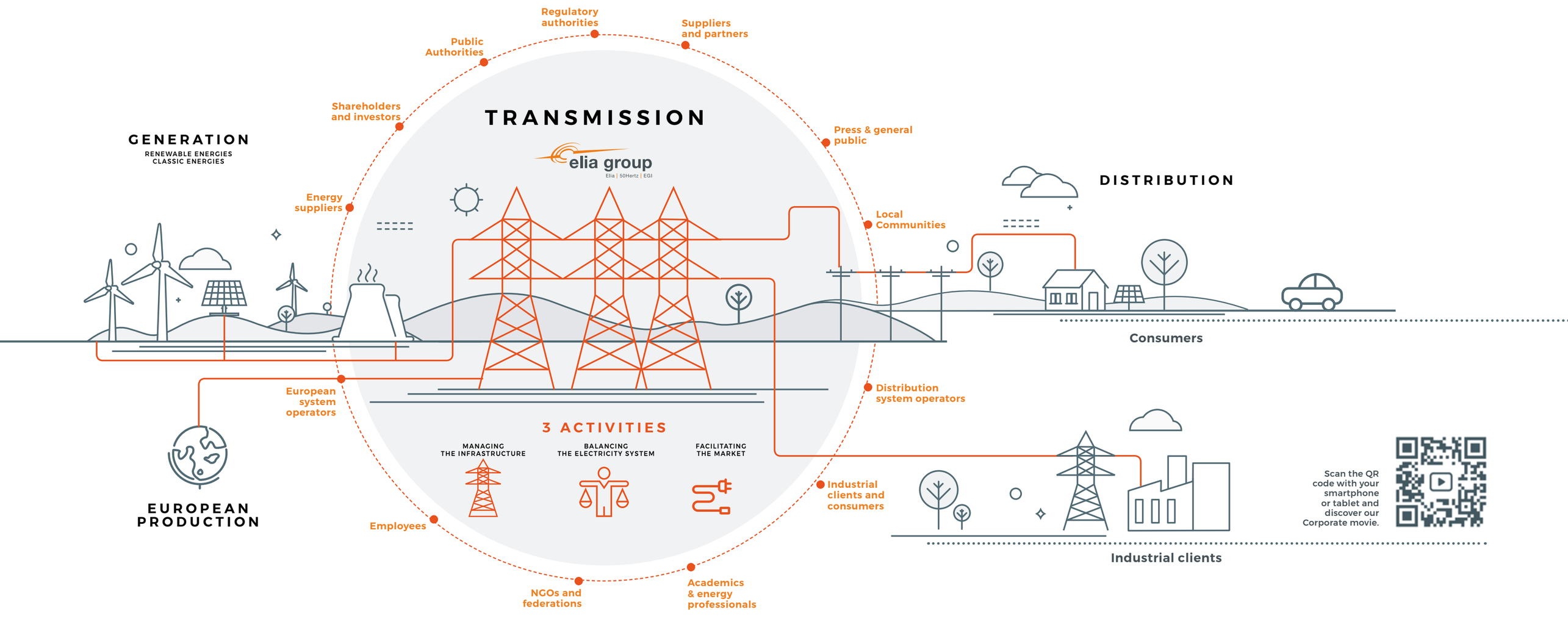
Elia | 50Hertz | EGI

For a successful energy transition ...

... in the interest of society

We connect generation and distribution

GRI 102-40
GRI 102-9



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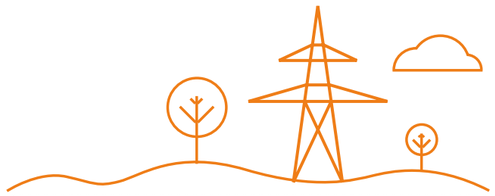
Contents

Interview with Chris Peeters and Bernard Gustin*	2
Elia Group*	6
Shareholder structure	8
Corporate bodies	10
Group priorities*	12
Sustainable actions in the interest of society*	16
Key figures 2018	18
Elia Group in 2018	20
Elia Grid International in 2018	24
1. We ensure a secure, reliable and efficient grid*	26
2. We deliver the transmission infrastructure of the future*	40
3. We develop the electricity system and the markets*	54
4. We cooperate to create value for society*	70
5. We align culture with strategy*	84
6. We have our eyes wide open for innovation & growth opportunities*	98
Elia share	110
Management discussion*	113



Regulated information, published on 12 April 2019 after trading hours.

* These chapters form the annual report cf. article 119 of the Belgian company code.

Elia Group's Annual Report 2018 consists of three parts: the Activity Report, the Sustainability Report and the Financial Report where we inform our stakeholders about our projects, corporate social responsibility, and financial results, corporate governance and risk management, respectively.

You are currently reading the Activity Report. Please visit our download centre to consult parts two and three.

Scan the QR code to visit our download centre.

It's time to accelerate ...

... to develop the grid of the future that integrates increasing amounts of renewable energy generation.

... to prepare the system of the future while keeping the lights on and ensure our infrastructure is fully available to the market.

... to create a culture of innovation and entrepreneurship, and redesign the market by embedding all kinds of technologies and market players and integrating new types of consumption in a secure way.

... to contribute to the single European internal energy market by operating and developing interconnectors.

... to implement a corporate Group culture that leverages the full potential of our talents to establish a high performance organisation.

... to live up to the needs of society and the expectations of our stakeholders.

... to make sure we are ready to take on new tasks.

GRI Standards

This report has been prepared in accordance with the GRI Standards, the first global standards for sustainability reporting. Whenever you see a GRI reference number throughout the Activity Report, Elia Group is reporting on economic, environmental or social impacts. More information on the subject can be found in the corresponding section of the Sustainability Report on page 16.

The QR codes in this report provide more in-depth information on a subject by way of a video, brochure or web page. Simply scan the QR codes with your tablet or smartphone and discover more.

Time to accelerate

Interview with Chris Peeters and Bernard Gustin, the CEO and the Chairman of Elia Group

GRI 102-14
GRI 102-15

2018 saw Elia Group shift up a gear in a number of areas. Now that Elia has acquired an additional 20 percent stake in 50Hertz and a new local investment partner has come on board, the partnership between Elia in Belgium and 50Hertz in Germany is stronger than ever. Together, the two companies aim to become one of Europe's leading groups of transmission system operators. The context in which they operate is changing rapidly and becoming increasingly supranational due to the energy transition, the emergence of new market players, innovative technologies and the rise in digitalisation. The only option is to move forward – and quickly, rather than slowly.

Why is Elia Group in such a rush to change?

Chris Peeters: It is what society expects of us. The UN climate change conference in Poland once again highlighted the urgent need for action. The way things are going now, we are heading for a temperature increase of 3.2 degrees Celsius. That is completely unacceptable. Progressive countries are trying to speed up the energy transition: for instance, Germany has decided to increase its share of renewable energy to 65 percent by 2030.

Bernard Gustin: Our activities are central to the issues that most concern young people today: the climate and the rise in digitalisation. Our grid has equipped us with the resources we need to respond to this. We are making the energy transition possible and ensuring that it is progressing at the right pace. We want to move forward with digitalisation too. The technology is available. As a leading energy company, we have to live up to our responsibility, along with the distribution system operators and the rest of the sector. This is a key shift in our role. Ten years ago, we, as a system operator, were just another boring, regulated transmission monopoly.

Chris Peeters: We are also seeing a trend towards convergence. Technologies and market parties are moving ever closer to one another: heating and mobility are going electric, and a third horizon is opening up through Power-To-X. The pieces are all in place for major changes to be made very quickly. Of course, this means that Elia Group will have to adapt too – both locally and at European level, since the integrated, low-carbon economy will be a European economy.

Bernard Gustin: That is why it is still extremely relevant for the Group to operate in two countries through Elia and 50Hertz. Our shareholding structure may be Belgian, but if you look at our figures and our activities, you will see that we are just as German as Belgian. And although we are not the biggest player in the market, our unique position has made us a European leader in our industry. We intend to fully live up to our responsibility and will seek further opportunities to become an even stronger European player.

"Operating in Belgium and Germany – two countries that currently have different approaches to the energy transition – gives us real added value, which is directly relevant to present developments in Europe."

**Chris Peeters –
Elia Group CEO**

Was that also the Group's reason for increasing its stake in 50Hertz?

Chris Peeters: Definitely. It is time for us, too, to accelerate. We want to bolster our profile as a European Group that actively assists local and European policymakers in devising the energy system of the future. Our vision paper on digitalisation and the consumer-centric energy system is a good example of what we can do. We have put forward concrete proposals to advance the goals set by the European Commission's Clean Energy Package. Operating in two countries that currently have different approaches to the energy transition gives us real added value, which is directly relevant to present developments in Europe. The acquisition was a good move in financial terms too. The market reacted favourably to news of the additional stake:

"Ten years ago, we, as a system operator, were just another boring, regulated transmission monopoly. Today, we are central to the issues that are most important to society: the climate and the rise in digitalisation."

**Bernard Gustin –
Elia Group Chairman**

65%

SHARE OF RENEWABLE ENERGY IN GERMANY BY 2030

our share price is rising, going against the prevalent downward trend. The acquisition will have a major impact on our internal structure too. 2019 will see us expand some group functions to cover areas including IT, purchasing, innovation, finance and communication. We want to move towards a structure that allows our talent to make an active contribution to our international activities, which will give us an edge in the 'war for talent'.

Bernard Gustin: Our additional stake in 50Hertz is so much more than an extra 20 percent in a company in which we already held a 60 percent stake. The acquisition has given us a far more solid base in one of Europe's key countries. We are one of the few system operators to operate in two countries and have experience with international expansion. This puts us in a good position to grow further and exploit new developments. For instance, we will be looking to make digitalisation a more prominent part of our profile in 2019. Our size enables us to set up a dedicated team and devise a range of concepts.

The additional stake in 50Hertz is not the only thing that has changed. The Group's investment partner is different too. IFM Investors from Australia has been replaced by KfW Bankengruppe (KfW) from Germany. Why is it so important for the Group to have local roots?

Chris Peeters: Local roots are essential for us because our activities are intrinsically linked to the local context. To be successful, it is vital to understand the local market and have your finger on the local pulse. Our new German partner has an excellent insight into the local context. KfW is a German investment bank and is thus closely connected and highly sensitive to local political developments. This is important because it allows us to better judge the pace at which we should carry out developments and makes it easier for us to seize future opportunities. Ultimately, we need to ensure that our achievements also benefit the local community. For our German partner, this is a strong incentive to work with us to make our partnership a success.

Bernard Gustin: It is extremely challenging for a multinational group to strike the right balance between integration and having local roots. While integration is essential for boosting our performance on the integrated European market, we also want to respect local identity. That is why it is very positive to have a strong local partner. For me, the changes in the Group's shareholding structure are one of the highlights of 2018. The changes took place in two stages, each lasting six weeks. Our teams were under tremendous pressure but they pulled everything off in the end, which is a testament to their dedication.

"Local roots are essential for us because our activities are intrinsically linked to the local context. To be successful, it is vital to understand the local market and have your finger on the local pulse."

Chris Peeters –
Elia Group CEO

"Our shareholding structure may be Belgian, but if you look at our figures and our activities, you will see that we are just as German as Belgian. And although we are not the biggest player in the market, our unique position has made us a European leader in our industry."

Bernard Gustin –
Elia Group Chairman

How can Elia and 50Hertz strengthen one another?

Chris Peeters: We are moving towards the future together. And the future appears, in part, to lie in offshore energy. Offshore energy is set to grow exponentially in the seas in which we operate. As we integrate new technologies and innovations, we will need new skillsets, so stepping up our offshore activities is a major concern for us. Not only will it change how we manage our technical infrastructure, it will also create a new dynamic in system management. I am thinking of 50Hertz's Combined Grid Solution project, the world's first interconnector connecting two wind farms between two countries. The amount of available interconnection capacity will increase and decrease depending on the wind. How can you bring that capacity to market while also ensuring that the market can take maximum advantage of something that will, by its very nature, be highly variable? It is an extremely complex issue, but we are very excited to be working on it.

Bernard Gustin: I was very impressed by the positive response of the international press to the launch of the Nemo Link project to build a subsea interconnector between Belgium and Great Britain. The specific skillsets of the Group's two companies complement one another perfectly here: offshore (50Hertz) and interconnections (Elia). Nemo Link is an entirely new activity that will be added to our profile in 2019 and is sure to have an impact on our figures. At the end of the day, that really matters for a privately-held company.

Elia Group wants to be a leading European energy company. But what does that mean to you?

Bernard Gustin: To me, it means building on our diverse activities to become one of the biggest system operators in quantitative terms, but also thinking about the future. We are a regulated monopoly and thus have a societal role that sets us apart from other, entirely privatised operators.

Chris Peeters: With that in mind, we are working with innovative technologies and exploring new ways of thinking about the energy system of the future. To me, being a leader means setting the tone in the move towards a low-carbon society and contributing to a social debate that reaches beyond our company. In 2019, we will work with the sector to launch several pilot projects on digitalisation in which the user will have a greater role. But we need to think in supranational terms too, and reflect on how we can use our infrastructure more efficiently at European level. Consumers expect it of us, and Elia Group wants to play a pioneering role in this regard.

Bernard Gustin: We are also planning some fairly substantial investments. In Belgium, we want to enhance our role as a European energy hub by further developing offshore activities, building additional interconnectors and upgrading the domestic grid. Our projects in Germany include the construction of the SuedOstLink, which will carry the growing volumes of renewable power generated in northern Germany to consumption centres in the south of the country, and the further expansion of offshore activities, like the development of the Westlich Adlergrund 2 cluster. We also aim to excel in safety by taking both our own standards and those of our suppliers to an even higher level.

Finally, who would you like to thank in 2018?

Chris Peeters: I would like to thank our employees and our grid users in Belgium and Germany. A special mention also goes to the Board of Directors, which helped the Group to move towards a more growth-oriented approach with the deals it concluded over the past year, aided by highly professional, constructive collaboration on the part of the German authorities and our new partner. We look forward to a year of fruitful cooperation with KfW, our regulators and the various local, federal and European authorities in 2019.

Bernard Gustin: As well as my fellow directors, I want to thank Elia Group's management and staff. 2018 was a very busy year, with many events and developments to be handled on top of all our usual work. There is always some degree of apprehension about any change. While our people were sometimes tested by the events of the past year, their dedication gives us the confidence to continue with our transformation into an international group. This is a vital step for our Group.

Elia Group

Who?

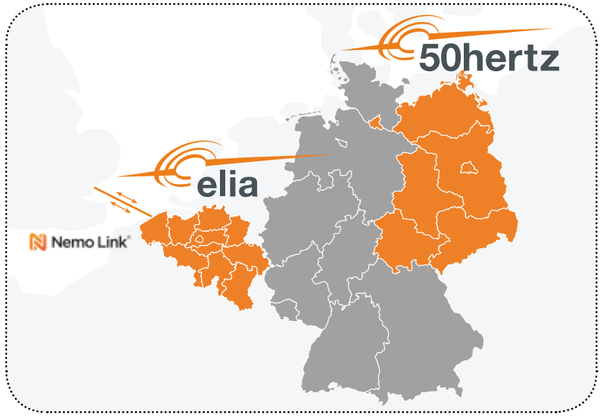
One of Europe's top 5 TSOs

GRI 102-1

Elia Group is active in electricity transmission. With its two TSOs - Elia in Belgium and 50Hertz in Germany - we operate 18,990 km of high-voltage connections that secure the power supply of 30 million end users. With a reliability level of 99.999 percent, we provide society with a robust electricity grid.

Elia operates an electricity transmission system with voltage levels between 30 and 400 kilovolt (kV), and 50Hertz transports electricity over high-voltage levels of 150, 220 and 380 kilovolts (kV).

We lead the way in a successful energy transition ensuring a reliable, sustainable and affordable energy system for the future.



How?

Through cooperation and innovation

We operate and develop our grid infrastructure in close collaboration with all stakeholders. We are highly focused on safety and our goal is zero accidents. We are committed to innovation and continuously improve our operational systems. In Germany, we are already integrating over 56.5 percent renewable energy safely into the grid. This is how we make the energy transition happen.

What?

Our core tasks GRI 102-2

Grid ownership – We prepare to deliver the infrastructure of the future

We develop, build and maintain our transmission grid according to long term needs. We heavily invest in the integration of renewable energy, the development of an offshore high-voltage grid and the construction of interconnectors to facilitate the integration of the European energy market. By doing so, Elia Group drives the transition to tomorrow's energy system.

System control – we maintain the balance

Operating the electricity system is an increasingly complex task due to the sharp rise in renewable generation sources, the continuous arrival of new players and technologies and the development of supranational coordination. To ensure a reliable supply and efficient operational management of our grids, Elia Group monitors the electricity system in real time. This requires specialist knowledge as well as sophisticated tools and processes.

Market facilitation – We are part of the European integrated market

Elia Group makes its infrastructure available to all market players in a transparent, non-discriminatory way. Digitalisation and the latest technologies offer market players new opportunities to optimise their electricity management by selling their surplus energy or temporarily reducing consumption. We develop services and mechanisms allowing the market to trade on different platforms, which promotes economic competitiveness and the well-being of society.

Trusteeship* – We transparently integrate renewable energies into the market

The German legislator has transferred the responsibility for coordinating and processing legal levy systems to promote environmentally friendly technologies to the transmission system operators. 50Hertz collects these levies as a trustee, administrates these and coordinates their distribution to the recipients. If the electricity from renewables is not marketed directly, we sell this electricity on the power exchange.

* Only for 50Hertz

Why?

In the interest of society

The electricity grid is a key pillar of the energy policy that supports our socio-economic prosperity. Elia Group aspires to be a catalyst for a successful energy transition and consequently, a reliable, sustainable and affordable energy system. By building interconnectors and integrating renewable energy generation, Elia Group promotes both the integration of the European energy market and the decarbonisation of our society.

Shareholder structure

GRI 102-5
GRI 102-45

Elia Group is commonly known as the umbrella brand of the Belgian and German transmission system operators Elia System Operator sa/nv ('Elia') and 50Hertz Transmission GmbH ('50Hertz'). Elia Group operates under the legal entity and listed company Elia. Its main shareholder is the municipal holding Publi-T. Elia holds the 80 percent majority in Eurogrid International SCRL/CVBA ('Eurogrid'), which holds, through its 100 percent subsidiary Eurogrid GmbH, 100 percent of the shares in 50Hertz. The remaining 20 percent in Eurogrid is held by Kreditanstalt für Wiederaufbau (KfW).

In addition to our activities as transmission system operator in Belgium and in north and east Germany, Elia also participates in the Nemo Link joint venture that operates the first subsea interconnector between Belgium and the United Kingdom (collaboration with the British system operator National Grid). Elia and 50Hertz also provides various consulting services to international customers through their joint subsidiary Elia Grid International sa/nv (EGI).

"As a leading company in the energy sector, 50Hertz is very closely connected to the German society that it serves. Elia as main shareholder, looks forward to collaborating with KfW as our new partner and feels confident that this stronger national anchorage will inspire us to continue building the infrastructure to realise the energy transition in Germany."

Catherine Vandenborre – Chief Financial Officer at Elia

CHANGE IN SHAREHOLDING IN 2018

GRI 102-10

From 60 to 80 percent

On 26 April 2018, Elia System Operator SA/NV ('Elia') completed the acquisition of an additional 20 percent stake in Eurogrid International SCRL ('Eurogrid'). Following this transaction, Elia owns 80 percent of Eurogrid and fully controls 50Hertz.

The additional acquisition allows further strengthening of the cooperation between Elia and 50Hertz and is a major step forward in realising Elia Group's growth strategy to be one of the leading transmission system operators in Europe.

Elia decided to exercise its pre-emption right after IFM Global Infrastructure Fund (IFM) stated that it intended to sell half of its 40 percent shareholding in Eurogrid in February 2018.

Elia welcomes German Bank KfW as new partner

In August 2018, Elia announced the closing of the transactions with IFM and the German state-owned bank Kreditanstalt für Wiederaufbau (KfW). As a result, KfW, on behalf of the German Federal Government, replaces IFM as shareholder in Eurogrid.

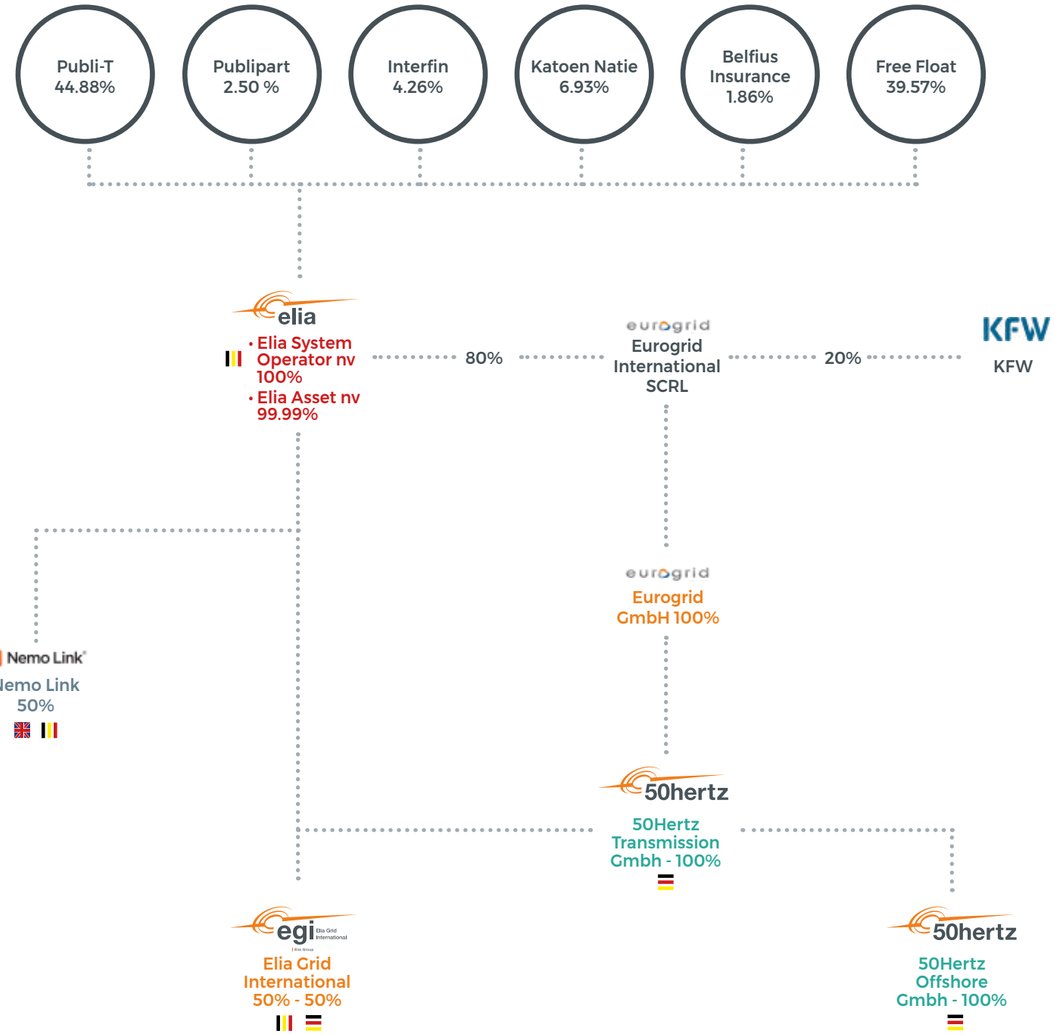
The additional change in share ownership followed a second notification received in May 2018 from IFM of an agreement with a third party for the acquisition of IFM's remaining 20 percent stake in Eurogrid. After obtaining an 80 percent stake in Eurogrid, Elia achieved its objective and decided to exercise its pre-emption right and to partner with KfW by selling the remaining 20 percent stake at the same price.

Successful refinancing of bridge loan

In August 2018, Elia successfully launched a EUR 300 million 10-year senior bond and EUR 700 million perpetual hybrid to refinance a bridge loan for the acquisition of an additional 20 percent stake in Eurogrid. Investors showed great interest, with book building completed in just a few hours due to high demand and the bonds were significantly oversubscribed.

The EUR 300 million senior bond matures in 2028 and has an annual coupon of 1.50 percent. The EUR 700 million hybrid bond has a first call date in December 2023 and a coupon of 2.75 percent, with a reset every five years thereafter.

More information on the Elia share in 2018 → see page 110



Corporate bodies

GRI 102-18

More information on our corporate governance and specific obligations in terms of transparency, neutrality and non-discrimination towards all stakeholders involved in our activities, can be found in part 2 of the Annual Report 2018: Corporate Governance & Consolidated Financial Statements.

ELIA

Executive Committee

Chris Peeters

Chris Peeters
Chief Executive Officer and Chairman

Catherine Vandenborre

Catherine Vandenborre
Chief Financial Officer

Markus Berger

Markus Berger
Chief Infrastructure Officer

Patrick De Leener

Patrick De Leener
Chief Customers, Market & System Officer

Frédéric Dunon

Frédéric Dunon
Chief Assets Officer

Pascale Fonck

Pascale Fonck
Chief External Relations Officer

Peter Michiels

Peter Michiels
Chief Human Resources and Internal Communication Officer

Ilse Tant

Ilse Tant
Chief Community Relations' Officer

Board of Directors

GRI 102-18
GRI 102-22
GRI 102-23

Bernard Gustin

Claude Grégoire

Geert Versnick

Michel Allé

Luc De Temmerman

Frank Donck

Cécile Flandre

Philip Heylen

Luc Hujoel

Roberte Kesteman

Jane Murphy

Dominique Offergeld

Rudy Provoost

Saskia Van Uffelen

50Hertz

Executive Committee

Boris Schucht

Boris Schucht
Chief Executive Officer*

Dr. Frank Golletz

Dr. Frank Golletz
Chief Technical Officer**

Marco Nix

Marco Nix
Chief Financial Officer

Dr. Dirk Biermann

Dr. Dirk Biermann
Chief Markets and System Operation Officer

Dr. Katharina Herrmann

Dr. Katharina Herrmann
Chief Human Resources Officer (until October 2018)***

* Boris Schucht left the company on 28 February 2019
** Dr. Frank Golletz is acting CEO from 1 March 2019 onwards
***Sylvia Borcherding succeeded Katharina Hermann from January 2019 onwards

Supervisory Board

Chris Peeters

Peter Hausmann*

Markus Berger

Dr. Lutz-Christian Funke

Andrea Ludwig*

Dr. Lutz Pscherer*

50Hertz is controlled and monitored by Eurogrid and a co-determined Supervisory Board. The Supervisory Board of 50Hertz Transmission GmbH consists of six members:

Chris Peeters
Chief Executive Officer, Elia System Operator SA-NV, Chairman

Peter Hausmann*
Member of the Executive Main Board, Union for the Mining, Chemical and Energy Industries, Deputy Chairman

Markus Berger
Chief Infrastructure Officer, Elia System Operator SA-NV

Dr. Lutz-Christian Funke
Executive Director KfW

Andrea Ludwig*
Electrical engineer

Dr. Lutz Pscherer*
Electrical engineer

* Workers' representatives

Group priorities

For a successful energy transition in a sustainable world

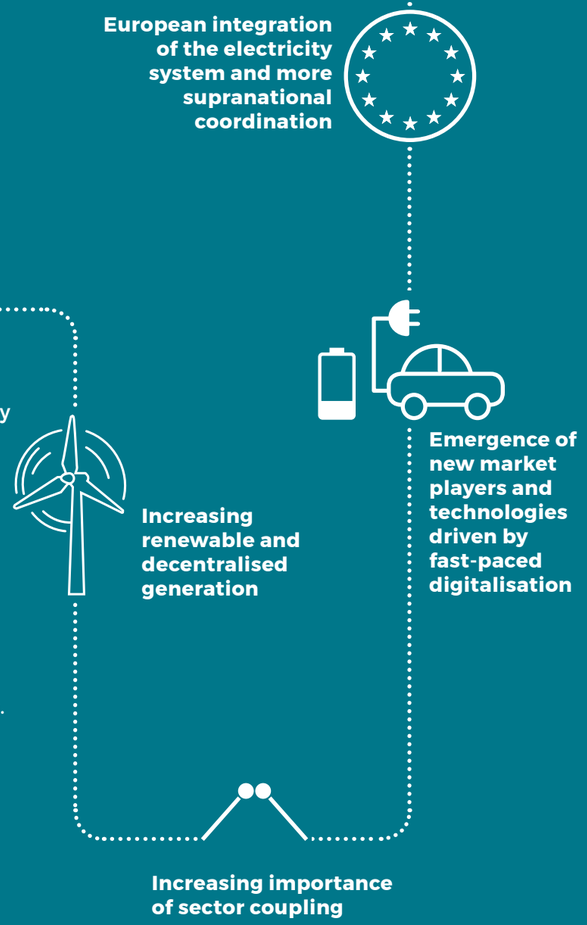
GRI 102-15

AN EVOLVING ELECTRICITY SYSTEM

As transmission system operators, Elia and 50Hertz lead the way in the energy transition. Our grids have a crucial role to play in the decarbonisation of the energy sector and society in general.

Besides the rise of renewable generation, the energy transition is also bringing other changes: increasing decentralised generation, more supranational coordination and the emergence of innovations like Internet of Things (IOT), Artificial Intelligence (AI) and Blockchain that are contributing to the fast-paced digitalisation of our society. As a result, new market players and new technologies appear such as electric cars, battery storage, Power-To-X technologies and so on.

In a future, decarbonised and progressively digital world, managing the power system becomes increasingly complex. Not only will electricity generation become ever more weather-dependent, it will also be produced by millions of assets connected everywhere in the European grid. Both transmission and distribution system operators will need more flexibility to keep the system in balance and to manage congestions and voltage issues.



SAFETY

We go for Zero accidents

The safety of everyone, everywhere, is always our number one priority. We continuously invest in safety and work in a responsible and safe manner. Our goal is zero accidents. Every employee and contractor knows the principles of our safety programme. We ensure that Elia Group's safety instructions are properly applied in order to prevent incidents.

INNOVATION

To accelerate the energy transition

We integrate innovative technologies and keep up with the latest developments in the energy sector. Through a range of initiatives, we encourage our employees to be at the forefront of the energy transition, not only with ideas, but also with practical applications for system operation, asset management and market development. In doing so, we draw on our own expertise but are also keen to learn about and develop ideas from outside the Group through collaboration and open innovation.

IN THE INTEREST OF SOCIETY

For a reliable, sustainable and affordable energy system

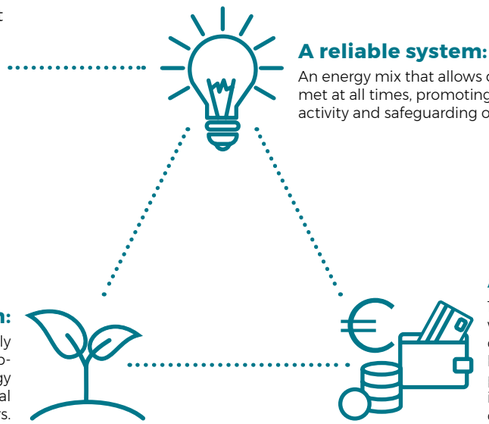
Security of supply is a condition for a prosperous society. We are aiming for a reliable, sustainable and affordable energy system. Developing our grid infrastructure is critically important to this goal. We realise the grid of the future through proactive dialogue with a variety of stakeholders, based on mutual respect and empathy to come to the best societal and environmental solutions.

We also believe that our technical knowledge and analyses support policymaking and contribute to the public debate on the future of the energy system. A system operator that always puts society first is key to successfully implementing the energy transition.

What is the Energy Triangle (Trias Energetica)?

GRI 201-2

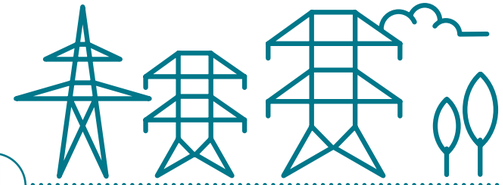
The idea of the 'Energy Triangle' is used to describe the triple challenge of balancing energy security, socio-economical impact and environmental sensitivity. The way towards a carbon free society requires long-term and significant investments at a time when meeting the challenges of energy poverty and competitive energy costs are more relevant than ever.



Our strategy

Elia Group is a frontrunner in the transition of the energy sector. To achieve this goal we have a strategy that accommodates the profound and rapid changes in the energy sector. At the same time, our strategy is robust and reflects our essence, so that we continue to create value for society in the future.

Given the capital-intensive nature of our business and the necessary management attention in a transforming business, we focus on six building blocks:



1

We ensure a secure, reliable and efficient grid

We are preparing the system of the future, integrating high levels of renewable energy and new types of consumption in a secure way, while keeping the lights on and giving the market maximum use of our infrastructure.

2

We deliver the transmission infrastructure of the future

We develop the grid of the future that integrates increasing amounts of onshore and offshore renewable energy generation into the integrated European grid.

3

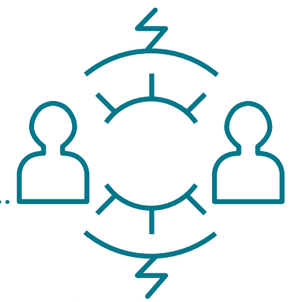
We develop the electricity system and the market

We are redesigning the market to encompass all kinds of technologies and market players, independently from the grid they are connected to, so they can fully exploit the economic benefits. We are committed to fostering a single European internal energy market.

6

We have our eyes wide open for innovation

We create a culture of innovation and entrepreneurship to accelerate the energy transition. We build an ecosystem to develop the tools and methods that will enable a more digital, decentralised and sustainable energy system.



5

We align culture with strategy

We want to implement a corporate group culture that puts safety and sustainability at the centre of our activities and leverages the full potential of our talents to establish a high performance organisation.

4

We cooperate to create value for society

We continue to conduct a proactive and open dialogue to stimulate participation from our various stakeholders. We are a transparent and trusted advisor for decision makers to create value for society.

Sustainable actions in the interest of society

Responsible and sustainable operations are part of the core business of a transmission system operator. Elia Group considers itself as a responsible service provider to society. In addition to social and ecological demands, a sustainable economic basis is needed for the successful energy transition. For this reason, Elia Group has firmly integrated sustainability into its corporate strategy.

In the past, Elia and 50Hertz reported on their strategy, management approaches and measures in separate sustainability reports. For the first time, this report brings the various joint indicators together. The Global Reporting Initiative (GRI) provides the framework and both companies report in accordance with the GRI Core standard. Efforts to deliver a joint sustainability report in the future will continue. This goes hand in hand with a continuous improvement in sustainability performance.

In a comprehensive approach, the respective stakeholder groups, their concerns and important topics were identified in a so-called materiality matrix. The complete analysis of the economic, ecological and social impact of Elia Group's activities is detailed in the Sustainability Report 2018. Below we identified the most material topics.

ELIA GROUP'S MOST MATERIAL TOPICS

GRI 102-44
GRI 102-47

Availability, reliability and future of the power system

This concerns providing information on Elia Group's plans and processes to ensure reliability, delivering sufficient capacity to the market and to facilitate the future power system to transport electricity to customers.

Accident & incident management

This topic concerns managing accident and incident risks for Elia Group's own employees, as well as its subcontractors. This is translated into robust safety programmes aiming for zero accidents.

Systematic risk management

This topic concerns the management of risks such as damage to the grid due to bad weather, catastrophes, etc. to ensure power transmission can be guaranteed. This requires contingency planning measures, disaster/emergency management plans, training programmes and recovery plans.

Employee health, safety and well-being at work

This topic relates to the physical, mental and social wellbeing of workers and the prevention of working conditions causing an impact on health. It also relates to the adaptation of the occupational environment to the physiological and psychological needs of our employees.

"As a strong TSO group, Elia and 50Hertz play a leading role in the energy transition. This first joint report emphasises the importance of sustainability in both our core business processes, operations and corporate strategies."

Chris Peeters –
Elia Group CEO

GRI 102-14

Sustainable Development Goals

Elia Group has also extended its perspective to sustainability. In order to facilitate global sustainable development that works at economic, ecological and social levels, the United Nations has defined 17 concrete goals that apply to all countries worldwide. In order to successfully implement these Sustainable Development Goals (SDG), everyone is called upon. Elia Group wants to contribute to the achievement of the SDGs. In a first internal step, the most appropriate SDGs were identified and clustered in 3 priority levels:

The reporting on the SDGs will successively be expanded and the activities of Elia Group will be linked to these global sustainability goals. During 2019, Elia Group will discuss the goals and their targets with its stakeholders.

TOP PRIORITY

HIGH PRIORITY

MEDIUM PRIORITY

Overview of Elia Group's engagement with stakeholders

GRI 102-42
GRI 102-43

Elia Group has many stakeholder initiatives. The method and frequency of engagement per stakeholder group and the link to the material topics have been summarised in the table on the right*.

Stakeholder group	Mode of engagement	Frequency	Main topics / expectations
Employees	– Performance management – Intranet – Donations	– Regular	– Employees - Human development – Employees - Wellbeing – Community involvement
Customers	– Customer satisfaction survey – Users' Group / Working Groups – Elia extranet	– Annual – 4 to 6 times a year	– Transmission services – Environment – Fair operating practices
Society	– Social events – Engagement via own employees	– Regular	– Community involvement
Shareholders	– Shareholder meeting	– Regular	– General corporate performance incl. the contribution to society
Regulators	– Reports – Communication	– Regular	– Fair operating practices

* Belgium only

The strategy, management approach and sustainability measures of Elia Group are explained in more detail in the Sustainability Report 2018. Seeing each country has its own regulatory particularities, not all indicators can be applied to both entities.

GRI 103-1
GRI 103-2
GRI 103-3

Key figures 2018

GRI 102-44

Operational

30 mio
END USERS
(ELIA GROUP)

18,990 km
OF HIGH VOLTAGES LINES
& CABLES
(ELIA GROUP)

140,147 km²
COVERED
(ELIA GROUP)

Environmental

4,810.1 kg
OF IT MATERIAL RECEIVED
A SECOND LIFE
(ELIA GROUP)

26.24 km
OF BIRD MARKERS
INSTALLED UNTIL
31/12/2018 (ELIA)

56.5%
PERCENTAGE OF RENEWABLE
ENERGY INTEGRATION (50Hertz)

Social

2,441
TOTAL NUMBER OF
EMPLOYEES
(ELIA GROUP)

24
NATIONALITIES
(ELIA GROUP)

172
NEW HIRES
(ELIA GROUP)

Financial

GRI 201-1

€ 9.2 billion
REGULATORY ASSET BASE
(ELIA GROUP)

€ 280.8 mio
NORMALISED NET PROFIT
(ELIA GROUP)

€ 1.66
GROSS DIVIDEND
(ELIA GROUP)

Elia Group in 2018

01

Elia completes an additional 20 percent stake in 50Hertz

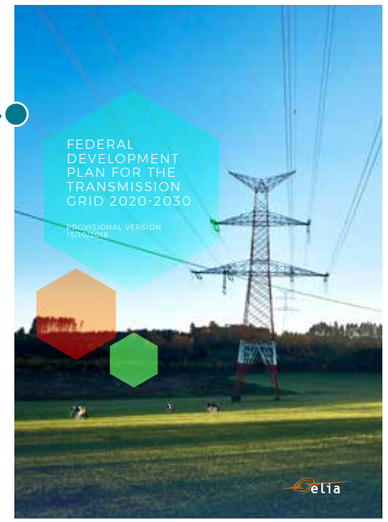
On 26 April 2018, Elia completed the acquisition of an additional 20 percent stake in Eurogrid, the holding company of 50Hertz. Following this transaction, Elia owns 80 percent of Eurogrid and fully controls 50Hertz. Elia decided to exercise its pre-emption right after IFM Global Infrastructure Fund (IFM) stated that it intended to sell half of its 40 percent shareholding in Eurogrid in February 2018.

02

KfW as new partner in 50Hertz

In August 2018, Elia announced the closure of the transactions with IFM and the German state-owned bank Kreditanstalt für Wiederaufbau ('KfW'). As a result, KfW, on behalf of the German Federal Government, replaces IFM as shareholder in Eurogrid. The additional change in share ownership followed a second notification received from IFM in May 2018. Elia decided to exercise its pre-emption right and to partner with KfW by selling the remaining 20 percent stake at the same price.

03



Federal Development Plan 2020-2030 (Belgium)

In line with the legal obligation to draw up a Federal Development Plan every four years, in late May 2018 Elia submitted a draft plan to CREG on the medium-term future of the Belgian high-voltage grid (Federal Development Plan 2020-2030). Elia advocates an accelerated approach to infrastructure development in order to fully exploit the advantages of the energy transition. The Federal Development Plan 2020-2030 was available for viewing in late 2018 during a public consultation. More information on page 53.

04

Elia Group publishes Vision Paper on consumer-centric system

In November 2018, Elia Group published a Vision Paper outlining better services and optimised energy bills for consumers. 'Towards a Consumer-Centric System' encourages households and industries to directly benefit from advanced energy services via a real-time communication platform, an appropriate market design and digital innovations. Elia encouraged market parties to sign up for an open sandbox environment where innovative concepts will be tested in 2019. More information on page 68.

Nemo Link officially inaugurated

On Wednesday, 5 December, Elia and National Grid inaugurated the first submarine electricity interconnector between Belgium and the United Kingdom. Federal Energy Minister Marie Christine Marghem and the Minister for the North Sea Philippe De Backer attended the ceremony. More information on page 48.

06

MOG foundation installed at sea

Belgium's first ever 'power plug at sea' is one step closer to becoming a reality when the jacket was successfully installed on the seabed in November 2018. More information on page 44.

05

08

Launch of XBID facilitates trading across European borders

The go-live of the European Cross-Border Intra-Day (XBID) solution in June marked an important step on the path to an integrated European intraday market. The XBID platform will deliver continuous trading of electricity across 14 European countries: Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Latvia, Lithuania, Norway, The Netherlands, Portugal, Spain and Sweden. Most other European countries are due to take part in a second 'wave' and will go-live with XBID in the summer of 2019. More information on page 64.

07

ALEGrO progress at halfway stage

Work on the first electricity interconnector between Belgium and Germany is running to schedule. Elia completed 50 percent of the construction on Belgian soil, while Amprion started working on the 41 km connection that will traverse Germany. Commissioning is scheduled for end-2020. More information on page 49.

09

Awards & recognition

Elia was awarded the Top Employer of 2018 title, identifying it as one of Belgium's 64 top employers and one of the three best in the energy sector. Elia Group's corporate movie was awarded the first prize at the Belgian Corporate Movie Festival and Elia Group's Annual Report 2017 won the 'Best 1st Sustainability Report', an initiative of the Belgian Institute of auditors. Peter Michiels was elected Belgian 'HR Manager of the Year' and there were nominations for Catherine Vandenborre and Chris Peeters respectively for 'CFO of the Year' and 'Manager of the Year'.

Elia

50Hertz

10

Safely handle everyday work

The 'gib8' Work Safety Campaign was launched in the first quarter of 2018. The messages reach everyone in the company and on the construction sites. For this reason, special materials, activities and training courses are provided to address different groups of employees with suitable topics. The occupational safety campaign is also aimed at external contractors. More information on page 91.

11

€ 465 mio

redispatch costs saved

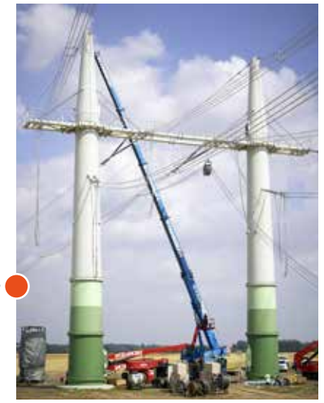
Since the commissioning of the southwest interconnector from Bad Lauchstädt in Saxony-Anhalt to Redwitz in Bavaria, redispatch costs of € 465 million have been saved up to 31/12/2018. The line offers 5000 megawatts additional capacity from northern and eastern Germany to the south. With this interconnector, power plants and wind farms in the 50Hertz grid area replace more expensive power plants in Bavaria or Austria.

12

Improved electricity flows to the Czech Republic and Poland

In July, the modernisation and expansion of the Vierraden substation was completed and the assets were integrated into the grid. An important component of the new 380 kV line are the phase shifting transformers, which are used to control the power flows. This will enable the power flows on the interconnector to Poland to be controlled more efficiently in future. Already in January, two further phase shifting transformers were put into operation at the Röhrsdorf substation. This will allow the cross-border power flows between the 50Hertz grid and the grid of the Czech partner ČEPS to be better controlled. More information on page 65.

13



CompactLine commissioned

After 11 months of construction, the compactLine was commissioned in August. The innovative pilot line is a completely new technological design and much more compact than a conventional 380 kV overhead line. The new design fits in an existing 220 kv corridor. Under the responsibility of 50Hertz, the compactLine was developed by a research consortium from 2013 and has been installed in Jessen since September 2017. More information on page 105.

14

WINDNODE

WindNODE Flexibility Platform in test operation

In November, 50Hertz launched the Flexibility Platform as part of the WindNODE project with four distribution system operators and other partners from its own grid area. Regional producers, consumers and storage operators offer the transmission system operators the flexible use of their facilities on the platform so that renewable energy can be reduced in the case of grid congestion. More information on page 63.

15

Excellent Training

50Hertz is a member and supporter of the Campaign Fair Company. In 2018, 50Hertz was again awarded various certificates highlighting its excellent training opportunities. These certificates assess the company by questioning trainees, students and employees. Since 2014, the 50Hertz trainee programme has been awarded the annual Absolventa certificate for career supporting and fair trainee programmes.

New wind power in-feed record

After 50Hertz had integrated more than 15,000 megawatts of wind energy into the grid for the first time in October, the record was again broken in December. Very strong wind caused a wind energy in-feed in the 50Hertz grid area of 15,672 megawatts.

16

17

Further milestones in offshore expansion

In November, after three years of construction, all of the Ostwind 1 submarine cables were put into test operation. The 220 kV submarine cables connect the Viking and Arkona wind farms with the connection point in Lubmin. This marks another important milestone for a successful energy transition. In the same month, the 150 kV submarine cables between the two substation platforms of the German offshore wind farm Baltic 2 and the Danish wind farm Kriegers Flak were successfully tested. The future German-Danish interconnector Combined Grid Solution is a further milestone for the Danish-German grid expansion project.

For the Ostwind 2 offshore project, 50Hertz placed an order in November for the manufacture and laying of 220 kV submarine cables (with a total cable length of 270 kilometres) for the connection of two more Baltic Sea wind farms to the grid. They will transmit power from the two wind farms Arcadis Ost 1 and Baltic Eagle to the 50Hertz substation in Lubmin. More information on page 46.

Elia Grid International in 2018

Elia Grid International (EGI) is a subsidiary of Elia Group. Its core activities are to export the unique knowledge and experience about the energy transition, and to support the move towards climate saving technologies. Owned by Elia and 50Hertz (50/50), Elia Grid International provides consultancy services in asset management, power system operations and security, system and market operations, owner's engineering and investment advisory to international clients, thanks to the expertise and solid track record of these two TSOs.

Elia Grid Intenational is a truly international company with offices in Brussels, Berlin, Riyadh, Doha and Dubai, employing experts from 17 nationalities.

GRI 201-2

01

GCCELAB and Elia Grid International sign MoU

On 11 November, GCC Electrical Equipment Testing Lab (GCCELAB) and Elia Grid International (EGI) signed a Memorandum of Understanding (MoU) intended to further develop their joint services in the Gulf States. This collaboration will allow future customers to call on both the experience of two leading European system operators and their specific local market expertise.

02

Elia Grid International supports Vietnam with three projects on RES integration

Vietnamese transmission system operator NLDC and local authorities called on Elia Grid International's expertise to support the transition of the Vietnamese power system. EGI has worked on three projects including system studies, recommendations and capacity building. Following this first successful collaboration, NLDC and EGI are now entering into a long-term contract.

03

Elia Grid International obtains ISO9001:2015 certification

Elia Grid International was successfully re-certified with the new internationally recognised Quality Management System Standard ISO9001:2015 in April 2018. During a 2-day audit by the German TÜV Süd, all Elia Grid International's locations (Brussels, Berlin and Dubai) got certified. The new standard requires incorporating the Quality Management System (QMS) into the strategic orientation of the company and puts focus on having a comprehensive risk- and stakeholder management.

04

National Grid Saudi Arabia attends workshop at Elia Grid International

From the 11th until the 19th of April, a Saudi Arabian delegation composed of members of the transmission system operator in Saudi Arabia (National Grid SA) participated at a workshop in Elia Grid International's offices in Brussels and Berlin. The lecture series presented by Elia and 50Hertz technical experts aims at conveying best practices of the Elia Group with regard to grid planning, especially in the context of increasing penetration of renewable energy resources.

05

Ukrenergo experts participate in a workshop at Elia Grid International Berlin

On the 22nd and 23rd of May experts and operational managers of the Ukrainian transmission system operator Ukrenergo participated in a workshop at Elia Grid International's premises in Berlin. They had the opportunity to gain insights into different processes like operational planning, congestion management, frequency control and balancing. The workshop is part of the project run by Elia Grid International that aims to support Ukrenergo in its preparations for the synchronisation of the Ukrainian power system with the rest of Europe.

Scan to read the full articles.

#1

We ensure a secure, reliable and efficient grid

One of Elia Group's core tasks is to transport energy in an affordable and efficient way from where it is generated to where it is consumed. Our investment projects anticipate the further integration of renewable energy, increasing international cooperation and the emergence of innovative technologies. As an enabler of the energy transition, Elia Group is therefore preparing its infrastructure for the system of the future. At the same time, we continue to ensure system stability which provides a safe and reliable power supply throughout both countries, the whole year round.

GRI 203-1
GRI 203-2

To cope with the changing context of the energy transition, Elia Group is developing new maintenance policies aimed at maximising grid availability, smoothing out peaks in equipment replacement and minimising costs. The Group is drawing on new technologies and methods to move to a system of decision-making based on the condition of equipment, rather than just a predetermined maintenance or replacement frequency.

Electrical infrastructure is and always will be dangerous. That is why safety is our top priority in all that we undertake. As part of our commitment to safety, Elia Group is working towards a zero accident rate. Continuous development of technical, managerial and behavioural competencies is therefore a core responsibility of our Competence Centre.

By striving towards operational excellence in all that we do, Elia Group is able to ensure a secure, reliable and efficient grid for all our stakeholders, while supporting economic development at a European level.

99.999%

RELIABILITY RATE OF THE GRID (ELIA)

"At Elia Group, we invest in our talents. They are the cornerstone of our asset management and operation & maintenance practices. Yet again in 2018, they played a key role in setting a record year regarding the availability of the system, replacing a phase shifter transformer in less than three months (transport from Germany included), and erecting a temporary pylon in a few days just to name a few."

Frédéric Dunon –
Chief Asset Officer at Elia

OUR AMBITIONS

Facilitating the energy transition while ensuring a reliable grid 24/7

As more and more generation capacity from renewable energy sources is installed, maintaining the balance and ensuring a highly reliable electricity grid becomes a particularly challenging task. As a system operator, we aim to maximise the availability of our electricity system and keep the lights on at all times to support economic activity and the wellbeing of the population. To this end, we constantly optimise our critical and strategic processes in order to minimise operational risks. At the same time, we strive for efficiency and cost effectiveness.

Implementing improved asset management while applying the highest safety standards

A sophisticated asset management strategy has been put in place to closely monitor the functioning of critical infrastructure components. Investment peaks are levelled out thanks to a balanced maintenance and replacement policy. As working methods evolve, staff need training to help them develop the requisite skills and techniques. We provide professional training courses and apply the highest safety standards so our staff and contractors have a safe working environment. More information on our safety programmes can be found on pages 88 - 91.

18,990 km

ELIA GROUP MANAGES 18,990 KM OF HIGH VOLTAGES LINES & CABLES

Learn more about how 50Hertz ensures a secure,reliable and efficient grid.

OBJECTIVES

We are preparing the system of the future, integrating high levels of renewable energy and new types of consumption in a secure way, while keeping the lights on and giving the market maximum use of our infrastructure.

GRI 203-1

System security

We maintain the balance

As European system operators, it is our role to design and develop the fitting infrastructure to enable the energy transition. On the one hand, we have to develop the necessary infrastructure that transports the energy in an affordable and efficient way from where it is generated to where it is consumed. On the other hand, we have to ensure system stability at all times. Thanks to new technologies and methods to monitor the complex and large volumes of data, we are able to balance the infeed and consumption thus ensuring the security of the electrical system the whole year round.

Discover how we manage the system, while integrating renewable energy.

+ 18%

In Belgium, renewable energy generation grew by 18 percent in absolute terms in comparison with 2017. At 3 p.m. on 28 July, wind and solar power covered 46 percent of Belgium's total load, an absolute record. The months of May (517 GWh), June (464 GWh) and July 2018 (555 GWh) saw the highest monthly solar generation levels ever recorded in Belgium. Onshore and offshore wind power also broke generation records in January (403 GWh) and December (452 GWh).

15,672 MW

SYSTEM MANAGEMENT SAFELY INTEGRATES 15,672 MW WIND ENERGY INTO THE GRID.

Just a few weeks after 50Hertz had integrated more than 15,000 megawatts of wind energy into the grid for the first time, the record has been broken again. On 8 December, very strong wind between 1 p.m. and 1.15 p.m. led to a wind energy feed-in of 15,672 MW in the 50Hertz control area.

105.4 MWh

In 2018, we set the record for the lowest Energy Not Supplied (ENS) score in Belgium. The ENS is the amount of energy that we were not able to supply to our customers due to internal outages. This record is a testament to our excellent, cross departmental collaboration, quick decision-making and efficient asset management.

The ENS score equals the sum of the duration of an outage multiplied by the interrupted power. For the calculation, only outages that last more than 3 minutes are considered.

Unexpected unavailability of multiple plants for winter 2018-2019 in Belgium

G4 – EUS –DMA DISASTER/ EMERGENCY PLANNING AND RESPONSE

After a study analysis of what can be imported if market conditions are favourable, Elia in Belgium increased the import level in the first half of 2018 from a maximum of 4,500 MW to 5,500 MW. The need for an optimised capacity allocation was immediately highlighted during the second half of 2018 when half of the nuclear units had unexpected outages (Doel1, Doel2, Tihange2 and Tihange3), on top of those that were already planned (Doel4, Tihange1).

This has never been seen before in Belgium, causing a 3,000 MW capacity shortfall until mid-December (i.e. 25 percent of total installed manageable generation capacity in Belgium). In November, only 1 out of 7 nuclear plants was operational and in December, 4 were still out of service.

To deal with the crisis, Elia participated actively in a taskforce that was led by the Ministry of Energy, and ran a weekly operational process reviewing the outlook for the upcoming week. Thanks to international support, reshuffled maintenance interventions and market efforts to find additional capacity, security of supply was never at risk despite the critical situation.

"We are pleased that Elia was able to carry out its responsibilities in a professional manner and that we helped to avoid a load shedding, however, one lesson learnt is that this situation cannot continue in the longer term. Belgium should not have to face these issues every winter. Our country has to prepare itself and take measures to ensure the security of supply, seeing that the nuclear plants are due to phase out in 2025."

Pascale Fonck –
Chief External Relations Officer at Elia

In light of the imminent energy scarcity, the Belgian Minister of Energy, Marie Christine Marghem, met her German counterpart, Peter Altmaier, to discuss what Germany could do to help during possible power shortages. During her stay in Berlin, the minister also visited the 50Hertz headquarters.

Consult the Redispatch Calculator to find out the current status about how much we have saved.

€ 465 mio

NUMBER OF REDISPATCH COST SAVINGS THANKS TO SOUTH-WEST INTERCONNECTOR

In 2017, the 380 kV South-West Interconnector (5000 MW) between north-eastern Germany and Bavaria was fully operational after 15 years of development and construction. The new line had – together with improved congestion management - an immediate effect and led to significant congestion management savings. Until 31 December 2018, 50Hertz managed to save over EUR 465 million.

CONGESTION MANAGEMENT AND REDISPATCH

On particularly windy and solar-intensive days, more power is traded than can physically be transported by the grid. In order to ensure system security even in such situations, conventional power producers which are spatially near a grid bottleneck, are instructed to reduce their power. At the same time, power generation on the other side of the grid bottleneck is activated. This so-called redispatch is complex and cost-intensive, because while the electricity producers in the North and East of Germany are shut down, reserve power plants in the South of Germany or Europe are powered up at the same time. The costs incurred by the power plants are compensated. If this is not enough to resolve grid congestion, the generation of electricity from renewable energies must also be restricted through infeed management. This also leads to compensation payments made to producers of renewable energy. The total costs of all of these measures are the so-called congestion management costs.

Boris Schucht* – CEO 50Hertz

INTERVIEW WITH BORIS SCHUCHT, CEO 50Hertz

How Germany can reach its climate targets for 2030

GRI 201-2

In 2018, 50Hertz saw 56.5 percent of the consumption in its grid area covered by renewable energy. That is another record. What might we expect in the coming years as the German Energiewende (energy transition) is rapidly progressing?

"To reach the Paris Climate Agreement goals, the German government increased its renewables targets for 2030 to 65 percent, which means that instead of 90,000 MW installed renewables (photovoltaic and wind) in Germany today, an amount of about 130,000 MW plus a few thousand additional offshore wind turbines will be required and will have to be connected to the grid. Besides this, a commission of experts has just ended a monthly discussion with a compromise on when and in which manner the coal phase-out will take place in Germany. And this accelerated phase-out means that Germany has to cope with a system with fewer conventional power plants much earlier than expected. This will be a further challenge we have to prepare for.

50Hertz sees its main role as developing a grid which is able to handle the future demand of society and ensures the secure electricity supply of the country as well as that of Europe. It is our mission to effectively and efficiently integrate the constant increase in renewables in the system. While optimising the transport capacity of the existing grid by using innovative technologies, we still have to further extend our grid in the next 10 to 15 years to reach the 65 percent renewables target and to offer the society the infrastructure it needs."

What role will grid expansion play in the future?

"In the past, there was a tremendous increase in redispatch costs. But following the inauguration of the South-West Interconnector in 2017, which runs from Saxony-Anhalt to Bavaria, these costs could be reduced by more than 50 percent. What does this mean? Well, it shows that grid extension is decisive and one of our major tasks to sustainably reduce redispatch costs and by doing so reduce the energy costs for consumers.

To allow this continuous development of the grid, a stable framework on the regulatory side is vital in order to avoid unnecessary interruptions or difficulties for us financing our investments in the grid."

56.5%

ELECTRICITY CONSUMPTION IN THE 50Hertz GRID AREA COVERED BY RENEWABLE ENERGY IN 2018.

What will it be like when we have achieved 65 percent renewables in electricity consumption?

"All of 50Hertz's analysis show that although the ambitious 65 percent target is a big challenge, it is achievable in Germany until 2030. But our analysis also shows us that we cannot use the same philosophy of today "grid follows renewables" by building new wind farms or overhead lines through the country. Society will not accept unlimited new infrastructure or turbines. This philosophy has pretty much reached the public acceptance borders, which is why we expect a paradigm shift towards a target grid from this point in time.

Innovation and optimisation in grid operation will become even more important and have to be put into practice to a greater extent. On the other hand, it is crucial that renewables must be expanded where sufficient grid capacity is available. Renewables to follow the grid will be the new philosophy. Practically, this involves 50Hertz looking at the system and identifying where it can safely integrate more renewables. This is more efficient for society than allowing everybody to build renewables wherever they want.

Additionally, with 65 percent renewables in the system, the consumption market will be saturated, and therefore new technologies such as power to gas, power to heat are required to make use of the excess amounts of renewables and thus to facilitate an even higher share of renewables integration."

What else is needed to reach the German Climate Targets?

"In Germany, the energy sector has been pretty successful in reducing CO_2 emissions and has done its homework. Another central area of focus is the so-called sector coupling. Without it, we will certainly not achieve our climate targets. If we take climate protection seriously, we need to tackle the transformation in the mobility and heating sectors. CO_2 can be saved significantly in these sectors. The climate protection targets are achievable if we manage to take the other sectors along with us.

All our considerations on the 65 percent target show that storage solutions will play a very important role. Therefore, Germany and Europe need to create the framework to develop these technologies and make them marketable. In the past, legislators have strongly promoted these frameworks for innovations in the energy sector. Showcase projects such as our joint WindNODE project have emerged in various areas. This is a good development that should be continued. For 50Hertz, it is important that we fully understand what this means for the electricity system, overall consumption and for the transportation needs so we can prepare the infrastructure for such a world in the right way."

"Society will not accept unlimited new infrastructure or turbines. This philosophy has pretty much reached the public acceptance borders, which is why we expect a paradigm shift towards a target grid for this point in time."

Boris Schucht – CEO 50Hertz

* Boris Schucht left the company on 28 February 2019. Dr. Frank Golletz is acting CEO from 1 March 2019 onwards.

Asset Management & Maintenance

We endeavour to achieve operational excellence

We continue to invest in the development and use of new technologies that help us optimise the maintenance and replacement of our assets. We highly value our maintenance activities seeing they contribute significantly to our common goal of continuously delivering an outstanding service to all our customers. Elia Group uses a range of methods to digitalise work in the field, including connected equipment (PCs, smartphones and smart devices), new mobile applications and the overhaul of current processes.

In our line of work, operational excellence is key to safety, which is an absolute priority for Elia Group. Our primary objective is for anyone who works on or near our facilities – both Elia employees and external staff – to return home safely every day. To achieve our goal, good operational dialogue is required between all parties.

AMEX IN A NUTSHELL

AMEX programme in Belgium

The Asset Management Excellence (AMEX) programme provides Asset Fleet Strategies (AFS) to optimise the maintenance and renewal of ageing assets by analysing the asset condition, performance level, costs and associated risks.

Since its implementation in 2016, we have defined clear strategies for power transformers (including Phase Shifting Transformers), Air Insulated Switchgear (AIS) & Gas Insulated Substations (GIS), high voltage cables, protections, overhead lines, batteries and diesel generators. In 2018, the fleet strategy for overhead lines presented promising results about inspection, painting and pruning, leading to significant savings. We also developed an ambitious replacement strategy for ageing protections and are well on our way to finalising the Buildings and Datacom/Telecom fleet. For the development of the strategies concerning the offshore and HVDC systems, we called on the experience and expertise of our colleagues at 50Hertz.

€ 8 mio

CAPEX SAVINGS THANKS TO PROLONGING THE LIFETIME OF CERTAIN ASSETS SUCH AS TRANSFORMERS IN 2018 (ELIA).

"As AMEX is reaching its end in 2019, it's crucial that the processes, models, methods but also the roles, responsibilities and behaviours are anchored into the organisation. The implementation of the improvement levers shall also be monitored even if the programme structure has closed. This transition will be ensured by a sustainability roadmap including competence development, supporting processes and tools."

Stéphanie Hammer – Amex Manager at Elia

In 2019, Elia will start implementing the new strategies to realise efficiency gains, and preparing the integration of new technologies in close collaboration with 50Hertz.

We developed a professional approach to consolidate the implementation of the different transformation programmes (AMEX, MWOW, and GO FOR ZERO) to enable us to have consistent end-to-end processes in the field. We choose to work with half-yearly releases, each of them focusing on a specific aspect: safety, quality of inspections, efficiency savings on painting and pruning, and deployment of new protection technologies.

IN 2018 WE REALISED THANKS TO AMEX:

- **More than € 8 million CAPEX savings thanks to prolonging the lifetime of certain assets such as transformers,**
- **€ 730k OPEX savings via optimisation of maintenance activities,**
- **The maintenance activity workload decreased by the equivalent of 6.5 FTE. These FTEs have been reallocated to new activities such as offshore.**

Successful implementation of the first ACC wave in Belgium

The Asset Management team successfully implemented the first wave of the Asset Condition & Control (ACC) project. The ACC project helps us to switch from Time Based to Condition Based Asset Management. Concretely, this means that our employees have remote access to our digital assets to calculate the equivalent age for the transformers, circuit breakers, separators and voltage and current measurement transformers.

One of the most important data sources are the measurements from the tour post, which we are able to capture via the eForms application since this year. Thanks to the information we get from all these data sources, the asset manager can determine whether a particular asset needs maintenance or replacement. This is then based on the assets real wear and tear, and no longer based on the theoretical time intervals that we have used in the past.

"For Asset Management, this is a new step in the use of data and even Big Data. It was therefore quite a challenge to collect and process the data from different sources, but thanks to solid cooperation with driven people from Asset Management, IT, Mainteance Assessment & Commissioning and Network Operation, we managed it!"

Diederik Moers – Manager Asset, Condition & Control at Elia

ProjectWise

In 2018, all the latest versions of the as-built plans stored on different servers and IT tools throughout Elia were migrated to a single plan management application: ProjectWise.

Plan Management worked with the various sectors (Low Voltage, High Voltage, Telecom and Linear Assets and Structure) to devise special workflows (and determine the roles and responsibilities of those involved), the aim being to manage the plan life cycle and make plans securely available. Standardised plan management processes were created and approved to ensure consistency in working methods within and between departments.

ProjectWise enables all users to view the latest versions of the available plans in a centralised digital location and check their status within the plan life cycle. It facilitates the reservation of plans for studies and allows users to follow up redline requests and get information about the classification of as-built plans at substations.

A number of paper documents are still being digitalised. This large-scale migration project, encompassing over 800,000 master plans and some 1,000,000 files, will keep the Plan Management teams busy for some years to come in view of the volume of work involved. Sorting metadata and eliminating duplicate documents are just two of the tasks to be performed.

€ 33 mio

The BOOST project was launched in 2014 with the aim of optimising cost management. It was rolled out in three successive waves: underground engineering, IT activities, and overhead lines and substations. Thanks to this initiative, Elia saved more than €33 million over the first three years of the 2016-2019 tariff period.

Moving towards condition-based maintenance

In addition to these Elia programmes, 50Hertz has been investing in improving the efficacy of its maintenance programmes, whereby it is aiming to reduce the maintenance costs of its assets over their entire lifetime. Previously, maintenance schedules were based on certain timeframes but 50Hertz is introducing a system much closer to condition-based maintenance. For example, the higher the usage of an asset, the shorter the time between maintenance interventions. This programme was largely put in place in 2018.

50Hertz regional centres reorganised

In 2018, 50Hertz prepared a new location concept that came into force at the beginning of 2019. The new concept was needed because of the further integration of offshore wind farms, the use of the new HVDC cable SuedOstLink and further EEG-related grid expansion measures, which are expected to result in a 25percent asset growth. Furthermore, 50Hertz will add another 20 onshore substations to the existing ones in the next few years. Because of this asset expansion, the company has also restructured its regional branches with the number of locations increasing from seven to 10, and these are now managed in five regional centres. The new locations reduce reaction and travel times and thus ensure efficiency.

150 pylons exchanged in Saxony-Anhalt and Brandenburg

As part of its pylon reinforcement programme, 50Hertz is increasing the reliability and stability of its pylons. 150 pylons built in the 70s and 80s were reinforced and a further 300 pylon reinforcements are planned for the entire grid area in the coming years.

150

NUMBER OF PYLONS REINFORCED IN 2018 (50Hertz GRID AREA)

"With the presence of our regional centres, we can guarantee a rapid response in the support of our technical assets and at the same time give 50Hertz a face in our grid area. With our additional sites, we already have the right structure today for the expansion of substations, switching and cable systems and overhead lines in the context of the energy transition."

Jochen Mueller – Head of Grid Operation at 50Hertz

#2

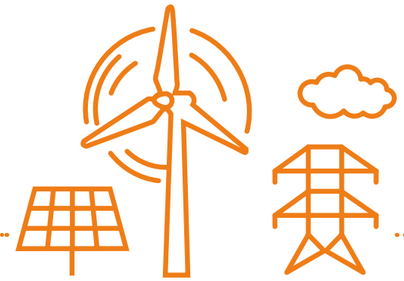
We deliver the transmission infrastructure of the future.

Elia Group embarked on unprecedented levels of investment in the last few years and this continued in 2018 as the Group pressed on with its efforts to realise the energy transition. For the next three years, Elia and 50Hertz will be investing a staggering € 1.1 billion per annum in the integration of renewable energy, the development of an offshore high-voltage grid and the construction of interconnectors to facilitate the integration of the European energy market.

GRI 201-2

These investments are largely a reflection of the need to shore up the security of supply. In Belgium and even more so in Germany, the ability to generate energy is becoming increasingly diversified, as well as throughout the whole of Europe as each country aims to achieve the renewables targets of 2030. Society is ever less reliant on major utilities only and at the same time, renewables are characterised by intermittent generation.

Elia Group is robustly addressing these challenges.



€ 1.1 billion

ELIA GROUP'S INVESTMENTS IN 2018 (+19% VS 2017)

"Elia is on track with its ambitious investment programme. We delivered what we promised, although we are confronted with major challenges every year. In 2018, we managed the € 600 million investment programme successfully, something we can really be proud of!"

Markus Berger –
Chief Infrastructure Officer at Elia

Discover how Nemo Link helps support security of supply.

OBJECTIVES

We develop the grid of the future that integrates increasing amounts of onshore and offshore renewable energy generation into the integrated European grid.

€ 636.7 mio

GRID INVESTMENTS IN BELGIUM IN 2018

AMBITIONS

Delivering on time, budget and quality

We aim to deliver the future grid on time to allow society to reap the benefits of the energy transition. We want to provide affordable power for society and take care of designing and constructing the grid with the highest quality standards. As a result, we deliver a reliable energy system that continues to support economic activity.

Integrating renewables

With our infrastructure ranging from 400 kV to 30 kV, Elia Group wants to facilitate the uninterrupted flow of renewable energy from where it is produced to where it is consumed. Our grid is an enabler of the energy transition. We want to become a leader in infrastructure development to contribute to our sustainability targets.

Realising interconnections with neighbouring countries

We develop and build interconnectors to support security of supply and to enable the integration of renewable generation at European level. By doing so, we facilitate the single European energy market and support the competitiveness of our countries at the same time: to find the cheapest energy wherever it is produced, while offering export opportunities to our domestic plants.

"2018 was a milestone year in the ambitious investment programme to strengthen and extend the existing grid, both on- and offshore. In light of the target that renewables should realise a 65 percent share of the energy mix in Germany by 2030, 50Hertz is planning a 1,800 km grid expansion. Furthermore, the company will add another 20 onshore substations to the existing ones in the next few years."

Frank Golletz –
Chief Technical Officer at 50Hertz

€ 491.5 mio

GRID INVESTMENTS IN GERMANY IN 2018

Facilitating Offshore Energy

Offshore energy is set to grow exponentially in the seas in which Elia and 50Hertz are operating. In Belgium, the construction of the Modular Offshore Grid (MOG) progressed rapidly in 2018. In Germany, 50Hertz achieved the cable connections (representing 190 km) for two offshore wind farms in the Baltic Sea.

Learn more about the MOG, Belgium's first 'power plug at sea'.

The Modular Offshore Grid (MOG)

The MOG project comprises two offshore platforms located approximately 40 km off the coast of Zeebrugge. They will act as a 'power plug', bundling the subsea cables of four Belgian wind farms (Rentel, Seastar, Mermaid and Northwester 2).

The combined cable infrastructure will enable the wind farms to transmit as much of the electricity generated to the mainland as possible. In total, the switchyard platform will connect 130 km of 220-kV cables with the Stevin high-voltage substation in Zeebrugge.

Belgium's first ever 'power plug at sea' is one step closer to becoming a reality.

The jacket was successfully installed on the seabed in early November, anchoring the platform to the seabed with four posts at a depth of 60 m. Meanwhile, the first 220-kV cables for the Modular Offshore Grid (MOG) were successfully tested at the production centre. In spring 2019, the topside, which is being built in Zwijndrecht, will be fitted onto the jacket. After this stage is completed, the first cables will be connected in 2019, when some of the wind farms will already be able to be connected to the MOG. The full capacity will be available in 2020.

Minister Philippe De Backer visits construction site MOG

On November 27, Philippe De Backer, Federal Minister for the North Sea, visited the Zwijndrecht site where the switchyard platform is being built.

Philippe De Backer: "The development of the MOG is part of a long-term strategy: in time, we will be able to connect new wind farms to the offshore power plug. I also believe that other European countries will eventually be able to connect their energy to Belgium's offshore power plug, making the North Sea a real energy hub in Western Europe."

Project Cluster Westlich Adlergrund (Ostwind 1)

The Ostwind 1 project started in 2015 and is part of the grid connection of the cluster Westlich Adlergrund and includes the connection of the Arkona (385 MW) and Wikinger (350 MW) offshore wind farms to the 50Hertz grid in Lubmin. The cluster Westlich Adlergrund represents an area of 109.2 km² and is situated in the Exclusive Economic Zone. It is located at about 42 km from the closest coast of Rügen island, and some 90 km from Lubmin in the bay of Greifswald. In 2018, after three years of construction, all Ostwind 1 submarine cables were put into test operation. The cable connections are a key part of the the grid to feed renewable energy into the grid.

For the first time in Germany, the Ostwind 1 project uses 220 kV AC (alternating current) technology, making higher electricity transmission capacity possible. Until now, the connections of offshore wind farms in the German Baltic Sea consisted of 150 kV, three-phase cable systems. At the Lubmin substation, the electricity is transformed to 380 kV and fed into the 50Hertz transmission system. In 2018, Wikinger wind farm fed in 885 GWh of renewables into the 50Hertz grid representing the electricity consumption of 220,000 households. The project is ahead of schedule and around 10 percent below budget.

Discover the progress 50Hertz made on the Ostwind 1 project.

885 GWh

In 2018, Wikinger fed in 885 GWh of renewables into the 50Hertz grid representing the electricity consumption of 220,000 households.

"The Baltic Sea is an attractive region for the wind power industry because of its high wind yield, which needs not fear comparison with the North Sea. In April, Germany held the auction for the next wave of offshore projects. Concessions totalling 733 MW were awarded to Baltic Sea projects, which is much more than the expected 500 MW. 50Hertz embarked on a programme to purchase more cables and ramp up the project team to be able to serve these new Baltic wind farm projects, which will come onstream in 2022-2023."

Henrich Quick –
Head of Projects Offshore at 50Hertz

OSTWIND 2 IS UNDERWAY

Following an offshore wind tender in late April 2018, Germany's national regulatory authority (Bundesnetzagentur German Federal Network Agency) allocated 733 MW of connection capacity to the Baltic Sea, specifically to the Arcadis-Ost 1, Baltic Eagle and Wikinger Süd wind farms. After initiating talks with the wind farm operators, 50Hertz awarded the manufacturing and installation contract of three 220 kV AC cables for the Ostwind 2 project to the consortium NKT-Boskalis.

Towards a more interconnected European Grid

Besides preparing their grid for the energy transition, Elia and 50Hertz are also committed to developing an integrated, European-wide electricity market. To ensure that this is as efficient as possible, the company believes that interconnectivity should be further increased between the different markets. That is why 50Hertz is investing in major projects such as Combined Grid Solution and Hansa PowerBridge. Elia is using the benefits of its geographical location at the centre of the European energy system to bolster security of supply and to strengthen the development of interconnections with neighbouring countries such as Nemo Link (UK) and ALEGrO (Germany).

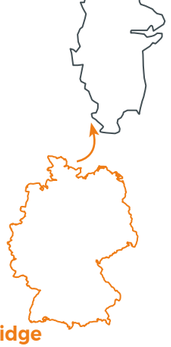
"European electricity grids will grow and become more and more interconnected in the upcoming years. And the development of a real meshed offshore grid integrating renewable energies and interconnectors is an essential part. I am very happy to have joined this exciting journey while working for the Combined Grid Solution project, which is the first of its kind. Every day our very committed 50Hertz team together with the Danish partner Energinet is gaining new experiences that will help all of us to realise the large scale projects of the future."

Elke Kwapis –
Project Leader Combined Grid Solution at 50Hertz

Combined Grid Solution - a world first!

Between Denmark and Germany

The Combined Grid Solution is a major offshore project and a joint project with the Danish system operator Energinet. It is a hybrid system that interconnects the grid of the German north-eastern region with the Danish area of Sjaelland by using the grid connection infrastructure of the German offshore wind farms Baltic 1 and 2 and the Danish offshore wind farm Kriegers Flak. Furthermore the Combined Grid Solution contributes to the objective of the EU Council to provide 15 percent of generating capacities as interconnector capacities and increasing the security of supply by stabilising the electricity system. The operation will start in 2019.



The Hansa PowerBridge

Between Sweden and Germany

Hansa PowerBridge is an onshore/offshore cable connection that will run from the Guestrow substation in Mecklenburg-Western Pomerania, through the Baltic Sea to Sweden. The 300-km distance will be bridged by a high voltage direct current (HVDC) interconnector: the Hansa PowerBridge.

The project will provide an important contribution to the security of the transmission systems and will allow for the indirect storage of electricity from German renewable energy sources. Both countries will profit from combining Swedish hydropower with German generation system.

Hansa PowerBridge will have a capacity of about 700 MW and be operational in 2025/ 2026. 50Hertz is partnering with Svenska Kraftnät. In May 2018, the first seabed inspection took place of the Baltic Sea on the way to the territorial waters of Sweden. Thirteen defined targets were inspected with a Remotely Operated Vehicle equipped with sensitive technology to enable the submarine cable to be laid safely. All targets were cleared up and fortunately no remnants from the last World War were found.

Discover more about how CGS & Hansa PowerBridge increase interconnectivity.

"The Hansa PowerBridge means that 50Hertz gets a fifth electric neighbour. Both sides will benefit from the interconnector. Surplus wind power from Germany will help to lower electricity prices in southern Sweden. During calm wind periods, Germany can receive electricity from the huge water reservoirs in northern Sweden."

Gert Schwarzbach –
Head of Interconnectors at 50Hertz

Nemo Link
Between United Kingdom and Belgium

One of the most important achievements of 2018 and a milestone in the company's history is the inauguration of Nemo Link, Elia's very first high voltage direct current project (HVDC) and the first subsea electricity interconnector between the United Kingdom and Belgium.

Nemo Link is a collaborative effort organised by Elia (Belgium) and National Grid (UK), which created a joint venture with a mixed Belgian-British team. Connecting the Richborough (UK) and Herdersbrug (Belgium) converter stations via a 140 km cable (130 km submarine) was an extremely complex undertaking that entailed many technical challenges.

Nemo Link is a crucial step in the integration of the electricity grid between continental Europe and the UK and facilitates access to renewable energy all over Europe, as well as allowing excess energy to be exported. Nemo Link is expected to see 1,000 MW in electricity exchanges (equivalent to the capacity of a nuclear reactor), a significant plus in terms of ensuring security of supply. The interconnector will be commissioned in Q1 2019.

"The Nemo Link is a fantastic example of how a technically complex project that required huge investment can be delivered by countries and companies working together to bring something that will deliver real value to both the UK and Belgium and to countries further afield."

Laurence Slade – CEO Energy UK

Scan the code and discover what our stakeholders and partners think about Nemo Link.

12,000 objects found on the seabed

Before work began, the Nemo Link cable route was thoroughly examined for UXO and historical heritage. The project teams came across thousands of objects from the First and Second World Wars. They worked closely with authorities, agencies and military services in France, the UK and Belgium to detect and decommission these items.

ALEGrO
Between Germany and Belgium

ALEGrO (Aachen Liège Electrical Grid Overlay) is besides the Nemo Link project, a second, key direct current (HVDC) project linking the Lixhe (Belgium) and Oberzier (Germany) converter stations. The project is a joint venture between Elia and Amprion, one of the four German system operators.

The 90 km interconnector (49 km in Belgium and 41 km in Germany) will have a capacity of 1,000 MW when commissioned in 2020. The cable runs underground for the entire route and mainly follows existing road and rail infrastructure.

During the year, works progressed well on Belgian soil and main works are due to be completed by the end of 2019. Activities in Germany were initially hampered by permitting processes but these were solved in October and work continued apace.

ALEGrO will contribute to the integration of renewable sources of energy, price convergence between the markets and security of supply.

"The ALEGrO project is progressing according to schedule and a lot of work has already been performed, something we are truly proud of. In 2018, more than 50 percent of the cables have been laid on Belgian soil. We are currently building the 20-metre high converter station in Lixhe and the first transformers have arrived. Our German partner Amprion received the permits and launched their works as well."

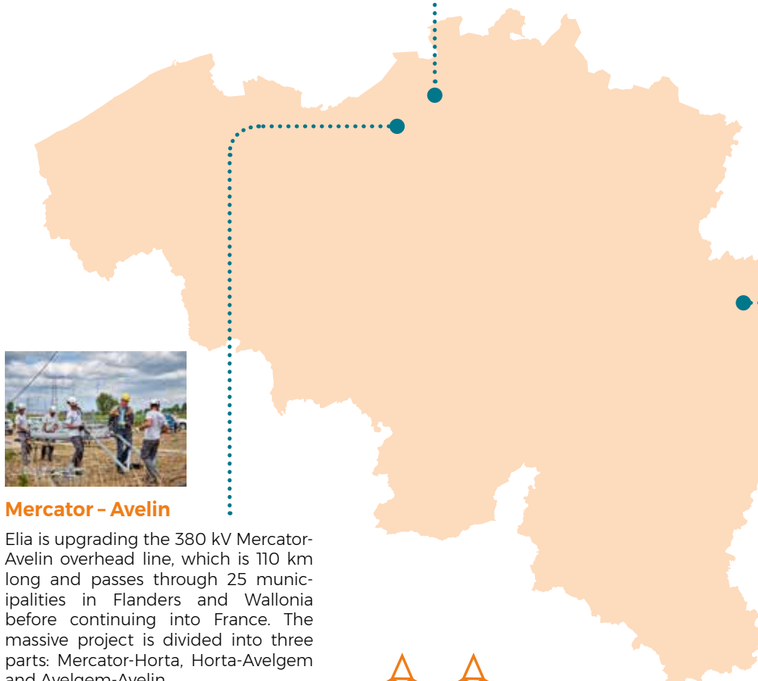
Els Celens – Project Manager ALEGrO at Elia

Reinforcing the onshore grid

In addition to the substantial work on the offshore grid and interconnectors, Elia and 50Hertz are also further expanding and optimising the onshore grid. Many projects are currently underway to respond to the needs and accommodate local renewable energy generation.

Brabo

With the Brabo project, Elia aims to strengthen the high-voltage grid and consolidate security of supply in and around the Port of Antwerp. The project is being rolled out in three phases between 2016 and 2023.



Rabosée – Battice

In 2018, Elia finalised the construction of a new 150 kV, underground electricity connection linking the Battice substation and Rabosée (Wandre-Haut). The underground link is now connected to the 150 kV Bressoux-Cheratte-Lixhe overhead connection and a new transition substation was also constructed at Rabosée.

Mercator – Avelin

Elia is upgrading the 380 kV Mercator-Avelin overhead line, which is 110 km long and passes through 25 municipalities in Flanders and Wallonia before continuing into France. The massive project is divided into three parts: Mercator-Horta, Horta-Avelgem and Avelgem-Avelin.

Boucle de l'Est II

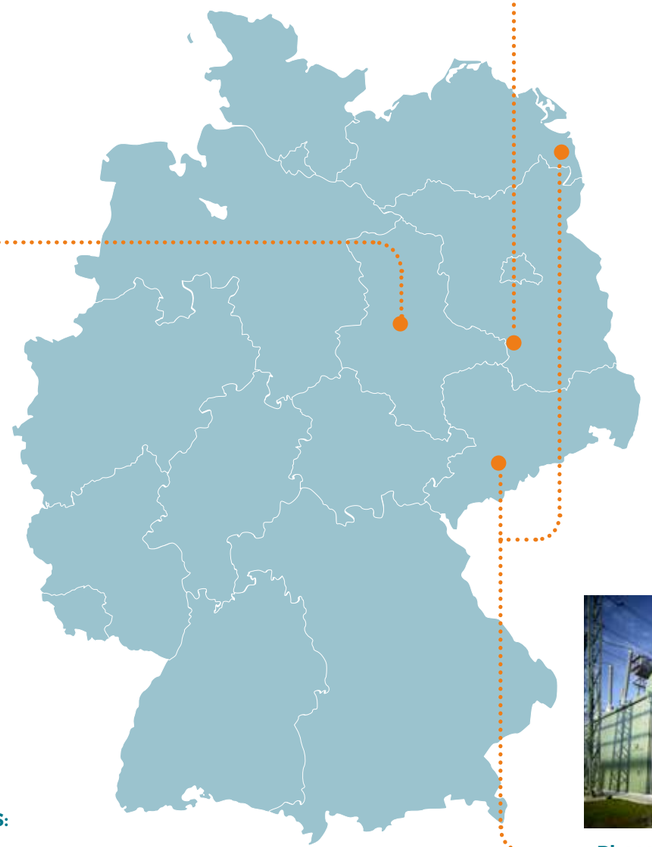
Elia started stage 2 of the East Loop project that involves replacing and upgrading the overhead line connecting the Bévercé (Malmedy), Bronrome, Trois-Ponts and Brume sites. The work is scheduled to run until 2022.

compactLine pilot project

compactLine is a 380 kV line that, due to its compact design, fits into sections of existing 220 kV lines. The line is characterised by lower pylon heights, narrower routes and smaller, solid pylons. From September 2017 to August 2018, a two-kilometre pilot line was built at the Jessen/Nord substation. Commissioning took place in the third quarter of 2018. The compactLine's practical suitability will be examined in a subsequent, one-year monitoring phase.

SuedOstLink (South-East Link)

This high-voltage direct current (HVDC) power link between Saxony-Anhalt and Bavaria will be able to transmit up to 2,000 MW of electricity, with an approximated length of about 580 km, mostly realised underground. 50Hertz is responsible for the Northern part of the project. TenneT is handling the Southern part in Bavaria. In 2018, the in-depth spatial planning for the first of a total of four sections was submitted. 50Hertz presented the planning results in the context of the early public participation. In parallel to the permission process, potential suppliers of a new 525 kV technology for underground cables undergo a rigorous technical test to develop a new sustainable technical solution for SuedOstLink. Construction is scheduled to start in 2022 and commissioning is aimed for 2025.



STATUS OF FURTHER PERMISSIONS:

- **Approved: Stendal – West-Wolmirstedt (50 pylons)**
- **Approval in progress: Berliner Nordring, Uckermarkleitung**
- **Permits in preparation: SuedOstLink, Güstrow - Parchim, Parchim - Perleberg, Perleberg-Stendal West, Röhrsdorf – Weida, Weida – Remptendorf, Pulgar-Vieselbach and for substations Wessin, Berlin Charlottenburg, Lubmin**

Phase-shifting transformers (PST)

A major achievement in 2018 was the commissioning of Phase-shifting transformers (PST) for the interconnectors to both the Czech Republic and Poland in Röhrsdorf and Vierraden respectively. Both projects highlight the close working relationship between 50Hertz and its neighbouring transmission system operators. PSTs are used to control the electricity flows and to avoid overloading individual lines.

Shaping the future grid

Elia Group is trying to ensure that its stakeholders reap the full benefits of an integrated market, while at the same time meeting sustainability objectives. To be able to achieve this ambition, it is vital that the development of the Belgian and German grid infrastructure stays ahead of market developments. That is why both Elia and 50Hertz draw up development plans to make sure the grid is determining the speed at which the energy transition takes place and not the other way around.

GRI 201-2, G4 - EUS – DMA DEMAND-SIDE MANAGEMENT PROGRAMMES

"As the new Development Plan includes some very large investment projects such as 'Boucle du Hainaut' and 'Ventilus' with a major impact on society – nationally, but also locally – much effort has been put into the interaction with stakeholders to create buy-in on the need for these projects at a very early stage. We were only able to realise this thanks to a very good cooperation between colleagues from different departments. I personally think major steps were taken on optimising such interaction, however we should also all be aware that we will have to keep up this approach and effort through the whole lifecycle of the projects to ensure their successful and timely realisation."

Kristof Sleurs – Head of Grid Development at Elia

Federal Development Plan Belgium

In line with the legal obligation to draw up a Federal Development Plan every four years, Elia in Belgium submitted a draft plan in late May 2018 on the medium-term future of the Belgian high-voltage grid: the Federal Development Plan 2020-2030. Elia advocates an accelerated approach to infrastructure development in order to fully exploit the advantages of the energy transition. The Federal Development Plan 2020-2030 was available for viewing in late 2018 during a public consultation.

The Federal Development Plan 2020-2030 identifies the investments that must be made over the period in order to meet the future needs of our electricity system. The Plan focuses on developing the high-voltage 380 kV grid by concentrating on three key areas: upgrading Belgium's electricity power grid, integrating additional offshore wind power generation and continuing to develop interconnectors.

It also entails upgrading, adapting and extending the 220 kV to 110 kV grid to enable the integration of more renewable energy generation and to cope with increasing energy flows. Some of the investments set out for the period beyond 2025 are still indicative and depend on the findings of further studies.

Read Belgium's Federal Development Plan.

Electricity Grid Development Plans in Germany (Netzentwicklungsplan)

Since 2012, the need for grid expansion and conversion in Germany has been determined in a three-stage process. This is regulated in the Energy Industry Act (EnWG) of 2011. In 2016, an amendment to the Energy Industry Act came into effect which changed the essential principles for the preparation of the network development plan (NEP). Key points were the conversion of the rhythm for the preparation of the NEP to a two-year cycle, the introduction of an implementation report and more flexibility in the observation horizon of the scenarios among others.

According to this the four German transmission system operators 50Hertz, Amprion, TenneT and TransnetBW draw up a biennial NEP, which determines the requirements they have identified for the conversion of the extra-high voltage grid. This is publicly discussed and confirmed by the Federal Network Agency (BNetzA). Finally, the Bundestag, the German parliament, transfers the confirmed projects for grid expansion into the so-called Federal Requirements Plan.

More information on 50Hertz's grid development.

The first implementation report was published in 2018. The report transparently lists all projects with their planning and implementation status. In early 2019, the German transmission system operators will jointly present the first draft of the grid development plan for the target year 2030. This will form the basis for the upcoming Federal Requirements Plan, in which the grid development projects will be legally defined. In the NEP 2030, the transmission system operators show how the political goal of integrating 65 percent renewables into the grid and compliance with the climate protection targets of the federal government can be achieved.

WHEN IT COMES TO DEVELOPING THE POWER GRID OF THE FUTURE, ELIA GROUP IS COMMITTED TO THREE PRINCIPLES:

01 Minimising the construction of new infrastructure by giving priority to optimising and improving existing infrastructure.

02 Open dialogue with all the stakeholders during the entire development process from a very early stage.

03 Respect for people and the environment when building and operating our infrastructure.

#3

We develop the electricity system and the markets.

Given the growth in renewable energies and their variable generation, greater flexibility is needed within the electricity system to maintain a constant balance between supply and demand. Digitalisation and the latest technologies offer market players new opportunities to optimise their electricity management by selling their surplus energy or temporarily reducing consumption (demand flexibility). By opening up our system to new players and technologies, Elia Group wants to create a more competitive energy market while maintaining security of supply at all times. To achieve this, Elia Group ensures that every market player has transparent, non-discriminatory access to the grid.

G4 - EUS – DMA DEMAND-SIDE MANAGEMENT PROGRAMMES

Elia Group wants to facilitate further market integration, at both of national and European level. We give new players and technologies a chance by innovating in our systems and by introducing new market products.

Developing cross-border balancing mechanisms requires greater cooperation and coordination, as well as an appropriate legislative framework.

30 mio

END USERS (ELIA GROUP)

Learn more about the Consumer-centric System.

"In 2018, Elia Group has taken the first major step in creating an open system that puts consumers at the centre. Experts at Elia partnered up with innovative market players to realise the ambitions outlined in Elia Group's Vision Paper 'Towards a consumer-centric system'. There is still a great deal of research and development to be done to get the system off the ground, but technology is developing at the speed of light. Elia Group is currently in the sandboxing stage, in close cooperation with the distribution system operators. "

Patrick De Leener –
Chief Customers, Market & System Officer at Elia

OBJECTIVES

We are redesigning the market to encompass all kinds of technologies and market players, independently from the grid they are connected to, so they can fully exploit the economic benefits. We are committed to fostering a single European internal energy market.

AMBITIONS

Towards an open and integrated market

Making transmission capacity available to market players across international borders is a source of added economic value for the community as a whole. It makes energy markets more accessible and thus more competitive. Consumers can access the cheapest energy wherever it is available.

Steer and implement the European regulatory framework

Initiated by the European Commission, the European Network Codes are drawn up on the basis of proposals by the transmission system operators and are designed to provide the energy market with a common legislative framework applicable to all Member States. The European Union (EU) is keen to strengthen the strategies in place to make the pan-European energy market a reliable, competitive and low-carbon sector – as the Clean Energy for All Europeans package has intensively shown.

Efficient use of the grid

Elia Group makes its contribution to achieving the climate goals by integrating the continuously increasing amount of renewables into the grid in the most effective and efficient way.

Our expertise at society's service

Elia Group is an active member of a number of national and European associations and gladly makes its expertise available to help plan the energy system of the future. We regularly conduct in-depth studies to enable us to give sound advice about the electricity system's needs. Moreover, Elia Group is highly society-oriented and sets up project groups in order to gain a better insight into market players' needs and requirements and to identify the best solutions.

"50Hertz has to bridge the gap between what is feasible in terms of grid expansion and what is needed given the increase in renewables and the energy transition. We recognise that we cannot expand the grid indefinitely and we also believe that public acceptance is near its limits. To handle future increased transport capacity, innovative solutions are necessary. In addition to high-voltage direct current lines (HVDC), such as the SuedOstLink, grid reinforcement measures with high-temperature low sags (HTLS) or weather-dependent overhead line operation. Furthermore, we test the possibilities of the planned and plannable higher capacity utilisation of individual lines in our grid."

Dirk Biermann –
Chief Markets and System Operation Officer at 50Hertz

Efficient use of the grid and control of the system

To make sure the grid runs smoothly 24 hours a day, the transmission control centres of both Elia and 50Hertz activate the regulation tools needed to ensure a secure grid. This led to a reliability rate of 99.999 percent in 2018. They have access to ancillary reserves which contribute to maintaining the frequency and voltage on the electric system, managing congestion and balancing generation and consumption in real time. Historically, mainly large conventional power plants have been providing these ancillary services. As the leading role is shifting from conventional power plants towards renewables (e.g. defined in the German 65 percent renewables goal), providers like battery storage, power-to-X technology and also the different renewable energy technologies will play an important role in the coming years and decades. Additionally, "demand response" like detachable loads and new flexibilities from small-scale devices will be needed for a secure and efficient system operation.

01 **Frequency Containment Reserve**

Frequency Containment Reserve (FCR) is activated upwards and downwards automatically and on a continuous basis, within 0 to 30 seconds, as required to stabilise the frequency of the European grid.

02 **Automatic Frequency Restoration Reserve**

Automatic Frequency Restoration Reserve (aFRR) is activated upwards and downwards automatically and on a continuous basis, in a timeframe of 30 seconds to 15 minutes, as required to handle sudden imbalances in the area managed by Elia Group.

03 **Manual Frequency Restoration Reserve**

Manual Frequency Restoration Reserve (mFRR) can be activated upwards manually at Elia Group's request. It is used to address a major imbalance in the area managed by the Elia Group and/or to deal with congestion problems.

Discover what tools Elia Group's Control Centres use to ensure a reliable grid.

Grid optimisation

Today, 50Hertz is already successfully integrating around 56.5 percent renewables into the transmission grid in northern and eastern Germany. Despite the high proportion of volatile wind and solar energy, system security is always guaranteed. While in Germany a share of 65 percent is planned as a target share for 2030, at the 50Hertz grid area we expect this will already happen in 2021.

What challenges does 50Hertz face in integrating further renewables into the grid?

Dr. Dirk Biermann: "The ambition of 50Hertz and the other German TSOs in the next few years is to integrate the increasing amount of renewables into the grid in the most effective and efficient way. Additionally, 50Hertz has to further develop the grid to enable the extra transmission of renewables from the north to the south and from the east to the southwest. As permitting procedures for new lines are lengthy, 50Hertz is looking at what it can do including optimised usage of the existing infrastructure and enhanced congestion management."

Where do you see the greatest development potential?

Dr. Dirk Biermann: : "Let us first have a look at where we are coming from: when the wind is blowing we have heavy traffic, in particular from north to south, and we face significant bottlenecks on our lines. Also in these critical cases we respect the security rules saying that overloading and tripping of lines has to be avoided, even in case of an additional outage in the system. This is European standard. To meet this requirement, we keep redundant transmission capacity available just for the outage case (the "n-1 case"). Nevertheless we believe that part of this redundancy could also be used in normal operation if we can ensure that we are flexible and fast enough to react on outages appropriately. This sounds logical and easy, but it means a paradigm shift towards new automation concepts in system operations, new steering mechanisms for power flows in the grid and the optimised coordination of flexibility sources. We believe so strongly in such innovation that we have incorporated it already to some extent in the German grid development plan. On the one hand this makes sure that we do not go for any investment that ultimately might not be required, on the other hand, we rely on future innovation that nobody can foresee today. It is good to be optimistic and we will deliver this innovation in the coming years. Society however should be aware of the fact that our promise is not a given, not a short-term solution, but a long and uncertain research and development project that takes effort and time."

And what about batteries?

Dr. Dirk Biermann: "Battery prices have dropped significantly and they will gain more and more importance as flexibility providers. For the optimisation of system operations they could help us to react fast enough in the case of outages. We are investigating this as the so-called 'grid booster' concept."

65%

RENEWABLES TARGET SHARE FOR 2030 IN GERMANY

Dirk Biermann – Chief Markets and System Operation Officer at 50Hertz

OPTIMISATION PROJECTS

REEAL - Renewable Energy Sources Unit Redispatch

With a growing share of renewable energy, there is an increasing number of situations in which grid congestion can no longer be efficiently remedied by intervening in the generation of conventional units. In regions with a high share of RES units and little conventional generation, congestion management must in part be remedied by redispatch with distant power plants, leading to considerably higher costs.

In the future, system operators should also be able to use smaller conventional power plants and RES units with an installed capacity of 100 KW onwards for redispatch purposes. This multiplies the number of relevant installations and requires close coordination with the distribution system operators, to which a large number of such units are connected.

According to the current planning, the new regulations will enter into force in 2020. 50Hertz has therefore launched an extensive project to implement the new legal obligations. Employees from many different departments are working together on REEAL, which stands for Redispatch mit Erneuerbaren Energien Anlagen (Renewable Energy Sources Unit Redispatch). Close coordination between the German TSOs, distribution system operators, direct marketers and the Federal Network Agency is to follow.

Integration of alternative flexibility into the secondary reserve

Since mid-2016, Elia has been examining the feasibility of integrating flexibility, other than large gas-fired generation units, into the secondary reserve market and opening participation to units of various sizes and diverse technologies (e.g. biogas, cogeneration, heat pumps), including demand response. In 2018, Elia has developed and consulted with stakeholders concerning a proposal for the Automatic Frequency Restoration Reserve (aFRR) design and implementation plan. In this study, several modifications are proposed including the implementation of a merit order activation, a daily aFRR procurement, rules enabling portfolio bidding and other new features which facilitate the opening of the aFRR market to all technologies, independent of the voltage level and the type of aFRR provider (BRP/BSP). Elia foresees that the new aFRR design, together with a separate procurement of FCR and aFRR products, will go-live in July 2020. Based on a technical and economic assessment, Elia recommends the postponement of the choice to implement Transfer of Energy in the aFRR market.

Preparations for the implementation of dynamic dimensioning and daily procurement of reserves

In 2018, Elia developed a software tool to determine its required reserve capacity on a daily basis. This tool allows the implementation of the new method to 'dynamically' size the balancing reserve needs in near-real time based on day-ahead predicted system conditions, including offshore and onshore wind power, solar photovoltaics, electricity demand, power plant schedules and transmission. Implementation of the dynamic dimensioning together with a daily procurement of Manual Frequency Restoration Reserve (mFRR) is foreseen in 2020, after concluding a parallel run during 2019.

Integrating battery technology for the first time

One of the key responsibilities of Transmission System Operators is to keep the electricity system in perfect balance. In order to achieve the balancing needed, TSOs have contracts in place with many different sources to obtain megawatts in case of a shortage.

On a European level, there is a Frequency Containment Reserve (FCR) in place with 3,000 MW, which is available for the whole continent. This means that any country in Europe can call upon the European FCR in their hour of need. In turn, each country in Europe has an obligation to contribute to this FCR. Belgium, for example, has to contribute 100 MW. As of this year, battery capacity can also be included in the contribution mix in Belgium, enabling other technologies with different voltage levels to participate.

TSO-scale Batteries

In Germany batteries have already been used for primary control reserve for quite a few years. Alongside TSOs and other stakeholders, 50Hertz is exploring the potential of large-scale batteries adding significant additional flexibility to the system. Batteries can be steered to feed-in additional power very quickly – or to ingest power from the system. This can help to react very quickly to outages and incidents. With this innovative system operation we might be able to reduce redundancy in the grid and thus, help to increase the capacity. This idea is now being investigated in a three-year study that started in 2018.

Inertia Stability Study - System Stabilising Measures

50Hertz embarked on a study this year to examine the impact that a decline in conventional power plants has on the system. In Germany there are still a large amount of coal-fired plants and the inertia created by the turbines has a stabilising effect on the grid. However, when there are fewer conventional plants in the system, 50Hertz still has to maintain the grid's stability and make sure there is enough inertia for both regular and emergency operations. Ultimately, 50Hertz believes that it is likely that new devices have to be built in the system to compensate for the decline in conventional power plants.

"The prices for batteries have dropped significantly in the past and this might continue. Although it will remain unrealistic in the short term to economically reduce the transmission task by TSO-scale batteries, it is likely that such components will play an important role to ensure system security in highly loaded grids with little conventional generation in the long term."

Dr. Klaus v. Sengbusch – Head of Strategic Grid Planning at 50Hertz

MARKET PLATFORMS TO MANAGE INCREASING FLEXIBILITY

The BidLadder project

BidLadder is a market platform set up by Elia that has been operational since September 2017. It allows all market players to offer their flexibility on a daily basis to keep the system balanced, regardless of the voltage level they are connected to and the technology they use (generation or demand-side management). This means that smaller units can participate with a high degree of flexibility. Until now, only large generation units with an installed capacity of at least 25 MW could offer their available energy, whereas smaller generation units and demand flexibility were excluded. The platform has been operational since September 2017 for customers connected to the Elia grid. Since early 2018, the platform is also available for the distribution system. Elia will facilitate data exchange within BidLadder by means of the DataHub platform, developed in collaboration with distribution system operators.

"The DataHub is an important step in terms of cooperation and moves towards an integrated market. Three regions - Flanders, Wallonia and Brussels – have worked closely together to align their processes. This really is a joint initiative, with a joint project team and with true, joint governance."

Patrick De Leener – Chief Customers, Market & System Officer at Elia

DataHub project

On 1 January 2018, Elia and the Belgian distribution system operators (DSOs) launched a joint platform called T-DSO DataHub for exchanging data. This is an important initiative to capture a bigger range of flexibility to reduce the balancing cost and therefore the cost to all grid users.

Generators and users connected to the transmission or distribution system (for all voltages greater than or equal to 5 kV) which are able, upon request, to generate electricity or temporarily limit consumption, have had the option of offering Elia this flexibility on a daily basis. When Elia uses the capacity on offer – generally the next day – the market players and grid users are remunerated. In so doing, market players and grid users can actively help to maintain balance on the system.

The DataHub development follows the launch of BidLadder, a platform allowing market players to provide Elia with all the flexibility they have in their portfolio. To open BidLadder to the distribution system, Elia and the DSOs needed a tool to facilitate these data exchanges. DataHub is that tool.

WindNODE flexibility platform

The WindNODE partner project supported by the Federal Ministry for Economic Affairs and Energy (BMWi) gathers over 70 partner companies and offers an ideal basis to realise such system innovations. The partner network represents all stakeholders of the energy industry, so that direct development feedback can be generated. 50Hertz is the consortium leader for this project.

In 2018, an important sub-project of the 50Hertz-led WindNODE project entered the test phase: The flexibility platform that is intended to show how decentralised systems can be better integrated into processes in the energy industry. 50Hertz together with regional DSOs developed the flexibility platform, which allows additional market participants to offer switchable or shiftable loads and thus their flexibility. On the basis of these offers, distributed flexibilities can be integrated into the grid congestion management processes in a technology-neutral way.

In a second sub-project, 50Hertz will further develop the balancing power procedures to improve deployment options for decentralised flexibilities. To be successful, the smart meter infrastructure will provide an important basis as the automated processing of measured values is utterly important for the efficient handling of processes. Furthermore, the data from the intelligent measuring systems will be used to improve the prognosis for markets and system operation – which at the end of the day helps to make the energy transition happen.

"In 2017 alone, renewables amounting to 641 GWh were cut back in the 50Hertz grid area in order not to overload the grids. With this amount of energy, the city of Berlin could have been completely supplied with electricity for two weeks. This is where the flexibility platform comes in as a central building block: suppliers use the platform to report previously unused regional flexibilities for electricity consumption or generation. Bids for the following day and for the same day are possible. System operators check these bids and use them when grid congestion becomes visible in their calculations."

Dr. Georg Meyer-Braune – Project Manager Windnode at 50Hertz

WINDNODE

Towards a single European internal energy market

Elia Group aims to develop the electricity grid and markets from a cross-border perspective. As a Group, Elia and 50Hertz are working closely with other European TSOs and DSOs to improve current methodologies to optimise capacity allocation to increase the potential of electricity exchanges.

XBID, the European Cross-Border Intraday solution

In June 2018, the Nominated Electricity Market Operators (NEMOs) and Transmission System Operators (TSOs) launched the European Cross-Border Intraday (XBID) solution, as well as 10 Local Implementation Projects. This marked an important step towards creating a single, integrated European Intraday market.

The go-live with the 10 Local Implementation Projects enables continuous intraday trading of electricity across the following countries: Austria, Belgium, Denmark, Estonia, Finland, France, Germany, Latvia, Lithuania, Norway, The Netherlands, Portugal, Spain and Sweden. Most other European countries are due to take part in a second 'wave', which is targeted in the summer of 2019.

The XBID solution is based on a common IT system with one Shared Order Book (SOB), a Capacity Management Module (CMM) and a Shipping Module (SM). In the intraday timeframe it allows orders entered by market participants for continuous matching in one bidding zone to be matched by orders similarly submitted by market participants in any other bidding zone within the geographic scope of the XBID solution reach, as long as transmission capacity is available. The XBID solution supports implicit continuous trading and if needed explicit allocation (German/French border). It is in line with the EU Target model for an integrated intraday market.

European-wide intraday coupling is a key component for completing the European Internal Energy Market. With the rising share of intermittent generation in the European generation mix, connecting intraday markets through cross-border trading is an increasingly important tool for market parties to keep positions balanced. The purpose of the XBID initiative is to increase the overall efficiency of intraday trading.

Phase Shifting Transformers

Another major achievement in 2018 was constructing the phase shifting transformers for the interconnectors to both the Czech Republic and Poland. Together with the partners ČEPS and PSE respectively. This project is a shining example of European cooperation.

The TSOs are now able to jointly steer the flow of electricity in a more efficient way. The phase shifters have relieved the load on the grids of our Polish and Czech neighbours and enable us to provide more capacity for European electricity trading at the cross-border interconnectors. In the future, this will play a much greater role than before in successfully advancing the energy transition, with ever higher proportions of renewable energies and the usual high system stability.

Federal Grid Code

After two years of intensive talks with all the market players involved, on 15 March 2018 Elia launched a formal public consultation to revise the Federal Grid Code. This forms the legal foundations converting the European Network Codes into Belgian directives. It governs cross-border transactions on the Belgian electricity market, among other things. This is the first time it has been extensively revised since 2002. After a period of consultation, the amended proposal was submitted to the relevant authorities on 17 May 2018.

XBID HIGHLIGHTS

- **After 5 years of Herculean effort XBID solution went live 12th/13th June 2018**
- **1,550 pages of contracts (MSA, DSA Hosting and DSA Maintenance) were negotiated and agreed with the service provider**
- **11,800 test cases/scenarios were executed by the XBID Testing Group (XTG)**
- **25,403 actions were formally recorded by the Steering Committees, Task Forces and Working Groups**
- **344 physical meetings**
- **480 was the highest number of XBID related emails received in a single day**

OUR COLLEAGUES IN ENERGY ASSOCIATIONS

GRI 102-12

Pascale Fonck, Elia's Chief External Relations Officer, became an ENTSO-E Board Member in June 2017. Patrick De Leener, now Chief Customers, Market & System Officer at Elia, was CEO of CORESO until November 2016, while Jan Van Roost, formerly Head of Settlement, Metering & Data Reporting at Elia, has held the position of CORESO COO since August 2017. Cécile Pellegrin, Elia's Head of Network Operations, has been Head of Development at CORESO since August 2017. In November 2018, Olivier Feix, Head of Communications and Public Affairs at 50Hertz, again became a member of the board at RGI for a two-year period.

Jan Van Roost
COO at CORESO

Patrick De Leener
Chief Customers, Market & System Officer at Elia

Pascale Fonck
Elia's Chief External Relations Officer

Cécile Pellegrin
Head of Development at CORESO

Olivier Feix
Head of Nature Conservation and Permits at 50Hertz

International Cooperation

GRI 102-13

Elia Group is an active member of various international organisations that work to promote the security, sustainability and reliability of the world's electricity grids.

ENTSO-E

The European Network of Transmission System Operators for Electricity (ENTSO-E) represents all European Union operators and other transmission system operators that are connected to the European electricity grid. ENTSO-E acts as a point of contact for bodies such as the European Commission and the Agency for the Cooperation of Energy Regulators (ACER) for matters concerning technical problems and market-related issues.

CORESO and TSC Net

The regional technical coordination centres CORESO and TSC Net bring together various European transmission system operators with a view to enhancing the operational security of grids in Central West Europe. The development of intraday markets has triggered a rise in cross-border electricity flows. CORESO and TSC Net also strives to improve the region's integration of renewable energy generation by exchanging data and expertise.

EPEX SPOT SE

Elia has a minority stake (17 percent) in the holding HGRT, which is a shareholder (49 percent) in the European Power Exchange SE. EPEX SPOT manages a number of electricity trading platforms, mainly in the Central West Europe region (i.e. Germany, France, the United Kingdom, the Netherlands, Belgium, Austria, Switzerland and Luxembourg). These markets account for 50 percent of Europe's electricity consumption.

GO15

Elia Group is a founding member of GO15, a voluntary initiative that brings together the world's 19 largest transmission system operators. The organisation represents 3.4 billion consumers on six continents and draws up joint action plans designed to improve the security and reliability of the global electricity grid.

EEX | EPEX

50Hertz is committed to the development of a common European electricity market. To further this goal, 50Hertz holds 10 percent of the shares in the European Energy Exchange (EEX) in Leipzig and as such also indirectly participates in the European Power Exchange (EPEX) in Paris.

RGI

Both Elia and 50Hertz are founding member of Renewables Grid Initiative (RGI), a unique collaboration of environmental NGOs and transmission system operators from across Europe. RGI promotes transparent, environmentally sensitive grid development to enable the further steady growth of renewable energy and the energy transition.

Delegation from European Commission visits Elia Group HQs in Brussels and Berlin

On March 15, a delegation from the European Commission visited Elia HQ in Brussels to receive training. It concerned a group of civil servants working on various energy projects in the European Commission's representation offices throughout the world, from Burundi to Tajikistan. Elia Group gave a presentation on the company, the role of the National Control Centres and the European electricity market. Later on, Elia Grid International elaborated on the consultancy services it offers clients. Such initiatives allow Elia Group to show the European Commission that we are a reliable partner with the necessary expertise.

As a responsible transmission system operator, 50Hertz regularly hosts delegations of visitors from around the world. Visitors from countries such as the USA, Mexico, Turkey, the United Arab Emirates, Ghana, India and China visited the Transmission Control Centre in Neuenhagen and the 50Hertz Netzquartier building in Berlin. They came to learn about our experience with the secure integration of renewable energies into the transmission system and about the development of the electricity market.

Elia Group CEO opens Best Paths conference and European Utility Week

Chris Peeters called for ongoing commitment to innovation and international cooperation in his speech at the Best Paths conference. The Best Paths project brings together a multidisciplinary team from 11 countries including Elia in Belgium and 50Hertz in Germany. Best Paths aims to develop novel technologies to increase pan-European transmission grid capacity and electricity system flexibility.

Additionally, Mr Peeters was one of the guest speakers at the European Utility Week in Vienna. On November 6, he presented Elia Group's vision regarding a consumer-centric energy system. The event is an annual forum bringing together all the major players in the European energy system. This year's edition focused on digitalisation, decarbonisation, energy markets and innovation.

"Digitalisation is one of the key challenges for Elia Group as it is evolving rapidly in other sectors. This creates high expectations within society, wanting to enjoy its benefits in the energy sector as well. Consumers wish to fully use their flexibility and their investments to maximise their comfort and to minimise their energy bills. On the one hand, by deploying their electrical appliances when electricity is at its cheapest, thus contributing to the system by consuming surpluses during off-peak hours. On the other hand, they want to offer their solar generation onto the grid at a time of their choosing."

Chris Peeters –
Elia Group CEO

Our expertise at society's service

In our role as transmission system operators, Elia Group publishes forward-looking studies to keep our finger on the pulse in the market.

Towards a consumer-centric system

G4 - EUS – DMA DEMAND-SIDE MANAGEMENT PROGRAMMES

In November 2018, Elia Group published a Vision Paper outlining better services and optimised energy bills for prosumers. 'Towards a Consumer-Centric System' encourages households and industries to directly benefit from advanced energy services via a real-time communication platform, an appropriate market design and digital innovations. This will enable end users to fully exploit their technological investments, optimise their electricity bills and contribute to system balance.

With this Vision Paper Elia Group aims to provide insights and open the debate on the energy system of the future. Up until now, there is no direct link between consumer's behaviour in the lower voltage levels and the price signals of the wholesale market. The consumer hardly receives any incentive to respond to the needs of the system that copes with variable renewables and the increasing challenge to keep the balance between energy generation and consumption.

By opening the system to potentially millions of prosumers, we could align the interests of system operators, commercial energy players, and consumers, creating benefits for all parties involved: consumers get to increase their comfort and optimise their energy bills, commercial players can create value on new services and system operators will benefit from behaviours more aligned with system needs..

In 2019, Elia - in close cooperation with the distribution system operators - and 75 market parties from different sectors will participate in an open sandbox environment to test innovative concepts for providing energy services to prosumers. The test phase will run until end-2019. In 2018, Elia in Belgium already developed I.O. Energy, an initial use case to test the concept of a real-time communication platform. This was done in partnership with Fluvius, Luminus, Enervalis and Scholt.

ELIA GROUP DEFINES 3 KEY BUILDING BLOCKS TO MAKE THE CONSUMER-CENTRIC ENERGY SYSTEM HAPPEN:

01 A real-time communication platform that sends data from millions of digital assets between the end user and the parties (system operators, market parties, clearing houses, etc.) designated by the end user. The data will remain the property of the end user.

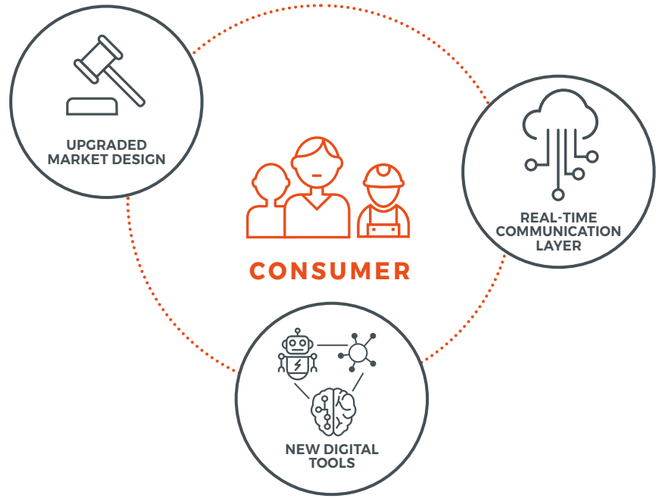
02 An upgraded market design in which it is possible to send signals so that end users modify their generation and consumption behaviour in line with market needs. To this end, commercial parties can develop new services that not only enhance end user comfort but also optimise energy bills by boosting the return on prosumers' technological investments.

03 New digital tools such as Blockchain, the Internet of Things (IoT) and artificial intelligence (AI) that help manage complex system operation with more bidirectional electricity flows. Thanks to improved monitoring, analysis and inspection, system operators can better predict expected generation and adjust the supply accordingly. Commercial market parties can better manage their customer portfolio using improved digital tools and offer fully automated energy services that activate the end user's flexible capacity.

Elia presented the Vision Paper at its annual Stakeholders' Day on Friday, 23 November. More than 250 experts from the energy sector were present to discuss current and future projects. Scan the code to read the paper.

"I'm delighted that Elia, as one of the leading TSOs, has come forward with its vision on how to implement what we are currently discussing at a political level. This is exactly what we need; we need to be fast, we need to anticipate, we need to come forward at an early stage with ideas about how to make the electricity market design revolution happen. I'm very grateful that Elia has taken this initiative."

Klaus-Dieter Borchardt –
Director Energy Market
European Commission



#4

We cooperate to create value for society.

GRI 102-29, GRI 413-1

Elia Group's activities have an impact on the socio-economic development in Belgium and Germany. As a key player in the energy system, Elia Group is committed to continuing an open and transparent dialogue with its various stakeholders. Elia Group takes account of society's needs and concerns at every stage of its infrastructure projects. We approach our stakeholders with empathy, expertise and integrity.

This means that the company takes its corporate social responsibility very seriously, which includes an active commitment to environmental and climate protection. Elia Group respects flora, fauna and biodiversity, uses natural resources conservatively and keeps the energy consumption and emissions of our activities as low as possible.

116.3 hectares

50Hertz MANAGES OVER 116.3 HECTARES OF GREEN CORRIDORS UNDER OVERHEAD LINES.

"To construct the lines and infrastructure of the future, earlier and more systematic cooperation is necessary. 50Hertz is convinced that stakeholder participation leads to better project outcome. The company aims to involve all stakeholders at a very early stage in the process - far before the project is technically designed. By doing so, we incorporate the input into the various planning stages over the entire lifecycle of the project. 50Hertz grid projects are therefore evolving with the stakeholders. We need to enhance our grid project together! Stakeholder participation - not just acceptance."

Olivier Feix –
Head of Nature Conservation and Permits at 50Hertz

G4 - EUS – DMA - STAKEHOLDER PARTICIPATION

OBJECTIVES

We continue to conduct a proactive and open dialogue to stimulate participation from our various stakeholders. We are a transparent and trusted advisor for decision makers to create value for society.

AMBITIONS

Proactive dialogue & stakeholder engagement

We realise the system of the future through proactive dialogue with a variety of stakeholders during the entire project duration based on mutual respect and empathy to come to the best societal and environmental solutions.

Our expertise available for the interest of society

We perform the necessary studies and analyses and act as an advisor to the different governments with regard to the realisation of the energy transition in the interest of society.

"In 2018, Elia set up a new approach for its large infrastructure projects. A key role is given to the governor of the province in which the project will be realised. The governor gathers representatives of civil society (environmental, economical and agricultural) in order to obtain a preliminary consensus on topics such as ambitions, technology, mitigating measures and corridor. Such a consensus is then used to gather input from mayors and citizens. This approach helps not only to control risks but also offers opportunities for project improvement. Sustainability is also on top of the agenda and a number of projects were introduced to minimise Elia's ecological footprint and to assist local communities."

Ilse Tant –
Chief Community Relations' Officer at Elia

G4 - EUS – DMA - STAKEHOLDER PARTICIPATION

Stakeholder participation

GRI 102-43, GRI 102-44

Elia Group is convinced that early involvement with all stakeholders is vital for the success of the energy transition and for the huge projects needed to make it happen. In 2018, the Group continued its efforts to gather valuable input right from the start. Already in the early concept stage, we are working closely with all stakeholders such as local communities, associations, NGOs and various government organisations. We've set up several initiatives with governors and mayors who are indispensable when it comes to bringing all the interested parties together.

STAKEHOLDER ENGAGEMENT

GRI 102-21

Roadshows to help build bridges

In 2018, Elia embarked on a roadshow to seek the opinions of the federal and regional politicians and members of civil society on the large future grid projects which are part of the new federal development plan 2020-2030. The support obtained during the roadshow was the basis to start the permitting preparations for two large projects in the Flanders and Walloon region. In that respect, Elia works closely with the Belgian provincial governors, who take a lead role in outlining infrastructure plans to the residents in their region. Governors help build bridges between Elia and the regional interests. They understand the local sensitivities and know the interest of their province.

Tailor-made participation using a standardised toolkit

50Hertz has a special toolkit, which incorporates a strategic approach applied to all of its grid projects. The toolkit includes a wide variety of initiatives from town hall meetings, info markets, dialogue tours, workshops, meetings, info campaigns to digital platforms. The participatory tools are enhanced yearly, also thanks to the exchange of experience with other international infrastructure companies and NGOs.

Tariff Methodology 2020-2023

In the first months of 2018, CREG and Elia consulted each other on the tariff methodology that will apply for the 2020-2023 regulatory period. This consultation led to adjustments in different areas, such as the setting of incentives for the new regulatory period, the way in which the fair margin is determined, the level of adequate gearing, but also different adaptations to reasonableness criteria or the tariff structure. Following consultation with Elia, CREG submitted its proposal for a Tariff Methodology for public consultation. After taking into account the comments made, the CREG definitively approved this Tariff Methodology on 28 June 2018. Elia will have to comply with this Tariff Methodology in order to establish the 2020-2023 Tariff Proposal, on which a public consultation is being held at the end of winter 2019.

Watch the video on how 50Hertz involved its stakeholders in the compactLine project.

"Elia aims to get the political stakeholders and regulators involved as early as possible and in 2018 started discussions up in the early phases of many projects. Improving the information flow also in turn, builds up trust. A good example concerns the Federal Regulatory Framework whereby Elia has to outline its transmission tariffs for the next four years. The next tariffs will be applicable as of 2020, but Elia has already discussed with the CREG the tariff methodology fixed by CREG in 2018. This gives all parties a chance to outline their point of view and explain the drivers in plenty of time, rather than merely announcing new tariffs in 2020."

Pascale Fonck – Chief External Relations Officer at Elia

Stakeholder events

50Hertz held various information events in 2018 with different stakeholders. In November, more than 250 guests from all political persuasions attended **a Parliamentary Evening** held at 50Hertz headquarters having the leader of the Green Party, Annalena Baerbock, the CEO of the German Association of Energy and Water Industries (BDEW) and the Parliamentary State Secretary at the ministry of environment, Rita Schwarzluehr-Sutter, as keynote speakers on the panel. Representatives from several federal ministries, the German Parliament, major industrial companies, NGOs and associations attended the evening to get involded in a lively exchange on how to safely integrate 65 percent renewable energies in the grid by 2030.

In the political arena, 50Hertz also holds a regular **'Energy Lunch'** in Berlin whereby it meets with political stakeholders, NGOs and associations. Regarding the Federal State level, 50Hertz is invited regularly to a so-called "Ländertreff Netze Nordost" where representatives of all the Federal States in the 50Hertz grid area discuss the most pressing energy policy challenges with 50Hertz experts. Additionally, the company has about 100 meetings a year with international, national and local politicians, industry representatives or NGOs to provide transparency to specific topics where it is needed and asked for.

DSOs, electricity consumers, steel plant operators, manufacturers, producers of lignite and renewables developers were just some of the clients participating in the one-day **Client Forum**, which includes tough discussions but a mutual respect for each other's point of view.

250

GUESTS FROM ALL POLITICAL PERSUASIONS ATTENDED A PARLIAMENTARY EVENING HELD IN AT 50Hertz HEADQUARTERS.

"On the one hand there is clearly the overall political and societal drive to achieve the energy transition and the clear legal framework and even pressure to accelerate the required high-voltage grid extension in Germany. On the other hand, however, there are concrete and very personal concerns, that are quite understandable. In this dilemma, 50Hertz believes that dialogue with all stakeholders is the only way forward and the most effective way to finding a balanced solution between these fundamentally opposite viewpoints. This dialogue takes many forms, depending on the stakeholders, but is and always has to be conducted in a respectful and transparent manner."

Kerstin Maria Rippel – Head of Communications and Public Affairs at 50Hertz

Elia's Stakeholders' Day 2018

On Friday, 23 November, Elia held the annual Stakeholders' Day, bringing together more than 250 experts, market players and stakeholders from the energy sector to discuss current and future projects. Two ministers were guest speakers at this event: Alexander De Croo (Belgian Deputy Prime Minister and Federal Minister of Development Cooperation, Digital Agenda, Telecommunications and Postal Services) and Marie Christine Marghem (Belgian Federal Minister of Energy, Environment and Sustainable Development).

Watch the Stakeholders' Day 2018 aftermovie.

CONCEPT NOTE MOG II

Understanding the government's ambition to achieve the energy transition, and the need for more renewable energy, Elia participated in a Task Force created by the Belgian government to draft a 'Concept Note' for the legal framework for the second wave of offshore grid infrastructure such as 'MOG II'. MOG II will connect new wind farms in the Belgian part of the North Sea, in line with Belgium's energy strategy/pact and the government's Marine Spatial Plan 2020-2026 for new zones for the generation and transmission of electricity. Work on the Concept Note began early in the year and was approved, enabling the Task Force to create the first elements of the new legal framework.

Elia's Users' Group

The Users' Group is a consultation body that brings together representatives of various groups such as major consumers, power producers, suppliers and distribution system operators, but also employers' organisations, power exchanges, public authorities and many more. Elia uses the Users' Group as a forum for informing and consulting these stakeholders about a range of specific areas connected to the operation of the electricity market. Moreover, positions on specific issues and recommendations are passed on to the relevant minister(s) and/or regulators.

Elia launched public consultation on the Federal Technical Regulations amendment

On 15 March, after two years of intensive talks with all the market parties involved, Elia launched a formal public consultation for the revision of the Federal Technical Regulations. This is the basis for the legal document that regulates cross-border transactions for the Belgian electricity market. The proposal put forward by Elia is the first thorough review since 2002.

During the consultation period which lasted four weeks, stakeholders have been able to share their views and officially react to previous proposals from different meetings and workshops organised by Elia in the framework of the Users' Group.

On 17 May 2018, Elia submitted the final proposal to revise the Federal Technical Regulations to the competent authorities, including a submission note with the consolidated reactions from the consultation process.

Draft proposal Capacity Remuneration Mechanism

At the end of 2017, Elia published an Adequacy Outlook report concluding that there is a need for investment in new generation capacity in Belgium in light of the planned nuclear phase-out by 2025. Other independent studies came to the same conclusions.

During 2018, upon the Belgian government's request, Elia, together with the Energy Administration and the CREG assisted the federal government in working out the high level design principles of a so-called Capacity Remuneration Mechanism (CRM). The aim of a CRM is to outline a framework to provide timely investments in generation capacity (thermal capacity, demand side management etc.) which is necessary to ensure Belgium's adequacy in 2025 and beyond.

The Belgian government is set to approve the initial CRM design proposal in the first quarter of 2019. Following that the detailed design principles will have to be worked out with all the stakeholders before the design is submitted to the European Commission for validation. The intention, outlined in the draft law, is to have a first auction in 2021. The resulting new capacity has to be delivered by the 2025 deadline.

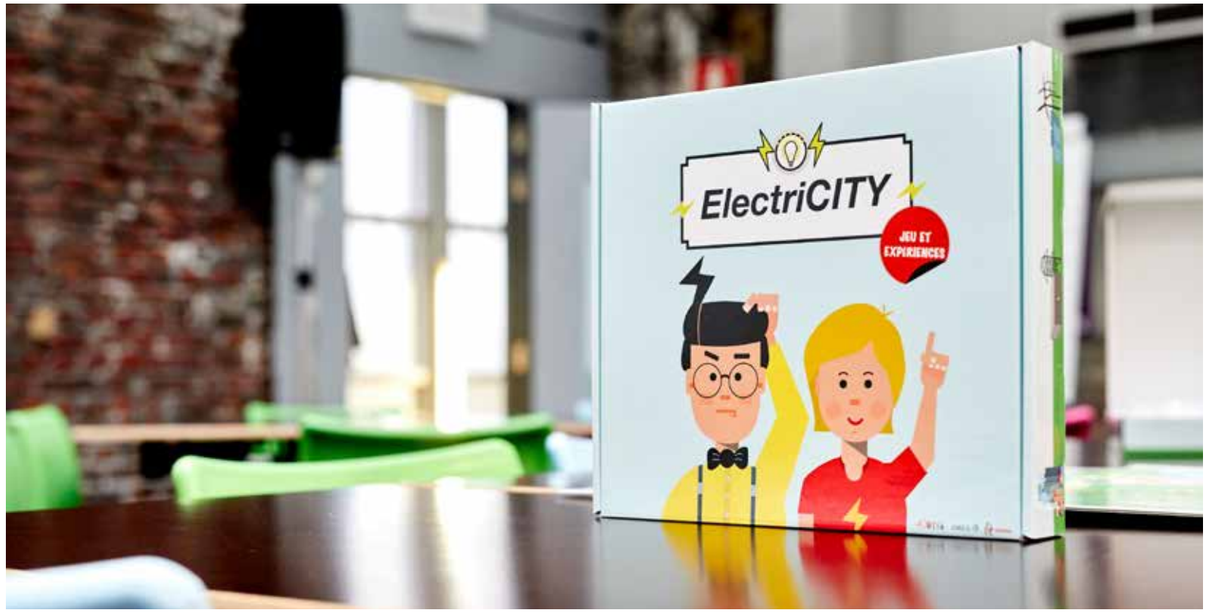
Enhanced stakeholder dialogue

In 2018, 50Hertz continued to systematically work with local mayors and this has proven to be invaluable. By providing mayors with details of a proposed project first hand and as early as possible, they are enabled to share this knowledge with local residents. This approach greatly supported the process of early participation of citizens and stakeholders and enriched the dialogue.

"The 50Hertz stakeholder participation approach in grid development is also very much appreciated by society and politics. 50Hertz treats its stakeholders with respect, shows local presence and that it is handling projects in a sensitive and sustainable way. Ultimately, it is most important to improve our projects by integrating local knowledge. Hence, Public Acceptance is an integrated part of the permitting procedure."

Danuta Kneipp –
Head of Public Participation
Combined Grid Solution
at 50Hertz

G4 - EUS – DMA - STAKEHOLDER PARTICIPATION



CORPORATE CITIZENSHIP

Helping refugees find employment

For the second year, Elia took part in a training scheme for young refugees called 'Rising You' in partnership with the Flemish employment agency VDAB and IRIS Anticorrosion, a company specialising in the condition and maintenance of industrial production sites.

In spring 2018, "Rising You" organised specialised training courses in painting power pylons, mast and telecom tower climbing. The hugely successful project resulted in 46 of the 48 refugees finding work and will be pursued in 2019.

Partnership with Be Planet

For the past two years, Elia has been working with the public utility foundation Be Planet to develop and support ecological transition initiatives by citizens in municipalities where Elia infrastructure projects are underway.

On 18 December, Elia, Be Planet and Courcelles municipal council unveiled the winners of the call for projects launched in Courcelles, in the province of Hainaut. The winners were chosen on the merits of their projects promoting the ecological transition and sustainable development. The partners have allocated €30,000 to provide material and/or financial support to four community projects ranging from the safeguarding of bees and biodiversity to promote local and environmentally-friendly food production.

Take a look behind the scenes of Open Site Day 2018.

EDUCATIONAL PROJECTS

Elia gives guest talk on ElectriCity at primary school in Temse

On October 18, Elia experts gave a guest talk on energy at Hollebeek Free Primary School in Temse. Its pupils see the progress of the Mercator-Horta project on a daily basis, so this provided an ideal opportunity to give a talk on the subject.

Using the ElectriCity game that Elia launched last year, the pupils were able to learn about energy in a fun way, including the energy transition and how to cope with the challenges involved in expanding the high-voltage grid.

ElectriCITY is a free educational pack for children aged 10 to 14, which Elia developed in collaboration with the distribution system operators. The pack aims to make young people aware of the importance of electricity and the rational use of energy. In 2018, Elia finalised the German and French versions.

Fifth-year pupils at the Calmette community primary school in Frameries were the first to test the new educational kit during a press conference organised at the Pass de Mons scientific adventure park, attended by Walloon Minister of Energy Jean-Luc Crucke, Elia CEO Chris Peeters and representatives of Ores and Resa.

50Hertz participatory exhibition is making the energy transition tangible

The participatory exhibition "Turning Energy Together", developed by 50Hertz and the Independent Institute for Environmental Issues (UfU e.V.) at the end of 2012, illustrates various aspects of the energy system transformation in a playful way. The exhibition has been honoured by the German UNESCO Commission as a project of the UN Decade of Education for Sustainable Development. In 2018, more than 1,100 school pupils attended the participatory exhibitions.

Open Site Day: Elia opens doors of Nemo Link conversion station in Bruges

On 6 May 2018, Elia once again participated in Open Site Day, an initiative of the Belgian Construction Confederation. On this day, special building sites are opened to the public. Elia offered one-time access to the Nemo Link conversion station in Bruges, due to be operational in early 2019.

Boarding for offshore wind

With the support of Elia, 800 people enjoyed a free trip to the wind farms in the Belgian North Sea over the weekend of 15 and 16 September 2018. On the way they were given some technical insights that helped them to fully appreciate the experience. The wind turbines now operating are generating enough electricity to meet the annual power needs of 1 million Belgians, and Elia and the Belgian Offshore Platform (BOP) organised this joint public event to celebrate the milestone. Elia will connect the future wind farms to the Modular Offshore Grid. See page 44.

At the 4th Renewable Energy Day in Mecklenburg-Vorpommern around 300 interested citizens had the opportunity to get information about the various offshore projects.

" Be Planet's mission fits perfectly with our social role as a grid operator. We are working to ensure a smooth transition to the electricity grid of the future, which will be reliable, sustainable and affordable. This involves cooperating closely with regional and local actors and, where possible, creating win-win situations. Be Planet helps us to connect with local community organisations and work with them to enhance biodiversity and energy efficiency."

Julien Madani – Project Communication Manager at Elia

Mitigating environmental impact & promoting ecological diversity

GRI 304-1
GRI 304-2
GRI 304-3

Energy infrastructure projects are linked to legal obligations to mitigate and compensate environmental impact. However, Elia Group sees environmental aspects as an opportunity to properly integrate mitigation measures into the planning process and then enter into a collaborative dialogue to work out suitable societal measures with local stakeholders.

For an overview of all compensation measures taken by Elia and 50Hertz please consult the Elia Group Sustainability Report 2018.

Discover how Elia creates green corridors under overhead lines.

"This Green Deal is a strong commitment from Elia to further enhance and promote biodiversity and rehabilitation of natural habitats along the power lines and around our substations."

**Igor Lefebvre –
Head of Environment & CSR
at Elia**

IN BELGIUM

Elia signs up for Green Deal Business and Biodiversity

Elia has joined more than 100 companies in signing the Green Deal Business and Biodiversity, an initiative by the Flemish government's Environment Department encouraging companies to enhance biodiversity on their premises. Elia is committed to implementing additional measures along our high-voltage infrastructure over the next three years.

26.24 km

OF BIRD MARKERS INSTALLED UNTIL 31/12/2018 (ELIA)

Creating green corridors under overhead lines 2.0

To ensure our security of supply, safety distances around the electrical conductors of our high-voltage lines must be respected. Unfortunately, this implies regularly cutting down everything that grows below the lines. In 2011, Elia set up the Life+ project in collaboration with RTE, and funded by the European Commission and the Walloon Region, to try and find solutions that ensure safety distances, whilst preserving biodiversity.

This seven-year project was hugely successful and we managed to transform 130 km of forest corridors into fully-fledged 'ecological corridors'. Instead of cutting down trees and shredding vegetation, Elia now plants small trees, creates ponds or brings in sheep to graze the vegetation naturally. This method presents no risk to the grid or wildlife and encourages local fauna and flora, which are gradually reclaiming the land. Decisions were always taken in consultation with owners, farmers, hunting clubs, municipalities and administrations, and long-term agreements were concluded.

In view of these positive results, Elia decided to launch a five-year follow-up project, LIFE 2, but this time without any external funding.

Installing bird markers

In 2015, a joint study by Elia, Natuurpunt, Natagora, Vogelbescherming Vlaanderen and the Flemish Institute for Nature and Forest Research (INBO) found that 3.4 percent of Elia's network of overhead lines was hazardous to birds. This is because some high-voltage lines are almost invisible to flying birds. Based on precise mapping of the areas most at risk, Elia drew up an action plan to reduce the risk of bird mortality by installing bird markers. These spring-like devices are fitted on the lines and reduce the risk of collision considerably. Since 2016 we have installed bird markers on more than 26 km of lines.

Installing nest boxes on our facilities

Elia places nest boxes on some of its facilities to provide secure nesting places to help to preserve endangered species. The birds' natural nesting periods are taken into consideration when installing these boxes. Over the past 17 years, Elia has set up no fewer than 56 nesting boxes for protected bird species, including kestrels, peregrine falcons and tawny owls. Some of these nest boxes are very successful, for example as many as 42 peregrine falcons have been hatched in the nest box in Schelle since 2002.

Learn more about 50Hertz's compensation measures.

710

COMPENSATION MEASURES IMPLEMENTED IN 2018 TO MINIMISE THE IMPACT ON NATURE AND DIVERSITY (50Hertz)

IN GERMANY

710 Compensation measures

50Hertz pursues the principle of minimising the impact on nature and limiting biological diversity. Whenever interference with the environment cannot be avoided, 50Hertz implements compensation measures. In 2018, 710 compensation measures were implemented.

Southwest interconnector: Important biotope secured

The Kaiserwiese is home to many protected plants and insects. 50Hertz supports the region of the Ilmkreis in securing and upgrading this important natural heritage site, which is under the protection of the European Flora Fauna Habitat Directive. After the Second World War, the meadow was a drop zone for aircraft bombs. The necessary annual mowing in autumn was only possible under stringent safety precautions and high expenditure. For years, the head of the Lower Nature Conservation Authority had tried in vain to organise the necessary care for the important habitat of native plant and insect species.

Now in summer, the gladiola is in full bloom. Swarms of butterflies, including very rare species, indicate that the measures have been successfully implemented. The management plan for future care is still being worked on. The time for mowing in autumn, for example, must be well chosen in order to take rare insects into consideration.

Large biodiversity projects and ecopool partnerships

2018 has been the year where 50Hertz has worked out a long-term ecological approach to foster the development of ecopools in its region through offering multi-annual partnerships. Such ecopools can combine multiple ecological dimensions to enrich ecosystems with fauna and flora. Against the background of the offshore development on the coastal region of Mecklenburg-Western Pomerania, 50Hertz has paid a lot of attention to developing maritime projects such as the removal of a large, artificial dam in the Baltic Sea which was blocking the way water was flowing, leading to a build-up of harmful sedimentation. 50Hertz also initiated the development of a concept to reconstruct reefs in the Baltic Sea region with WWF.

Ecological aisle management

In order to accommodate an overhead power line in forest areas, aisles are usually built. Due to the necessary safety distances, the conductors need sufficient clearance to the sides and to the ground. Trees must therefore be removed regularly in sections along the corridors. However, trees and shrubs provide habitats for numerous animals and plants. Therefore, the goal of 50Hertz is to impair these natural spaces as little as possible in the long term and to increase biodiversity under the overhead lines. In the course of the project, a biologically diverse and valuable aisle develops. German authorities demand that ecological aisle management has to be realised in new construction projects. 50Hertz adheres to these demands and also uses ecological aisle management on existing terrains on a voluntary basis.

Improving the birds' protection line

High voltage lines can have an adverse effect on birds. Besides concrete actions to support bird species (such as special nests on pylons, aviaries for birds of prey), in 2018, 50Hertz installed additional bird protection markers along specially chosen sections of the existing grid. In the frame of the Renewables Grid Initiative, the company further improved a project conducted by Naturschutz Deutschland e. V. to set up a national "Vogelfund und Stromleitung" hotline (bird finds and power lines hotline). This pioneering initiative – which is the first bird find hotline ever – provides the opportunity to systematically assemble precise information about the impact lines have on birds.

EXAMPLES OF COMPENSATION MEASURES

PLANTING
Planting tree aisles and rows, hedges, orchards

FORESTRY
Forest restructuring, first afforestation

HYDRAULIC ENGINEERING
Pond renaturation, restoring straightened rivers to their original condition, creating small bodies of waters, renaturation of flowing and still bodies of waters

OTHERS
Cabling medium voltage lines

DEMOLITION
Unsealing, demolition of buildings in community outdoor areas

SPECIES PROTECTION
Building amphibian protection facilities, nesting aids, bat habitats, reptile habitats, species protection towers

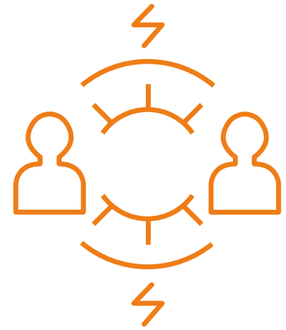
#5

We align culture with strategy.

2018 was a particularly important year for Elia Group because of the change in shareholdership. By further joining forces, Elia and 50Hertz will play an important role in positioning Elia Group as a strong brand in the European labour market. We are well aware that the success of Elia Group relies on the achievements and engagement of our people.

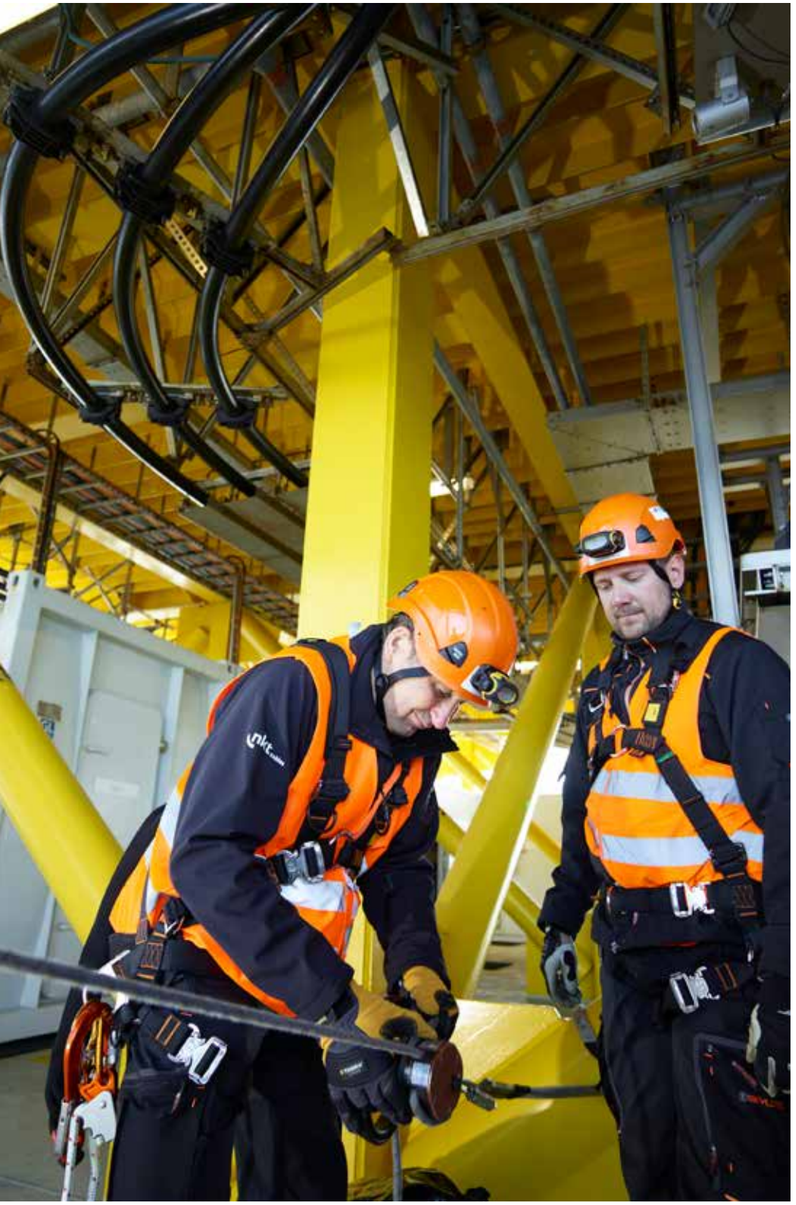
We want to attract the brightest talents by being the leading Group of TSOs in Europe guaranteeing equal opportunities for all. We want to help our employees to develop their skills to create a high-performance organisation that empowers people to take more initiatives.

By establishing a corporate group culture with strong safety and sustainability awareness, Elia Group will positively face the challenges of tomorrow.



2,441

TOTAL NUMBER OF EMPLOYEES (ELIA GROUP)



"Elia Group is an ambitious company that operates in a fast changing sector. To be able to maintain our key role in this dynamic environment, we are strongly committed to innovation and cooperation across departments. We also strive towards a company culture of permanent feedback. By giving feedback in a constructive way, we support each other in our daily tasks. This is essential for a modern and agile company that wants to respond quickly to trends both within and beyond company boundaries."

Peter Michiels –
Chief Human Resources and Internal Communication Officer at Elia

OBJECTIVES

We want to implement a corporate group culture that puts safety and sustainability at the centre of our activities and leverages the full potential of our talents to establish a high performance organisation.

AMBITIONS

Putting safety first

As a Group, we constantly invest in safety and expect our staff (both in the field and at administrative sites), subcontractors, colleagues, the distribution system operators, and all others to work safely and responsibly at all times.

Growing our talents

Elia Group analyses the available and required talent within its organisation to identify possible talent gaps. We are committed to continuously develop talent by providing individual growth opportunities. Additionally, we stimulate diversity in the composition of our teams and strongly condemn any discriminatory acts in the work environment.

A culture based on feedback

In order to ensure excellent performance at work, we encourage an open feedback culture, which outlines our expectations regarding competencies and behaviours. From these dialogues, we derive consequences to keep performance at a high level.

Making sustainability part of our DNA

Elia Group wants to play a central role in the sector and create value for all stakeholders. That is why we consider sustainability in all aspects of our business.

GRI 102-16

OUR ASPIRATIONAL VALUES

In a changing energy sector, four aspirational values are key to achieving Elia Group's strategy. They are reflected in the behaviour and attitude of our staff.

We are entrepreneurial

Our staff work proactively and take initiatives with a view to improving how they work and exploring new ways of doing things.

We collaborate

Elia Group values collaboration, both within the company and with external partners. Our staff share their expertise and their information and question each other, thus enabling their ideas to mature. They seek fruitful collaborations and win-win partnerships.

We are accountable

All of our staff take full responsibility for their projects and tasks. They achieve their motivating, ambitious targets and work hard on their projects until they are completed.

We are agile

In a world of constant change, our staff embrace new developments, are proactive and persevere.

"In 2018, 50Hertz continued to set the course for future sustainable development by addressing a number of factors such as the regulatory setting, empowerment measures and also the further development of the Environment Social Governance (ESG) framework. This had an influence on the company's strategy and several measures have been included in its new business plan. We are keen to see sustainability becoming a part of the company's DNA, and consequently wants to see standards firmly embedded in the culture of the company. Sustainability is a vital consideration in all aspects of the business but particularly when it comes to those at the heart of the company – the employees."

Marco Nix –
Chief Financial Officer at 50Hertz

Safety always comes first

GRI 403-1

Safety is a critical part of our corporate culture. Elia Group aims to develop a genuine safety culture, pursued by each and every person and department within the company. Right from day one, our employees are given thorough safety training to ensure that they respect their own safety and that of their fellow workers and the environment at all times. In addition, we have a special focus on the safety of the subcontractors and third parties that work alongside us.

"50Hertz's main priority is that its employees have a safe and healthy working environment. A big campaign was conducted during 2018 highlighting best safety practices. At the various touchpoints of the different target groups there was information and instruction that was directly tailored to the respective group. These ranged from a broad programme to spotlight lessons learnt about 'near misses' or if they have an idea about how safety can be improved to a HQ sticker and poster campaign to inform staff members about potentially dangerous practice. Although 50Hertz and Elia have their own well-established, safety programmes in place, one thing is clear – the two companies have the same vision and are striving to reach the same goals. By exchanging best practices we can learn from each other and support each other in reaching our goals."

Thorsten Schröder –
Head of Health and Safety at 50Hertz

IN BELGIUM

GO FOR ZERO safety programme

GO FOR ZERO is a company-wide initiative and includes all projects that aim to optimise the safety culture within Elia. Our primary objective is for anyone who works on or near our facilities to return safe and sound every day. We firmly believe that excelling in this area is a prerequisite for operational excellence.

GO FOR ZERO SAFETY PROGRAMME

THE FIVE PILLARS OF GO FOR ZERO

01 People & technical skills

In an ever-changing world, everyone needs to hone their skills constantly and learn continuously.
The People & Technical Skills project aims to catalogue the technical and behavioural skills within Elia, then develop training paths to enhance these Elia skills.

02 Operational & Safety Excellence

Feedback, open dialogue and regular communication within and between teams are all absolutely vital if Elia's ambitious targets on safety, efficiency and operational quality are to be met. Continuous improvement entails researching and developing solutions to operational problems.

03 Operational & Safety Excellence with DSOs

Elia shares many high-voltage substations with distribution system operators. In view of this fact, Elia and its colleagues in the distribution sector decided to launch a project to enhance safety.

04 Safety for Contractors

In response to the energy transition, Elia is undertaking the most ambitious investment programme in its history. In cooperation with its contractors, Elia is striving to ensure that they too, have optimal safety and zero accidents.

05 Safety Leadership

Elia structurally implemented a management style that encourages employees to report risky behaviour and to work safely. Every manager must inspire and set an example, while also creating a climate of trust in which all employees adopt safety-oriented attitudes and behaviour and never compromise on safety.

"Elia Group believes that the safety culture is not about more procedures, but about aligning peoples' behaviour. Everyone needs to be a 'safety leader'. If they see anything unsafe, they must stop the work and give their colleague feedback. Work shouldn't restart until the work is deemed safe again. This 'stop work' authority was presented during the Make a Difference Roadshow throughout the year.

In Germany, an initiative rolled out whereby all leaders are asked to be role models and speak with one voice. An internal HR team was assembled and explained this new behaviour and culture in every team meeting."

Stéphane Otto –
Head of Health and Safety at Elia

"At Elia Group, we are committed to ensure that everyone returns home safely every day. This includes our employees, our contractors and anyone working in the vicinity of our installations. Together we go for Zero Accidents, resulting in a Safe Today and a Safe Tomorrow. We aim to achieve these goals by cultivating the right skills, focusing on good operational dialogue between all teams and continuous improvement."

Walter Geelen –
Head of Maintenance & Commissioning South at Elia

ELIA'S SAFETY WEEKS

Each year, Elia organises Safety Weeks for its staff in May and September in an effort to raise awareness about the importance of safety. The programme included various communications, training sessions and team exercises, designed to ensure that everyone got involved and took the messages on board. In May 2018, the spotlight was on non-negotiables, i.e. behaviours that we no longer wish to see in the company. In September, we focused on "Safety on the road".

Awareness campaign highlighting the dangers of Elia facilities

In 2018, Elia relaunched its safety campaign for third parties who work on or near our facilities. By raising awareness about the different risks concerned with working near electrical infrastructure, we hope to limit the number of incidents. Despite our continuous efforts, three fatal accidents occurred this year involving third parties and subcontractors. This has caused Elia to stress the importance of safety measures even further and campaigns will continue to run in 2019.

IN GERMANY

Gib8 - Safety Programme

In March 2018, 50Hertz introduced the 'Gib8' programme, which concerns safety at both project sites and at its offices. But the high 50Hertz standards also apply to contractors working on the 50Hertz construction sites. Therefore, in addition to employees there was a particular focus on suppliers and subcontractors. And if suppliers fail to decrease the levels of safety incidents, 50Hertz is uncompromising – they will either be excluded from the next tender or barred completely from participating in the future. Additionally, suppliers are obliged to have certain sustainability management procedures and high safety requirements in place.

50Hertz GAINS OHSAS RECERTIFICATION

The company-wide, occupational health and safety management system complies with the most important international standard for health and safety at work, the "Occupational Health and Safety Assessment Series" (OHSAS) 18001: 2007.

Overall, 50Hertz is pleased to see that suppliers have been happy to jump on board with the programme and this is having a positive impact. A very good example is offshore, although working in a highly challenging environment -where all the electrical cabling works for Ostwind 1 offshore wind farm were completed ahead of schedule - the number of incidents was drastically reduced by nearly 50 percent.

Ongoing training and awareness raising

The employees working in the substations and in the field are instructed six times a year, those working in the offices once a year. In addition an occupational safety competition is held on a yearly basis to further sensitise and motivate the workforce. On the one hand, the accident figures of the individual sites of the previous year are taken into account, and on the other hand, knowledge of occupational safety is reviewed.

1,190 inspections

A TOTAL OF 1,159 SITE INSPECTIONS WERE PLANNED FOR 2018 AT 50Hertz. HOWEVER, WITH 1,190 INSPECTIONS (AS OF DECEMBER 2018) PERFORMED, THIS TARGET WAS EXCEEDED.

Cultural change

GRI 404-1

In 2018, the main focus for HR was establishing a common ground for a closer collaboration. Both companies have strong local footprints and solid business cultures. Today, we are developing a common, integrated way of working that will transform us into one multinational Group with more than 2,400 employees.

"The intensified collaboration between Elia and 50Hertz offers our employees more personal development opportunities in an international context. It allows for intercultural exchange between colleagues and encourages further knowledge sharing. We are currently working on Group-wide excellent safety standards, for example."

Barbara Verhaegen – Head of Internal Communication at Elia

Building the Elia Group

We have started a joint project to intensify the collaboration between Elia and 50Hertz. With this initiative, we are investigating how the two companies can work more closely together to create added value, increase our joint expertise and build new standards of excellence. Twelve work streams have been identified where we can exchange knowledge about the most important issues affecting the two companies and where improvements or efficiencies can be gained - ultimately in the interest of society. This will help us achieve our ambitions and strengthen our position as a leading TSO group in Europe.

CO-CREATION

Implementing change

Following on from the Employee Survey 'Sag es!' (Say it!) in 2017, 50Hertz is keen to encourage more employee participation, and in turn, more empowerment. In order to tackle the key issues raised in the survey, discussions were held at various departments and the results were translated into solutions.

In another follow up from the 50Hertz survey, a Management Conference was held where 100 managers outlined the measures they had put in place based on the results of the Survey. One key finding was the need to enhance cooperation between different departments and many managers implemented changes to improve this.

Make A Difference – culture based on feedback

At the start of 2018, Elia gave new impetus to the project around our corporate culture by introducing 'Make A Difference' (MAD), an overarching programme of initiatives to help our employees to literally make a difference at work.

One of these initiatives is developing a corporate culture of continuous improvement, in which feedback becomes a regular practice for everyone. We regard sincere, respectful and regular feedback as a tool to help colleagues improve their actions, tasks and attitudes.

"Many companies may carry out surveys but they don't always lead to change. 50Hertz in contrast, aims to implement the changes and improvements suggested by the employees. Improving communication throughout the company is a broad-based initiative."

Julia Persitzsky – Head of Learning & Development at 50Hertz

ELIA'S FEEDBACK CULTURE IS BASED ON 4 GOLDEN RULES:

"It is of the utmost importance to reach a common understanding of all the different objectives we want to achieve during this project. Efficient collaboration and transparent communication within Elia Group helps us all take the right decisions."

Olivier Feix –
Head of Nature Conservation and Permits at 50Hertz

EXCHANGING EXPERIENCES

Elia Group Management Days

In 2018, Elia and 50Hertz continued to hold the annual Elia Group Management Days where 80 managers came once again together to informally exchange information and to continue working on a common culture.

Elia & 50Hertz colleagues exchange best practices on Data Management

On November 7, several colleagues from 50Hertz and Elia met at the headquarters of 50Hertz in Berlin to discuss topics such as customer management, metering and transparency of data. Both companies use similar technical and IT solutions, and often face the same challenges. By working more closely together, we are able to exchange best practices and help each other overcome hurdles.

"The exchange was really enriching which is why we decided to organise another meeting in Brussels in the first quarter of 2019. The aim is to present the evolution Elia has made in the field of validation techniques for measurement data and to show the first screens of the new Meter Data Management (MDM) tool that Elia is currently developing."

Patricia Haemers –
Head of Settlement, Metering, Data & Reporting at Elia

Deep dive into Combined Grid Solutions project

Improving risk management, increasing transparency and optimising the timing of our projects are just some of the objectives of the collaboration project. To underline the importance of efficient collaboration, our CEO Chris Peeters and our CFO Catherine Vandenborre visited the Bentwisch high voltage substation to meet with the teams working on the interconnection project Combined Grid Solution (CGS).

The 50Hertz team and representatives of the project partner energinet.dk gave a detailed overview of the challenges, roles and responsibilities concerning risk and supplier management during the construction of the submarine electricity cable between Germany and Denmark. Chris and Catherine also met with ABB, the construction partner for this project.

Growing our talents

Elia Group has set up several initiatives to combine the best practices of Elia and 50Hertz. The two companies are aiming to build a 'talent ecosystem' which will allow them to incorporate new skills such as digital expertise. We want to make sure that we have the right people on board to build the energy system of the future. A common framework is being established to allow talent to flow freely within the organisation.

Elia Group has revamped the way it exchanges talent between Belgium and Germany.

In the past, there had been a number of one-offs regarding talent exchange for longer term assignments, but now there are many more opportunities for exchanges of three to six months, to enable the best people and best practices to be in place for projects.

172
new hires

IN 2018, ELIA GROUP HAS STRENGTHENED ITS TALENT BACKBONE WITH 172 NEW HIRES.

"For the first time, HR is advertising job vacancies in both countries and many people have taken up the opportunity. For example, an offshore team member in Belgium has moved to Germany to work in procurement and a German employee, previously working offshore in the Baltic Sea has moved to an interconnector project in Scandinavia. Another 50Hertz employee has switched to the customer relationships' department in Belgium."

Dr. Andreas Holleczek –
Recruiting Officer at 50Hertz

Acting sustainably

For Elia Group, environmental protection and conservation of resources is an integral part of our culture and strategy. Elia and 50Hertz are working on a joint sustainability reporting platform – the standards of the Global Reporting Initiative (GRI). This has broadened the Group's view of sustainability. It is no longer simply thinking about planting some trees to mitigate any environmental disturbance; but it is taking a much wider perspective and a deeper approach.

Trainees working with NGOs

Proactive dialogue is part of our sustainable culture and that is why a key part of the traineeship is to work within an NGO to gain a better understanding of their point of view. 50Hertz expects its youngsters to have an understanding of projects from all angles, and all trainees, no matter where they are working in the company are obliged to work at an NGO.

In partnership with suppliers

The close partnership with suppliers is reflected in our supplier agreements, which cover not only occupational health and safety, but also quality management and environmental concerns. The first steps have also been taken to identify and manage human rights duties of care in the supply chain.

Elia Employee initiatives

Elia aims to be a sustainable and responsible company. To achieve that goal we work hard to reduce our ecological footprint both from the top down and bottom up. In 2018, a group of employees launched the 'ambassadorship initiative', in collaboration with Elia's Environment & CSR department. More than 30 colleagues volunteer to tackle sustainable development issues. They share their ideas on Jive, Elia's community platform, and meet on a monthly basis to share ideas and to plan actions.

The first theme is 'food' and the current actions concern battling food waste, introducing more local products and having a social impact.

Elia's Annual Report wins a sustainability award

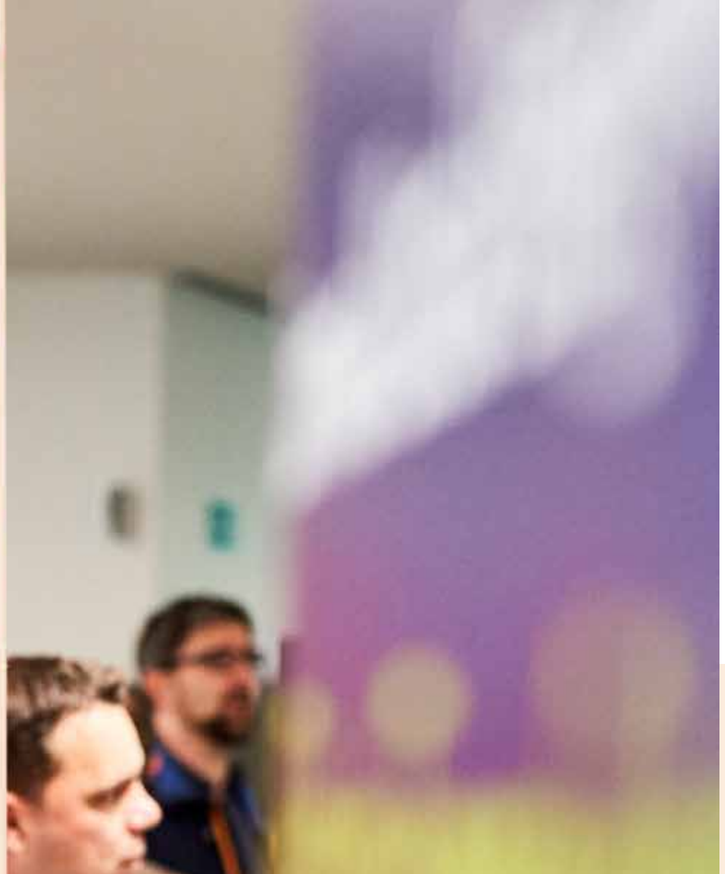
The Elia Annual Report 2017 won the 'Best First Sustainability Report' Award in the category 'First Year Reporting' at the 2018 edition of the Awards for Best Belgian Sustainability Reports. Elia Community Relations Officer Ilse Tant collected the prize on the company's behalf from Thierry Dupont, President of the Belgian Institute of Registered Auditors. These awards are a Belgian Institute of Registered Auditors' initiative aimed at encouraging companies to report on sustainable development and they recognise the importance of transparent communication with stakeholders.

"In 2018 we further improved our ESG rating, this might be a tiny event in the grand scheme of things but all of these small steps are reflected in our purchase price, and our share value. There is a lot of acknowledgement of these soft factors. We get good results and have a solid cash flow, which enables us to perform all of our ambitious projects, and without having to approach the external market! This all signifies that we are professional, and can be trusted to do what we promise."

**Marco Nix –
Chief Financial Officer
at 50Hertz**

#6

We have our eyes wide open for innovation. & growth opportunities



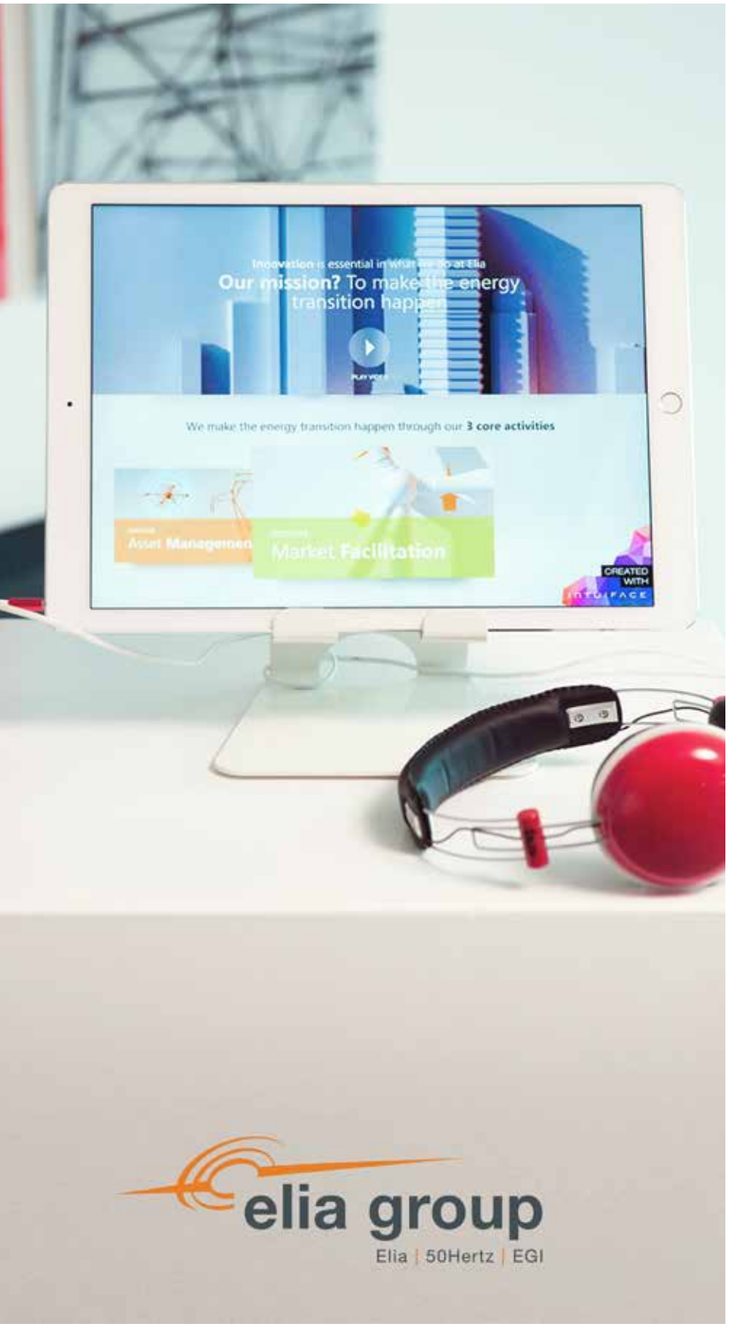
In a rapidly changing energy landscape, innovation plays a key role in understanding, anticipating and promptly adopting the changes needed to ensure the transition towards a more reliable, affordable and efficient energy system. We continue to innovate in our industry, so the power sector can evolve and benefit society now and in the future.

Identified opportunities are examined in depth and proof tested to prepare Elia Group for the next generation of state-of-the-art technologies. Once testing has proven the efficiency of the technology, the innovative initiative is effectively incorporated into our daily practices.

As well as continuing to integrate innovative technologies, we stay abreast of the latest developments in the energy sector. We see this as an opportunity and want to play a pioneering role. Elia Group has a range of initiatives that foster and reward innovative thinking, to ensure that our employees remain at the forefront of new developments.

135

135 START-UPS FROM 38 COUNTRIES APPLIED FOR ELIA GROUP'S 2ND EDITION OF THE OPEN INNOVATION CHALLENGE



"Currently, we distinguish four major trends that are driving the transformation of the energy landscape: big EU renewable power flows, renewable generation and decentralisation. Digitalisation is the motor behind all these trends and together, they will lead to the emergence of disruptive power markets and business models. It is up to us to anticipate the potential impact on our activities and to innovate with the market."

Menno Janssens –
Head of Innovation at Elia

Learn more about how digitalisation is driving the transformation of the energy sector.

OBJECTIVES

We create a culture of innovation and entrepreneurship to accelerate the energy transition. We build an ecosystem to develop the tools and methods that will enable a more digital, decentralised and sustainable energy system.

AMBITIONS

Excelling in managing assets

Renewable energy integration and increased interconnection demand more of our infrastructure. The adoption of new technologies allows Elia Group to improve the use of our assets in many ways providing increased capacity, higher efficiency and more reliability.

Developing and managing tomorrow's electricity grid

Elia Group expands and optimises the grid according to society's needs. We cope with the increase of renewable energy and progressive decentralised generation.

Continuing to be a pioneer in market facilitation

Elia Group designs an efficient and transparent electricity market to ensure a smooth transition to a sustainable, affordable, and integrated European market. Elia Group continuously collaborates with different stakeholders so the market can be adapted in line with the evolving needs of increasing flexibility on the balancing market.

Open innovation through collaboration

In a world of widely distributed knowledge, Elia Group has decided to go for open innovation. We cannot rely entirely on our own ideas and expertise to advance our technology. Buying or licensing processes or inventions from other companies, like start-ups, also makes a valuable contribution.

"In 2017, the new German coalition government stated that the German energy mix should be made up from 65 percent renewable sources by 2030. This means that additional transmission capacity is needed, which would be the equivalent gigawatts of three, huge, HVDC overhead lines.

We believe this is not going to be practicable because it will never gain public acceptance and there is simply not enough space to accommodate these huge lines. Additionally, the impact they have on the environment would be unwelcome.

It is our responsibility to manage the grid challenges and grid expansion intelligently by way of innovation. Therefore, it is the TSOs challenge to reduce the additional need for overhead lines – hence the need for grid innovation."

Nadja Ballauf –
Head of Corporate Development at 50Hertz

Excelling in managing assets

"Moving forward with testing shared air space for new usage is extremely interesting for the industry. As a utility company owning a large and critical infrastructure, being able to use unmanned aircraft for our activities enables us to ensure a reliable and affordable operation of the grid in all circumstances."

Johan Maricq – Innovation Project Leader at Elia

Discover how Elia is using drones and AI in its daily activities.

U-space drone demonstrations in Belgium

The Safe and Flexible Integration of Initial U-space Services in a Real Environment (SAFIR) consortium, consists of 13 public and private organisations that have been selected by Single European Sky ATM Research Joint Undertaking (SESAR JU). As a member of the SAFIR consortium, Elia wants to contribute to the EU regulatory process for drones and drive forward the deployment of interoperable, harmonised and standardised drone services across Europe. These demonstrations include high voltage line mapping and pylon inspection.

For Elia, the use of drones will reduce the safety risks faced by our employees during inspections. Flexibility and efficiency would also improve, helping Elia to keep grid management costs under control.

PROOF OF CONCEPT USING DRONE INSPECTIONS AND ARTIFICIAL INTELLIGENCE

Elia is currently testing two aspects on how drone technologies can improve the quality and efficiency of the inspection of overhead lines and at the same time avoid risk for our employees and colleagues:

- **Generation of an auto flight plan:** At present, a drone pilot needs to carefully operate the drone around the infrastructure while someone else is taking pictures from the camera attached to the drone. With this project, an application will automatically control the drone around the pylon and will take pictures at fixed positions, with fixed angles.
- **Post-processing of the collected pictures:** As mentioned above, inspections of our lines generate a number of pictures. To facilitate all this data, as well as optimising its potential use, new post-processing techniques and data management systems will be needed. One of the most promising techniques available today is the use of Artificial Intelligence to automatically recognise defects.

Testing high-temperature low sag conductors

One longer-term project concerns higher utilisation of the existing grid through high-temperature low sag conductors (HTLS). Convential overhead lines heat up. The more electricity flowing through the lines, the hotter they get and this can lead to lines sagging. If they sag too much, we are not allowed to operate them.

To combat this problem, Elia and 50Hertz are aiming to introduce new conductors, which can cope with a higher flow of electricity. Eight new conductors have been developed by different producers and have been put through a one-year, rigorous testing period. Twenty years of operations were simulated in just a year. We will now decide which high temperature conductors are suitable for future projects.

Satellite supported vegetation analysis

50Hertz is currently working with a Berlin-based company on a project exploring satellite-supported vegetation analysis, which will help 50Hertz manage the pylon aisles in a more ecological way. Ultimately, rather than sending out a technician analysing the necessity of cutting branches away from pylons the growth of branches can be monitored by satellite. As a result, 50Hertz can proactively manage its pylon aisles.

Virtual reality boosts safety

Always on the lookout for new technologies, Elia studied the benefits of virtual reality in our daily activities. Following the conception workshop in 2017, Elia initiated the Sarqa VR project.

Sarqa VR aims to gamify the preparation of on-site interventions. By virtually accessing high-voltage substations, our colleagues in the field are able to apply the necessary demarcations of each Work Order and to identify the potential risks in connection with their intervention.

During this preparation, they can observe whether the safety zones are respected and avoid conflicts with other planned or ongoing works. A "validator" mode is also included making it possible for a safety officer to validate their preparatory work. This tool could also be used for training new employees.

"In line with the European 'Best Paths' research project, which ended in 2018, Elia and 50Hertz jointly investigated high-temperature low sag (HTLS) conductors for overhead lines by technical research (50Hertz) and on-site demonstration (Elia). There has been a great deal of international interest. This project is a real success story and shows what Elia and 50Hertz can achieve when they join forces."

Wilhelm Kiewitt – Specialist Corporate Development at 50Hertz

Experience how we integrate Virtual Reality.

HOW DOES VIRTUAL REALITY WORK IN OUR DAILY ACTIVITIES?

The high-voltage substations are modelled on existing plans and reflect every aspect of reality.

Using a virtual reality headset, the person enters the selected substation. He or she navigates inside the substation using a remote control, and points it in the desired direction.

A second remote control, which appears on screen in the form of a tablet, offers access to various options: defining the working zones by means of cones, chains etc.; placing elements such as service vehicles to see whether these do not enter the safety zones etc.

ADVANTAGES:

- Specifying the preparation of the interventions
- Digitising the documentation regarding the preparation of the works
- Anticipating problems and visualising them within their context

Developing and managing tomorrow's electricity grid

"The construction of the compactLine using a completely new overhead line design poses a wide variety of challenges for everyone involved. Before we can test the safe operation of the new line, many new developments had to be implemented in the field for the first time. For example, the new line tensioning system required not only special fittings due to the high tensile forces, but also adapted installation equipment for the line."

Joachim Löbe –
Head of Line Projects at 50Hertz

compactLine

G4 - EUS – DMA- STAKEHOLDER PARTICIPATION

The practical test phase of the compactLine pilot project which focuses on the increasing acceptance for 380 kV overhead lines, got underway in August 2018. The new pylon is much shorter compared to the traditional Danube pylon, which reaches typical heights of 50-60 m. Additionally, due to decreased sag of conductor bundles, the compactLine technology uses less space than conventional overhead line systems in the overhead line corridor.

For this project, 50Hertz is working with the German Ministry of Economics, universities and industry partners. Issues such as new maintenance procedures and public acceptance are all being considered. New components like insulators and devices also had to be developed. All the various stakeholders, especially the local community and NGOs (for example NABU and WWF), have been closely involved right from the start of the project.

Watch the video on the compactLine project to discover more.

Insulated arms for Stevin

Two new technologies were commissioned in connection with the Stevin project in Belgium. Insulating arms were fitted to compact pylons to replace an existing 150 kV line. Transforming pylons in this way made it possible to increase the voltage level to 380 kV without having to increase the height of the new pylons. High-temperature low sag (HTLS) conductors – which reduce the effects of sag when the temperature on the line is high – now make it possible to increase power on the new 380 kV lines.

Flexibility platform in the WindNODE project

G4-EUS-DMA DEMAND-SIDE MANAGEMENT PROGRAMMES

The 'Flexibility Platform' helps improve the integration of more renewables into the grid, reducing costs and leading to reductions in CO_2 emissions.

The 'Flexibility Platform' is a digital purchasing platform to reduce wind farm cutbacks in the situation when there is grid congestion. In these critical situations some wind farms have to be cut off from the grid and a decision has to be taken concerning which ones need to be temporarily shut down. And this also means that green, renewable energy is being shut off, rather than coal-fired energy etc. Additionally, when the wind farms are closed off, it is still necessary to find another producer – typically these have been producers in Southern Europe, operating conventional energy plants.

The new platform makes it possible to coordinate as many market players as possible - from the distribution grid operator, via retail with its cooling systems and large-scale consumers to decentralised producers. This project highlights a very strong cooperation between 50Hertz and the DSOs. Flexibility Platform looks to make maximum utilisation of flexibilities from many different sources.

Four industrial plants in Berlin, with processes ranging from around 50 kilowatts to 4 megawatts, are involved in the platform, as is a nationwide supermarket chain, which is also making its flexibilities available. Fifty logistics locations and 3,800 branches throughout Germany can lower the temperatures much more dramatically when plenty of sun and wind energy is available. So called virtual power plants (bundling of decentralised generation and consumption plants) are also integrated into the project to avoid the congestion.

50Hertz is very proud to be the consortium leader and to bring more than 70 market players together to reach the test phase of the new platform. The first results of the test phase are expected to be available in Q1 2019.

Continuing to be a pioneer in market facilitation

“Elia Group is convinced that a consumer-centric system will trigger opportunities for a new ecosystem of front-runners to generate more services and comfort for consumers, as well as business opportunities for the commercial market and system stability for those operating it.”

Alexandre Torreele –
Head of Innovation & Digital
at Elia

First Consumer-centric use case IO.Energy platform

In 2018, Elia has been testing a first use case (IO.Energy) in Belgium to ensure the exchange of real time information between energy players to facilitate the design of future energy services. End consumers are being coupled to a real-time energy price in order to assess if they can make value out of their flexibility. The use case involves home batteries, heat pumps, EV chargers and cold stores totalling 500 kW and is tested on the first release of the so-called IO.Energy platform.

By enabling information exchange in real time, we create the foundation of a system where the consumers will have access to a vast offer of competitive energy services that are tailored to their needs.

Outcomes from the first use case are expected in early 2019, in view of expanding the ecosystem to include more players during the course of the year. Market parties willing to take part had to sign up before mid-January 2019. To allow as many market parties as possible, a test environment (sandbox) will be set up before mid-2019 where new and existing concepts can be tested and assessed in preparation for being scaled up at a later stage.

“Wind always has priority, i.e. if more wind is blowing than forecasted or any equipment of the interconnector trips, the market must be corrected in a way that the schedule for the border meets the capacity which is physically available i.e. corresponding countertrades must be initiated directly on the energy market. Furthermore the physical flow has to meet the schedule even under fluctuating wind conditions. The interconnector is virtually a weak, three-phase system, so that we also have major challenges with voltage stability, which are caused among other things by the strongly fluctuating power flows. In addition, the market will have to be notified of free transmission capacities at short notice. We are solving these and other challenges with the first fully automated system operation tool which is part of our control centre, the Master Controller for Interconnector Operation (MIO). A unique tool for a unique project.”

Dr. Anne Katrin Marten –
Head of Concepts and Analysis
at 50Hertz

THE FULLY-AUTOMATED SYSTEM OF MASTERCONTROLLER FOR INTERCONNECTOR OPERATION (MIO) INCLUDES:

- **Calculation of potential power exchange between Germany and Denmark, which are used to determine the power exchange schedules**
- **Voltage regulation**
- **Avoidance of equipment overloads**
- **Enables 100 percent utilisation of operating resources**

Real-time control of the interconnector, the feed-in of the wind farms and preservation of the priority in-feed

Mastercontroller for Interconnector Operation (MIO) – ‘The Brain of Combined Grid Solution’.

The Combined Grid Solution (CGS) is a globally, unique project. It connects a German and Danish offshore wind farm directly via a substation platform at sea. A back-to-back converter onshore - in Bentwisch - will harmonise the different phase angles of the Danish and German transmission grids and thus enable the exchange of electricity between the two grids. But the 50Hertz system operation is also challenged in this project.

On the interconnector, the power flows from the offshore wind farms and from the energy markets compete for the available capacity. In order to guarantee the priority of wind power feed-in, forecasts must be constantly compared with current electricity generation and consumption, taking into account voltage stability under strongly fluctuating power flows. The available capacity must be immediately communicated to the electricity market players at all times.

The brain of CGS that makes this possible is the recently successfully tested Master Controller for Interconnector Operation (MIO). MIO automatically calculates the capacity on the interconnector up to every 5 minutes for a predeterminable forecast horizon and thus supports it, together with other systems of the grid and MIO’s real time functionalities running every 5 seconds. This guarantees system security and the optimum and most economically efficient operation of the interconnector.

Europe’s first Blockchain pilot projects in the energy sector

Elia launched a pilot project to analyse possible applications of Blockchain technology in the energy sector. The increase in renewable energy generation is making it increasingly difficult for transmission system operators to guarantee that generation and consumption are balanced at all times. Power generation from renewables fluctuates constantly, so flexible reserves that can be activated swiftly (like batteries, demand management via heat pumps, etc.) are needed to ensure a steady balance. Elia is exploring the opportunities offered by Blockchain technology as a payment system to address the business side of such complex, rapid transactions. The pilot project, conducted together with SettleMint and Actility, lasted three months.

Visit the IO.Energy website for more information.

WHAT IS BLOCKCHAIN?

Blockchain is a distributed, digital transaction technology that enables secure data storage and makes it possible to execute smart contracts in peer-to-peer networks. Its intrinsic characteristics (it is unalterable, transparent and secure) also make it easier to automate contract execution.

Since the technology’s capabilities are steadily expanding all the time, Blockchain and smart contracts could help to manage multiple sources of flexibility automatically. In future, this technology could profoundly change how the energy sector operates by being applied to different levels of the market (short-term requirements, ancillary services, and so on).

“On the 14th of November 2018, Elia was invited to present ongoing projects with regards to Blockchain technology during the Share Your ENERGY conference. The conference aims to gather the most influential energy innovators, which reinforce our image of being drivers of the energy transition. We focused on the Blockchain test we are currently testing within Elia, as well as the Proof of Concept we launched in August in collaboration with Actility and SettleMint.”

Pieter Vanbaelen –
Product Development
Manager at Elia

Learn more about Blockchain in the energy sector.

Open Innovation through collaboration

Elia Group Innovation Days

On 12 November, 50Hertz hosted the sixth edition of the Innovation Day at its headquarters in Berlin. During this event, both 50Hertz and Elia colleagues presented their innovative projects. On December 7th, Elia hosted its fourth Initiative Fair. More than 200 curious colleagues attended the event to discover the various initiatives within the Elia Group.

Open innovation challenge

For the second time, Elia Group hosted the Open Innovation Challenge in Brussels. With this international start-up competition we want to develop innovative solutions to improve the quality of consumption and generation forecasts. Any start-up linked to Big Data, blockchain and AI, predictive analysis, or renewable energy could take part in this Elia Group Start-up Challenge to try and win a proof-of-concept worth €20,000.

Of the five finalists, PowerMarket convinced the jury with its solution that detects solar panels and improves solar generation prognoses. By using both satellite images and artificial intelligence, PowerMarket can very accurately identify the exact location of solar panels and their installed capacities. These valuable data can then be combined with meteorological data to estimate solar energy for every hour and every day of the year. Accurate forecasting reduces the need to activate reserves and, as a result, prevents activation costs. Elia and PowerMarket will spend three months testing the concept to demonstrate the effectiveness of this innovative solution for forecasting solar generation.

Want to know more about our Open Innovation challenge? Scan and watch the video.

50Hertz also believes it is important to remain agile and open to fresh ideas. Besides drawing on its years of experience, we collaborate with start-ups that approach the traditional energy market from a different view point. Currently, 50Hertz is working on a project to investigate how it can improve weather forecasts and grid forecasting with the help of artificial intelligence.

Hack Belgium

This year, Elia participated in the second edition of Hack Belgium. The event brought together experts from various sectors, entrepreneurs and other enthusiastic and talented individuals to develop innovative ideas that will benefit Belgian society.

By participating, Elia demonstrates its commitment to taking innovative and socially responsible action on behalf of the energy transition and Belgium's future. This also allows Elia's employees to cultivate the entrepreneurial and innovative mind-set that is so important to the company's future.

InnoDC consortium

The increasing integration of HVDC and renewable energy has transformed the grid and our understanding of it. These changes are challenging the operation of power systems. It is Elia's responsibility to guarantee the safe and reliable operation of the system, which makes it fundamental to understand what the impact of these new scenarios is and how to face the new challenges.

That is why we decided to join InnoDC, a consortium of 14 partners from industry, academia and the third sector offering a development path to researchers across Europe in the area of offshore wind and Direct Current (DC) grids. Funded by the European Commission's Horizon 2020 programme, 15 early stage researchers enrolled at the partner universities will receive training about offshore wind power and DC grids, preparing them for their role in the energy transition.

At Elia, an early stage researcher will be working on determining what modelling approaches and software tools are required to study power systems with a high penetration of power electronic devices. This allows us to better grasp existing software tools and suggest improvements. The research focuses on how to accurately model the components of the power system and to assess what level of modelling detail is really needed for different types of system studies with this new technology.

The Elia share in 2018

ELIA ON THE STOCK EXCHANGE

Another strong performance of the Elia share, hitting a new record high in 2018. The year ended at a price of €58.30, c. 21.7% higher than in 2017, outperforming the BEL 20 Index.

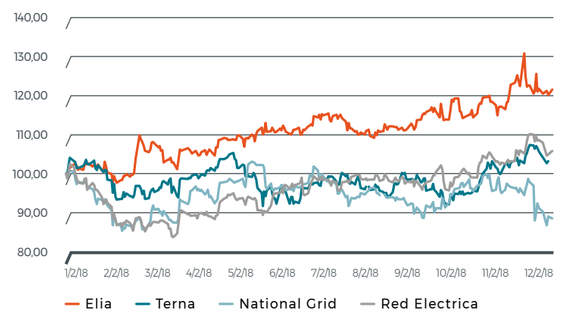
"Driven by the acquisition of the additional 20% stake in Eurogrid, resulting in its full control, and the investments we are making in our infrastructure to steer the energy transition, the Elia Group showed a further increase in its net profit"

Catherine Vandenborre – Chief Financial Officer at Elia

EVOLUTION IN PRICE AND TRADED VOLUMES

EVOLUTION OF THE ELIA SHARE AGAINST THE BEL20 INDEX

EVOLUTION OF THE ELIA SHARE AGAINST ITS EUROPEAN COUNTERPARTS



61%

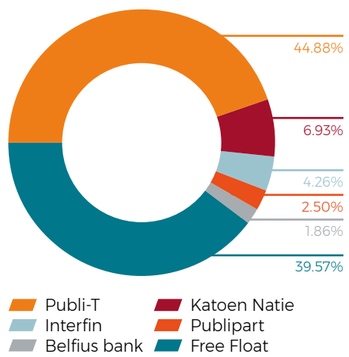
CONTRIBUTION OF GERMANY TO THE NORMALISED NET PROFIT OF THE ELIA GROUP

€ 1.66

GROSS DIVIDEND PER SHARE

Elia Group achieved strong financial performance in 2018 supported by the acquisition of an additional 20% stake in Eurogrid International. Fuelled by strong intermediary results, the full control and consolidation of 50Hertz and the realisation of strategic investments in the interest of society, shareholder confidence further increased in 2018. This was also reflected in the strong performance of the Elia share price, closing the year at a price of €58.30, up 21.7% from €47.90 at the end of 2017. The lowest price in 2018 of €46.90 was reached on 9 February, while the highest price was €62.70 on 10 December.

SHAREHOLDER STRUCTURE



The yearly return including the dividend is 24.3% and hereby largely outperforming peers and the BEL 20 Index.

The liquidity of the share remained flat compared to 2017 (from 28.106 shares per day on average in 2017 to 27.793 in 2018).

With 61,015,058 shares outstanding, the company's market capitalisation stood at €3,557,177,881 at the end of December. In 2018, 7,087,338 Elia shares were traded on the Euronext Brussels market.

Appointment of three liquidity providers for the Elia share

In late 2009 Elia concluded a liquidity provider contract with KBC Securities and Bank Degroof, both of which are officially recognised by NYSE Euronext. In 2014, a third contract was concluded with Belfius Bank. These three financial institutions have been continually present in the order book for the Elia share and are involved in both sales and purchases.

Dividend

On 21 February 2019, the Elia Board of Directors decided to propose a nominal dividend of €101.3 million, or €1.66 per share (gross) to the general meeting of shareholders of 21 May 2019, in accordance with the dividend policy and subject to approval of the profit appropriation by the annual general meeting of shareholders. This represents an increase in dividend for the fourth consecutive year and an increase of 2.5% compared to 2017.

This gives a net dividend of €1.162 per share.

The following paying agents will pay out dividends to shareholders: BNP Paribas Fortis, ING Belgium, KBC and Belfius. Dividend pay-outs for shares held in a stock account will be settled automatically by the bank or stockbroker. Elia will pay out dividends on registered shares directly to shareholders.

Dividend policy

On March 21, 2019 the Board of Directors formally approved the policy it intends to apply when proposing dividends to the General Shareholder's Meeting. Under this policy, the full-year dividend growth is intended not to be lower than the increase of the Consumer Price Index ("inflation") in Belgium.

The approved dividend policy confirms the Company's existing dividend practice. It supports the Company's long-term ambition to offer a secure dividend in real terms to the shareholders while at the same time enabling the Company to sustain a strong balance sheet that is needed to fund the Company's investment program.

The Board of Directors specifies that future dividends will remain dependent upon the results of the Company (which are affected by a number of factors, including the evolution of the long term interest rates in Belgium and factors outside the Company's control) as well as the Company's financial situation, financing needs (in particular, capital expenditures and investment plan) and business perspectives.

The proposed dividend represents a pay-out ratio of 36.80% of the IFRS reported profit attributable to owners of ordinary shares..

FINANCIAL CALENDAR

12 April 2019	2018 Annual Report available on the website
21 May 2019	General meeting of shareholders
22 May 2019	Interim statement for Q1 2019
31 May 2019	Payment of 2018 dividend
26 July 2019	Publication of half-yearly results for 2019
29 November 2019	Interim statement for Q3 2019

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Information about the Group (press releases, annual reports, share prices, disclosures, etc.) can be found on the Elia Group website www.eliagroup.eu.

Key figures

(in million EUR)	2018	2017[5]	2016	2015	2014[3, 4]
Consolidated results					
Total revenue and other operating income	1,931.8	867.1	868.1	851.4	836.3
EBITDA [1]	750.5	455.4	425.0	442.8	402.6
Results from operating activities (EBIT) [2]	*502.6*	*324.6*	*295.0*	*336.4*	*289.7*
Net finance costs	(93.2)	(76.5)	(82.9)	(92.8)	(100.6)
Income tax	(102.2)	(39.6)	(32.0)	(32.9)	(21.4)
Normalised net result	280.8	203.4	168.0	175.8	153.4
Reported net result	307.1	208.5	179.9	210.6	167.9
Non-controlling interest	*25.7*	*0.0*	*0.0*	*0.0*	*0.0*
Hybrid securities	*6.2*	*0.0*	*0.0*	*0.0*	*0.0*
Profit attributable to owners of ordinary shares	275.2	208.5	179.9	210.6	167.9

(in million EUR)	31.12.2018	31.12.2017	31.12.2016	31.12.2015	31.12.2014
Consolidated balance					
Total assets	13,754.3	6,582.3	6,241.5	6.435,6	5.697,0
Equity attributable to owners of the company	3,447.5	2,563.3	2,511.4	2.413,6	2.285,1
Equity attributable to ordinary shares	*2,741.3*	*2,563.3*	*2,511.4*	*2.413,6*	*2.285,1*
Hybrid securities	*706.2*	*0.0*	*0.0*	*0.0*	*0.0*
Net financial debt	4,605.6	2,689.1	2,557.3	2.583,4	2.539,2

	31.12.2018	31.12.2017	31.12.2016	31.12.2015	31.12.2014
Other key figures					
Regulatory Asset Base (RAB) (bn EUR) [6]	9.2	7.4	7.1	6.7	6.1
Dividend per share (EUR)	1.66	1.62	1.58	1.55	1.54
Return on Equity (%)	8.16%	8.14%	7.16%	8.73%	7.35%
Return on Equity (adj.) [7]	10.04%	8.14%	7.16%	8.73%	7.35%
Earnings per share (adj.) (EUR) [8]	4.52	3.42	2.95	3.47	2.77
Equity per share (EUR)	44.9	42.1	41.2	39.7	37.6
Number of shares (period-end)	61,015,058	60,901,019	60,753,714	60,750,239	60,738,264

1 EBITDA = EBIT + depreciation/amortisation + changes in provisions
2 EBIT = result from operating activities and share of profit of equity-accounted investees (net of income tax) vermogensmutatiemethode, na winstbelastingen
3 As from 2014, the companies previously consolidated proportionately are now accounted for using the equity method.
4 The figures of 2014 have been restated for the recognition of the reimbursement rights in accordance with IAS19
5 The Group applies IFRS 15 under the full retrospective method under which comparative figures for financial year 2017 have been restated
6 RAB includes 60% of 50Hertz until 2017 and 80% as of 2018
7 EPS (adj.) = Net profit attributable to owners ordinary shares / weighted average number of shares
8 RoE (adj.) = Net profit attributable to owners ordinary shares / equity attributable to owners of ordinary shares

Management discussion and analysis of the 2018 results

Strengthening Elia's position in 50Hertz while progressing well on key investments

- Grid investments of €636.7 million in Belgium and €491.5 million in Germany to ensure a reliable, sustainable and affordable energy system that meets society's demand for appropriate actions against global warming and climate change.
- Acquisition of an additional 20% stake in Eurogrid International in April 2018, resulting in full control of Eurogrid and a change in consolidation method
- The normalised net profit of the Elia Group is up 38.0% to € 280.8 million as a result of the acquisition of additional shares of Eurogrid, solid operational performance and release of a legal claim provision in Germany together with the realisation of strategic investments in Belgium.
- The net profit (Elia Group Share)[1] is up 32.0% to €275.2 million
- A dividend of € 1.66 per share will be proposed at the General Assembly of 21 May 2019
- Elia and 50Hertz continue to provide very high system reliability (99.999%), benefitting 30 million end-users in Belgium and Germany

ELIA GROUP (in million EUR)	2017[2]	2018
Total revenues	867.1	1,931.8
EBITDA	455.4	750.5
EBIT	324.6	502.6
Non-recurring items	*0.1*	*28.1*
Normalised EBIT[3]	324.7	474.5
Net financial costs	(76.5)	(93.2)
Normalised net profit	**203.4**	**280.8**
Reported net profit	208.5	307.1
Non-controlling interests	*0.0*	*25.7*
Net profit attributable to the Group	208.5	281.4
Hybrid securities	*0.0*	*6.2*
Net profit attributable to ordinary shareholders	208.5	275.2
Total assets	6,582.3	13,754.3
Total equity attributable to owners of the company	2,563.3	3,447.5
Net financial debt	2,689.1	4,605.6
CAPEX[4]	946.2	1,128.2
Reported earnings per share (EUR) (Elia share)	3.42	4.52
Return on Equity (adj.) (%) (Elia share)	8.14	10.04
Equity attributable to owners of the company per share (EUR)	42.1	44.9

(1) Net profit attributable to owners of ordinary shares (post non-controlling interest and post hybrid coupon)
(2) The Group applies IFRS 15 under the full retrospective method under which comparative figures for financial year 2017 have been restated
(3) The term "normalised" refers to performance measures (EBIT, Net Profit) before non-recurring items. Non-recurring items are either income or expenses which do not occur regularly as part of the normal activities of the company. They are presented separately because they are important for the understanding of the underlying sustainable performance of the company due to their size or nature
(4) CAPEX amount include 100% of the investment realised in Germany.

Results

The 2018 financial statements are strongly affected by the acquisition of an additional 20% stake in Eurogrid, which Elia acquired on 26 April 2018. This transaction increased Elia's shareholding in Eurogrid from 60% to 80%, giving Elia full control over Eurogrid. The consolidation of Eurogrid and its affiliates consequently switched from the equity method, which applied for the first four months of the 2018 financial year, to a full consolidation as from acquisition (May 2018). The total acquisition price amounts to €976.5 million for the additional 20% stake, plus €12.2 million in interest.

The acquisition was fully financed by the issuance of a €700 million hybrid bond and a €300 million senior bond, the lending costs of which are regarded as non-regulated and therefore not covered by the tariffs. The hybrid bond has no profit impact as it is equity accounted under IFRS due to its perpetual nature and the issuer's ability to optionally defer the coupons.

The **Elia Group's normalised net profit** increased by 38.0% to €280.8 million. This increase was the result of the aforementioned acquisition (and its consolidation impact) and a higher normalised result for both Elia Transmission and 50Hertz Transmission, partially offset by the higher non-regulated cost for financing the additional stake in Eurogrid.

- **Elia Transmission (Belgium)** achieved strong results, with a normalised net profit of €114.9 million (up 17.2%) driven by the full realisation of the mark-up investments since the start of the tariff period in 2016 (up €11.1 million), the higher average equity and OLO compared to 2017 (up €2.9 million) and lower regulatory settlements from the previous year (up €1.7 million). These impacts were offset to some extent by a lower contribution from incentives (down €1.8 million). Finally, the normalised net profit benefitted from limited damage to electrical installations (up €2.5 million).

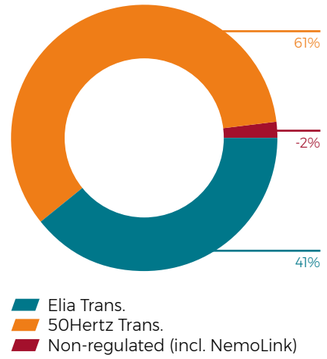
- **50Hertz Transmission (Germany) (on a 100% basis)** achieved a strong increase in normalised net profit (up 18.5%), mainly due to the release of a legal claim provision (up €50.8 million). This provision was established after German unification to cover possible legal claims by landowners in East Germany. Following a reassessment driven by a tax audit, part of the provision was released. A major portion (€48.7 million) was released in April and therefore only 60% was attributable to Elia. The ongoing investment programme at 50Hertz also resulted in higher remuneration on both onshore and offshore CAPEX (up €22.1 million) and the operating costs and other costs further decreased (up €5.5 million) on the back of the efficiency programme launched in 2017. Furthermore, the offshore investment cost coverage fell by €40.4 million, due to the transition towards a cost-plus mechanism in 2019. Indeed, the regulatory allowance for offshore OPEX changed from a 3.4% OPEX lump sum on invested CAPEX, as applied in the past, to a pass-through mechanism for incurred costs. Finally, considering the higher depreciations (down €8.3 million) linked to the ongoing investment programme and lower financial costs (up €6.3 million), the normalised net profit for the German activities amounted to € 216.3 million.

- The **non-regulated segment (incl. NemoLink)**, recorded a normalised net loss of €7.8 million (down €2.9 million). This loss is due to the non-regulated financing costs for the aforementioned acquisition (not covered by the tariffs) and EGI's lower result. As the NemoLink interconnector was not yet operational by year end 2018, its net contribution to the result was limited to €0.7 million.

The **Elia Group net profit** saw a more pronounced increase (up 47.3%) to €307.1 million. This increase is mainly related to non-recurring income linked to the acquisition (€4.3 million), as well as revenue linked to the partial commissioning of the Ostwind 1 offshore connection at 50Hertz Transmission (€23.5 million).

The **net profit of the Elia Group attributable to owners of ordinary shares** (after deducting the €25.7 million in non-controlling interests and €6.2 million attributable to hybrid securities holders) was up 32.0% to €275.2 million. This increase was driven by the acquisition of the additional 20% stake in Eurogrid and the combined result of an increase in net profit in both Belgium and Germany.

NORMALISED NET PROFIT



Capital expenditures

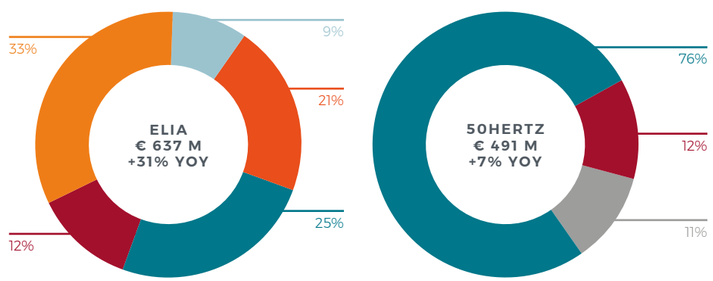
By expanding international connections and integrating ever-increasing amounts of renewable energy generation, Elia Group promotes both the integration of the European energy market and the decarbonisation of our society

Infrastructure work for greater interconnectivity

Major progress was made in **Belgium** on the construction of two new interconnectors: **NemoLink** (with Great Britain) and **ALEGrO** (with Germany). Greater interconnectivity promotes the increased integration of renewable energy and allows for more affordable prices on the European internal market. Nemo Link is a joint venture with National Grid Ventures (UK) and began commercial operations on January 30th 2019 (transfer capacity of 1,000 MW). The two converter stations on both sides of the Channel (in Bruges and Richborough) convert the high voltage direct current (HVDC) from the 140 km subsea cable into alternating current for transmission onshore (and vice versa). Work on the ALEGrO project began in mid-January 2018 and should take two years to complete. The 90-km-long underground HVDC connection (40 km of which is laid in Belgium) is being built in partnership with the German system operator Amprion.

In **Germany**, a major achievement in 2018 was the commissioning of **phase-shifting transformers** (PST) in Röhrsdorf and Vierraden for the interconnectors to the Czech Republic and Poland respectively. Both projects highlight the close working relationship between 50Hertz and its neighbouring transmission system operators. The PSTs enable the TSOs to jointly steer the international electricity flows in a more efficient way, thus helping to manage the costs of redispatching, as well as enabling higher trading capacities between EU member states. As part of an innovative project, 50Hertz installed the interconnector between two offshore wind farms, known as the **Combined Grid Solution** project (transfer capacity of 400 MW). This is a joint project with the Danish system operator Energinet. The interconnector runs between the Kriegers Flack (DK) and Baltic 2 (GE) offshore wind farms which are located barely 30 km apart. By the end of the year both offshore cables connecting the Danish and the German platform have been energised. The Combined Grid Solution project is a world first ever combination of an offshore interconnector and an offshore wind park. It will be commissioned over the course of 2019.

INVESTMENTS



Infrastructure work to integrate offshore wind

In **Belgium**, the construction of the **Modular Offshore Grid** (MOG) progressed rapidly in 2018. The offshore switchyard is being built 40 km off the coast of Zeebrugge. The MOG will serve as a 'plug' for cables from the new offshore wind farms to bring offshore wind power to the mainland. In 2018, the jacket was successfully installed while the topside was being completed. Cable production is on track and ready for installation in 2019.

In **Germany**, 50Hertz achieved the cable connections (spanning 190 km in total) for two offshore wind farms in the Baltic Sea: Arkona-Becken Südost and Wikinger, which have a capacity of 385 MW and 350 MW respectively. Works on these offshore grid connections, better known as **Ostwind 1** began in 2015. The Arkona offshore switchyard platform was successfully placed on its foundations in early April. In October 2018 the subsea cable was laid between the Wikinger offshore wind farm (Iberdrola) north of Rügen island and the connection point with the 50Hertz grid in Lubmin. In 2018 Wikinger fed in 885 GWh renewable energy into the 50Hertz grid, an amount equal to the electricity consumption of 220,000 households.

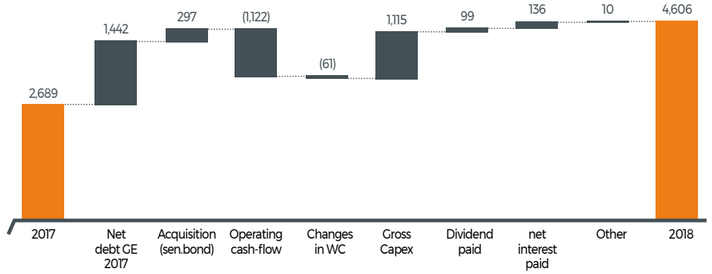
Following an offshore wind tender in late April 2018, Germany's Bundesnetzagentur (Federal Network Agency) allocated 733 MW of connection capacity to the Baltic Sea, specifically to the Arcadis-Ost 1, Baltic Eagle and Wikinger Süd wind farms. After initiating talks with the wind farm operators, 50Hertz awarded the contract to manufacture and install three 220 kV AC cables (alternating current) for the **Ostwind 2** project to the consortium NKT-Boskalis.

Net debt & credit metrics

(in € million)	2017	2018
Net debt	2,689.1	4,605.6
Leverage (D/E) (incl. NCI & hybrid))	1.12x	1.71x
Net debt / EBITDA	5.9	6.1
EBITDA / Gross interest	5.6	6.5
Average cost of debt	2.92%	2.30%
% fixed of gross debt	82.51%	92.16%

Net financial debt increased to €4,605.6 million, €1,272.9 million of which is linked to the full consolidation of Eurogrid. Net debt increased further with the issue of €300 million senior bond to finance the aforementioned acquisition and a €210 million bank loan was taken out to fund NemoLink. With regard to Elia Transmission, the sizeable CAPEX programme was mainly financed by cash flow from operating activities, the use of €50 million of commercial paper and €100 million EIB loan. Within Eurogrid, no external debt was issued in 2018.

2018 NET DEBT EVOLUTION



Elia Transmission in Belgium

(in € million)	2017[5]	2018
Total revenues	851.3	959.4
EBITDA	349.7	369.1
EBIT	218.9	228.9
Non-recurring items	0.0	0.0
Normalised EBIT	218.9	228.9
Net financial costs	(77.1)	(65.4)
Normalised net profit	**98.0**	**114.9**
Net profit	**103.0**	**114.9**
Total assets	5,449.0	5,909.2
Total equity	1,687.1	1,757.1
Net financial debt	2,511.9	2,825.1
Free cash flow	(32.8)	(263.3)

Elia Transmission's revenue rose to €959.4 million, a 12.7% increase on the same period the previous year. The increase in revenue is the result of a higher allowed regulated net profit, higher depreciations and higher taxes that are passed through into revenue. These increases were partly offset by lower costs, mainly for ancillary services and financing, which are all passed through into revenue to the benefit of consumers.

The **EBITDA** (up 5.5%) and **EBIT** (up 4.5%) were mainly affected by increased regulated net profit, higher depreciations, lower financing costs and higher current taxes to be passed on in the tariffs, partly offset by the lower result of equity-accounted investments.

Net **finance costs** (down 15.2%) fell by €11.7 million compared to the previous year. Over the course of 2018, interest rate swap contracts which matured at the end of 2017, have been renewed at lower interest rates benefitting from the low interest rate environment. The lower lending costs are entirely to the consumer's benefit, in accordance with the regulatory framework.

This resulted in an increased **normalised net profit** to € 114.9 million (up 17.2%). As no non-recurring items were recognised in 2018, the **reported net profit** increased to a lesser extent, up 11.5%.

Total **assets** increased by €460.2 million to €5,909.2 million, mainly as a result of the investment programme. The **equity** mainly increased as a result of the reservation of the 2018 profit and the capital increase of €5.3 million reserved for personnel, minus the contribution of regulated activities to the 2017 dividend payment.

€ 114.9 mio

NET PROFIT IN 2018 FOR ELIA TRANSMISSION IN BELGIUM

50Hertz Transmission in Germany

(in € million)	2017[5]	2018
Total revenues	1,330.2	1,364.9
EBITDA	472.4	475.0
EBIT	322.6	385.4
Non-recurring items	0.2	30.6
Normalised EBIT	322.4	354.8
Net financial costs	(54.3)	(45.6)
Normalised net profit	**182.6**	**216.3**
Net profit	**182.7**	**237.9**
Attributable to the Elia Group	**109.6**	**169.2**
Total assets	6,188.1	6,752.1
Total equity	1,354.4	1,491.8
Net financial debt	1,442.3	1,272.9
Free cash flow	283.8	278.7

50Hertz Transmission's revenue increased by 2.6% compared to the same period last year. This was the result of growing revenue following the ongoing CAPEX programme, partially offset by lower pass-through energy costs and a reduced allowance for offshore operational costs.

EBITDA increased slightly by €2.6 million to €475.0 million (up 0.5%). Total investment remuneration fell (down €25.9 million), as the higher onshore (up €17.5 million) and offshore (up €14.0 million) remuneration triggered by the ongoing investment programme, was more than offset by the lower regulatory allowance for offshore OPEX (down €57.4 million). The regulatory revenues from the Base Year mechanism decreased (down €3.3 million) from the annual adjustment for inflation and efficiency targets linked to the application of the regulatory framework. OPEX and other costs fell slightly (up €2.4 million). The efficiency programme implemented in 2017, resulted in a further drop in several operational expenses, such as maintenance and insurance, while own work capitalised revenues increased due to a higher allocation of personnel costs to new investments and were only partially offset to a certain extent by higher personnel costs, driven by both an increase in tariff wages and additional staffing to roll out the growing investment programme.

Normalised EBIT (up 10.1%) was further impacted by the release of a provision for legal claim easements (up €72.1 million). Following a reassessment driven by a tax audit, part of the provision was released. This was partly offset by the increased depreciations resulting from the commissioning of the southwest coupling line and the North Ring in the second half of 2017 and the partial commissioning of Ostwind 1 in 2018 (down €11.8 million).

In light of non-recurring revenue linked to the partial commissioning of the Ostwind 1 project (€33.3 million) and a bonus for the efficient management of renewable energies (€0.1 million), partially offset by regulatory settlement of prior years (-€2.8 million), the **reported EBIT** totalled €385.4 million.

Total assets increased by € 564.0 million to €6,752.1 million (up 9.1%), mainly driven by the investments made and a further increase in the cash position.

Finally, 2018 showed a positive **free cash flow** of €278.7 million, thereof €84.3 million generated by the EEG mechanism. The ongoing investment programme has been financed by operating cash flow and working capital. No new long term debt was issued by Eurogrid GmbH in 2018. **Net financial debt** consequently fell to €1,272.9 million compared to the end of 2017. It includes an EEG cash position of €859.4 million.

€ 237.9 mio

NET PROFIT IN 2018 FOR 50Hertz TRANSMISSION IN GERMANY

(5) The Group applies IFRS 15 under the full retrospective method under which comparative figures for financial year 2017 have been restated.

Non-regulated activities of the Group (including NemoLink)

(in € million)	2017	2018
Total revenues	19.8	13.9
EBITDA	(2.6)	(7.9)
EBIT	(3.0)	(8.9)
Non-recurring items	0.0	(3.3)
Normalised EBIT	(3.0)	(5.6)
Net financial costs	0.6	1.3
Normalised net profit	**(4.9)**	**(7.8)**
Net profit	**(4.9)**	**(3.5)**
Attributable to the Elia Group	**(4.1)**	**(2.8)**
Total assets	594.4	1,677.9
Total equity	334.7	1,052.7
Net financial debt	171.4	507.6

The **non-regulated revenue** decreased by 29.9% compared with 2017. This was mainly due to EGI revenue, which fell from €13.2 million to €9.5 million due to the decline in owner engineering services rendered compared to 2017 levels. Furthermore, the 2018 sale of the Training and Research Centre for Power Systems Security (GridLab) to DNV GL resulted in lower revenue (down €1.0 million).

A **normalised operating loss (EBIT)** of €5.6 million was generated due to higher non-regulated costs and the lower contribution from EGI, partially offset by a limited contribution from NemoLink (as not yet in operation in 2018). The **reported operating loss** increased more markedly to €8.9 million as the acquisition of Eurogrid generated non-recurring expenses of €3.3 million related to legal and advisory fees.

The **net finance income** increased to €1.3 million, primarily as a result of the acquisition of an additional stake in Eurogrid, which is considered as non-regulated financing and therefore does not affect tariffs. The remeasurement to fair value of the Group's initial 60% shareholding in Eurogrid resulted in the recognition of a financial non-recurring gain of €9.2 million, partly offset by the financial costs of financing this transaction. First, a bridge loan of €968.1 million was taken out, resulting in financial expenses of €1.8 million. In August, the bridge was successfully refinanced through the issue of a €300 million senior bond (coupon 1.50%) and a €700 million hybrid bond (coupon 2.75%). While the hybrid bond has no profit impact (accrued dividends are directly accounted in equity), €2.6 million of interest costs have been recognised for the senior bond (incl. issuance and hedging costs). In addition, the mid swap rate for both the senior and hybrid bond were fully hedged. The unwinding of the hedge linked to the hybrid bond resulted in a non-recurring financial loss of €3.2 million.

The **normalised net loss** increased to €7.8 million and is mainly related to the financing cost for the acquisition of Eurogrid (down €3.5 million), lower result from EGI (down €0.5 million) and higher non-regulated costs. As NemoLink was not yet in operation in 2018, the net contribution from NemoLink was limited to €0.7 million. Taking into account non-recurrent items, the **reported net loss** decreased to €3.5 million, as the remeasurement to fair value of the Group's initial participation in Eurogrid (up €9.2 million) was partially offset by acquisition-related expenses and non-recurrent financing and hedging costs (down €4.9 million).

Total **assets** increased by €1,083.5 million to €1,677.9 million driven by the increased participation in Eurogrid on which a goodwill of €703.3 million was recognised. Consequently, the **net financial debt** increased to €507.6 million and mainly reflects the senior bond contracted to finance the additional 20% stake in Eurogrid.

Non-recurring items - reconciliation table

PERIOD ENDED 31 DEC. 2018 (in € million)	ELIA TRANSMISSION	50HERTZ TRANSMISSION 100%	NON-REGULATED (INCL. NEMOLINK) (100%)	CONSOLIDATION ENTRIES	ELIA GROUP
EBIT – Non-recurring items					
Regulatory settlements prior year	0.0	(2.8)	0.0	1.4	(1.4)
Equity consolidation 50Hertz (60% net profit)	0.0	0.0	0.0	(0.6)	(0.6)
Offshore commissioning	0.0	33.3	0.0	0.0	33.3
Energy bonuses	0.0	0.1	0.0	0.0	0.1
Eurogrid acquisition costs	0.0	0.0	(3.3)	0.0	(3.3)
Total EBIT non-recurring items	**0.0**	**30.6**	**(3.3)**	**0.8**	**28.1**
Non-recurring financial cost	0.0	0.0	(3.8)	0.0	(3.8)
Revaluation participation Eurogrid	0.0	0.0	9.2	0.0	9.2
Total Before tax non-recurring items	**0.0**	**30.6**	**2.1**	**0.8**	**33.5**
Impact tax reform on deferred tax	0.0	0.0	0.0	0.0	0.0
Tax impact	0.0	(9.0)	2.2	(0.4)	(7.3)
Net profit non-recurring items	**0.0**	**21.6**	**4.3**	**0.4**	**26.3**

PERIOD ENDED 31 DEC. 2017 (in € million)	ELIA TRANSMISSION	50HERTZ TRANSMISSION 100%	NON-REGULATED (INCL. NEMOLINK) (100%)	CONSOLIDATION ENTRIES	ELIA GROUP
EBIT – Non-recurring items					
Regulatory settlements prior year	0.0	(4.6)	0.0	4.6	0.0
Equity consolidation 50Hertz (60% net profit)	0.0	0.0	0.0	0.1	0.1
Energy bonuses	0.0	4.8	0.0	(4.8)	0.0
Total EBIT non-recurring items	**0.0**	**0.2**	**0.0**	**(0.1)**	**0.1**
Impact tax reform on deferred tax	5.0	0.0	0.0	0.0	5.0
Tax impact	0.0	(0.1)	0.0	0.1	0.0
Net profit non-recurring items	**5.0**	**0.1**	**0.0**	**(0.1)**	**5.1**

Following the acquisition of the additional 20% stake in Eurogrid International, the non-regulated segment (incl. NemoLink) recognised a non-recurrent profit of €4.3 million, as the remeasurement to fair value of the Group's initial participation in Eurogrid (€9.2 million) was partially offset by acquisition-related expenses and non-recurrent financing and hedging costs (-€4.9 million).

At 50Hertz Transmission these items are mainly linked to the partial commissioning of the Ostwind 1 project (€33.3 million) and a bonus for the efficient management of renewable energies (€0.1 million), partially offset by regulatory settlement of prior years (-€2.8 million).

Reporting parameters

Registered office

This report is limited to Elia System Operator and Elia Asset, which operate as a single economic entity under the names Elia and 50Hertz Transmission.

The registered office of Elia System Operator and Elia Asset is located at
Boulevard de l'Empereur 20
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The registered office of Eurogrid International is located at
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Reporting period

This annual report covers the period from 1 January 2018 to 31 December 2018.

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Ce document est également disponible en français.
Dit document is ook beschikbaar in het Nederlands.

We would like to thank everyone who contributed to this annual report.

Scan the QR code to visit our download centre.

2018 was a key year for Elia Group's offshore projects, with one of the major milestones being the installation of the jacket foundation of the Modular Offshore Grid (MOG) in late November. The cover image captures the load out of the immense structure, weighing approximately 1,500 tonnes, into the Belgian North Sea where the jacket was anchored to the seabed with four posts at a depth of 60 metres. The topside will be fitted onto the jacket in spring 2019. Once completed, Elia's first 'plug at sea' will bundle the cables of future offshore wind farms and connect them to Belgium's onshore grid. The MOG is due to be commissioned in Q3 of 2019. The full capacity will be available in 2020.

elia group

Elia | 50Hertz | EGI