



Annual report 2017

**IN THE INTEREST  
OF SOCIETY**



# In the interest of society

How can Elia guarantee round-the-clock, year-round power for my business?



How can I be sure I'm in the best role at every stage of my career?

At Elia Group, we are helping to make the energy transition happen. That involves many challenges. We are delivering the transmission infrastructure of the future. We are having to rethink our infrastructure and the way we keep the electricity system balanced, with safety as a top priority. We are also helping the market to evolve by developing new tools and processes, and strengthening our collaborations with all market players.

The energy world is changing. New technologies and societal developments are emerging every day. The Elia Group incorporates these elements into its strategy and is already developing new methods to upgrade its grid, taking the latest trends into account.

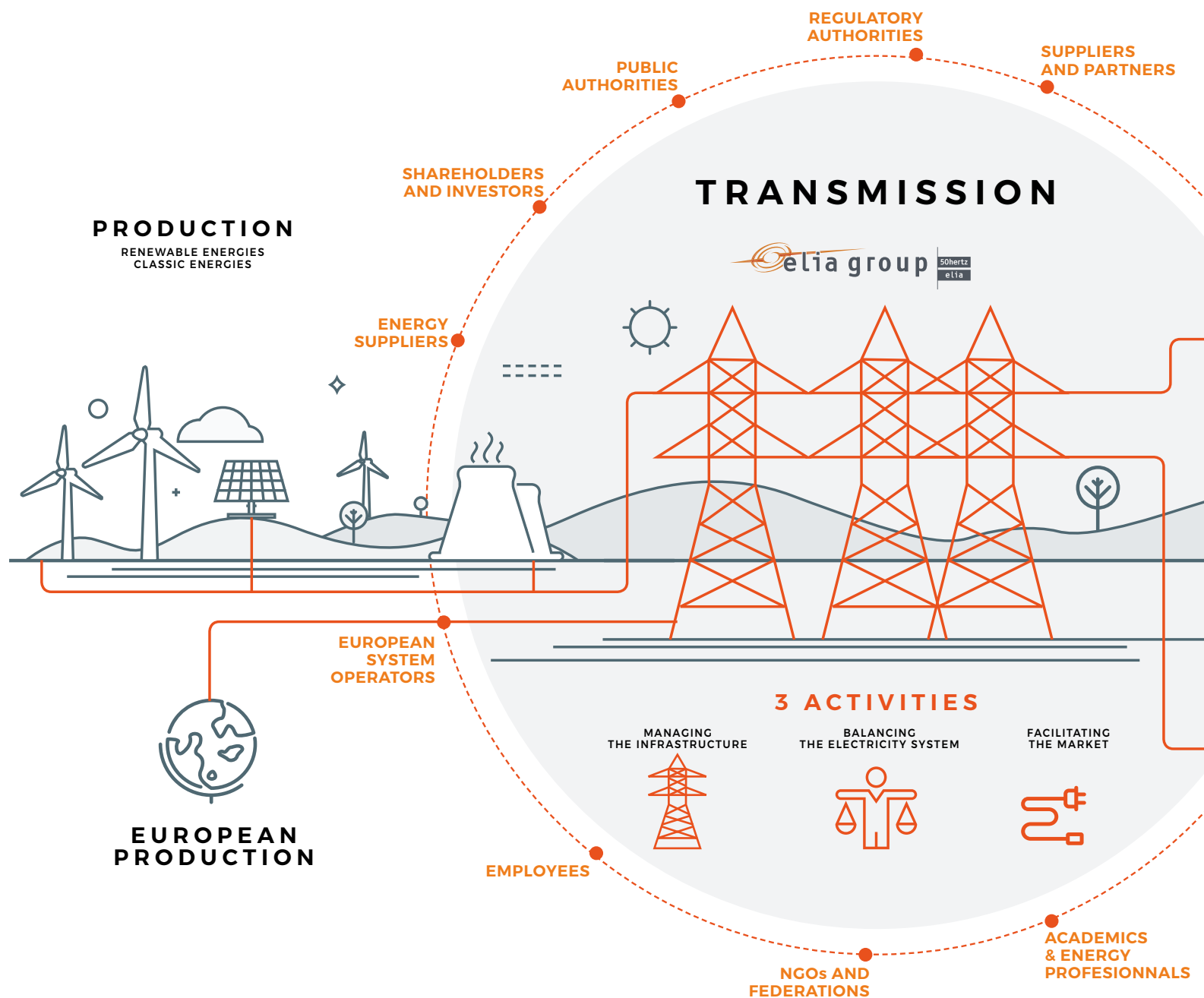
We anticipate the needs of society and the expectations of our stakeholders and we make sure we are ready to take on new tasks - all this while maintaining an affordable, reliable and secure grid. Put simply: at Elia Group, we work in the interest of society.



Discover our corporate video  
[https://youtu.be/d\\_cR6En2Jtg](https://youtu.be/d_cR6En2Jtg)

# In the interest of stakeholders

CRI 102-40



How can Elia guarantee round-the-clock, year-round power for my business?



How can Elia ensure that our industry remains competitive with other countries?



How can I be sure I'm in the best role at every stage of my career?



PRESS &  
GENERAL PUBLIC

LOCAL  
COMMUNITIES

DISTRIBUTION

DISTRIBUTION  
SYSTEM  
OPERATORS

INDUSTRIAL  
CLIENTS

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How can Elia integrate large quantities of renewable energy?



How will Elia return our beach to its former glory once the cable works have been completed?



How does Elia stay up-to-date with technological developments to make the energy transition happen?



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

# Time to accelerate in the interest of society

The Elia Group can look back on a successful 2017. The annual results reflect its efforts to continuously enhance the performance of its core activities. In Belgium, Elia is delivering major investment projects on time, within budget and with the required quality. In Germany, 50Hertz has seen a strong improvement in operational efficiency, due in part to the commissioning of new infrastructure. The changes wrought by the energy transition are becoming more and more tangible, leading to a new dynamic within the company. It is time to accelerate.



**Chris Peeters**  
CEO of the Elia  
Group

**Bernard Gustin**  
Chairman of the Elia  
Group



Chris Peeters

"IN 'ELECTRICITY SCENARIOS FOR BELGIUM TOWARDS 2050', WE DID EXACTLY WHAT ELIA IS EXPECTED TO DO, NAMELY SUPPORT POLICYMAKING. WE CRYSTALLISED THE CHALLENGES IN WHAT IS A HIGHLY TECHNICAL AND COMPLEX DEBATE."

The large-scale infrastructure works being undertaken by the Elia Group must feature in any review of 2017. With total investments of €486 million at Elia and €461 million at 50Hertz, some important milestones were reached, such as the commissioning of the Stevin project in Belgium and the South-West Interconnector in Germany.

### How do you see the investment programme evolving?

**Chris Peeters, CEO of the Elia Group:** "The changing backdrop of the energy transition requires a new configuration for the power grid. As we integrate more and more variable renewable energy generation and as electricity exchanges at European level increase, our investment programme is vitally important to guarantee a reliable, affordable and sustainable energy system in the future. For example, now that the Modular Offshore Grid has been given the go-ahead and work has started on the subsea interconnector with the UK, Belgium will soon have its first offshore power grid. The experience that 50Hertz has in this field is a great help to us. At the same time, we're also looking to the longer term and examining what our needs will be further down the line."

### Hence the study that Elia published in late 2017?

**Chris Peeters :** "In 'Electricity Scenarios for Belgium towards 2050', we did exactly what Elia is expected to do, namely support policymaking. We crystallised the challenges in what is a highly technical and complex debate, drawing on numerous interactions with our various stakeholders and Belgium's four energy min-

isters. Together with the sector, we are thinking about how our energy system should evolve. This isn't just about doing our own homework and then pointing the finger at others for failing to grasp the technicalities of the issues involved. Our role has evolved, in other words, and that is being recognised - which is a positive thing."

**Bernard Gustin, Chairman of the Elia Group:** "I agree entirely with Chris's analysis. Elia isn't just an industrial company, it also has an important role as an advisor. It's our social responsibility to say what the situation is. We could have waited until the problems materialised, but then we'd have had to take steps that would have been viewed very negatively. Elia tackled the problem proactively and in an extremely professional way. That's important for our credibility and image, because, at the end of the day, responsibility for security of supply lies with us. In my view, Elia is one of Belgium's most strategically important companies, especially with all the challenges heading our way."

# €486 mio

INVESTMENTS (ELIA)

# €461 mio

INVESTMENTS (50HERTZ)

### Does keeping the lights on feel less easy than it once did?

**Chris Peeters:** "A prolonged cold spell in early 2017 led to a very tense situation on the European electricity market, which lasted for several days. If temporary shortages go unnoticed by consumers, it's because our people work with immense passion, dedication and expertise to ensure security of supply in today's changing world. This is emblematic of our company's culture, in which people put their heart and soul into their work."

**Bernard Gustin :** "As well as the great sense of responsibility and professionalism, another thing that surprises me about the Elia Group is its internationalism. We are one of the few European transmission system operators to operate in two countries. That gives another dimension to the company. It's not just Elia, but the Elia Group. The idea of being a group is very important because it allows us to share experiences. We must absolutely value and preserve that international dimension."

**” Bernard Gustin**

"WE ARE ONE OF THE FEW EUROPEAN TRANSMISSION SYSTEM OPERATORS TO OPERATE IN TWO COUNTRIES. IT'S NOT JUST ELIA, BUT THE ELIA GROUP. THAT IDEA OF BEING A GROUP IS VERY IMPORTANT BECAUSE IT ALLOWS US TO SHARE EXPERIENCES. WE MUST ABSOLUTELY VALUE AND PRESERVE THAT INTERNATIONAL DIMENSION."



## ” Chris Peeters

“IF MARKET SHORTAGES GO UNNOTICED BY CONSUMERS, IT’S BECAUSE OUR PEOPLE WORK WITH IMMENSE PASSION, DEDICATION AND EXPERTISE TO ENSURE SECURITY OF SUPPLY IN TODAY’S CHANGING WORLD. THIS IS EMBLEMATIC OF OUR COMPANY’S CULTURE, IN WHICH PEOPLE PUT THEIR HEART AND SOUL INTO THEIR WORK.”

## As Chairman of the Board of Directors, how do you see the Elia Group evolving?

**Bernard Gustin :** “The traditional regulated business will remain very important, but I also see a future in the group dynamic. We live in a world where talented engineers choose Google and Amazon rather than industrial companies. If we want to attract them, we have to show that we are innovative with an international outlook.”

**Chris Peeters :** “I’d also add that in our complex world, the exchange of expertise is extremely important. Our German subsidiary is well ahead of the game on renewables, integrating 53.4% of power from renewable sources on average, while Belgium, as a small country, was interconnected at a European level very early on, and led the way in setting up market platforms. Our expertise is therefore

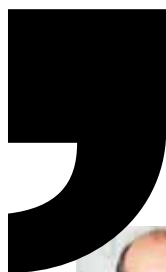
highly complementary and is increasingly being shared at Group level. At the same time, our corporate structure enables both entities to respect their local contexts. In addition, our joint consulting company Elia Grid International allows us to develop our talent internationally: our engineers learn what’s going on in the world and return to the Group with new and fresh ideas.”

## Safety is a top priority for the Elia Group. What are the latest developments in this area?

**Chris Peeters:** “Safety is something we work at every single day. Our ‘Go for Zero’ safety programme is a 3-5 year endeavour, but we’re already seeing an increase in maturity. In 2017, we also launched the ‘Safety for Contractors’ programme. There’s still a long way to go with that,



partly because the construction sector applies different safety standards. But we're gradually gaining traction. Our sub-contractors see it as an opportunity to professionalise themselves. This is another way that Elia contributes to society, by acting as a catalyst for the further professionalisation of the supply sector."



**Bernard Gustin**

### What challenges lie ahead in 2018?

**Chris Peeters:** "As more and more renewable energy is integrated, congestion problems on the European network are set to worsen. At 50Hertz, we've seen that this can be remedied by additional infrastructure, which led to an immediate saving on redispatch measures in 2017. At the same time, we need to think about the energy system of the future as end customers start looking for ways to leverage their own flexibility. How can I get more out of my solar panels? What are the market models for this? Does the system need to be adapted? We'll continue to work on these issues in 2018. As far as the infrastructure works are concerned, we're well on track because we started strengthening our organisational structures back in 2016."

"WE LIVE IN A WORLD WHERE TALENTED ENGINEERS CHOOSE GOOGLE AND AMAZON RATHER THAN INDUSTRIAL COMPANIES. IF WE WANT TO ATTRACT THEM, WE HAVE TO SHOW THAT WE ARE INNOVATIVE WITH AN INTERNATIONAL OUTLOOK."

### What are your personal ambitions?

**Chris Peeters:** "I want Elia to become the most important energy company in Belgium. Ditto for 50Hertz in Germany. And in fact we're not far off that already. We're shaping the energy debate and in the longer term we'll have a crucial role to play in meeting the goals of the Paris climate agreement. We are relevant and intend to fully claim that status: not out of any kind of arrogance but because we want to serve the public interest."

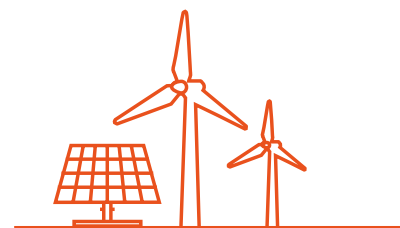
**Bernard Gustin:** "Fifteen years ago I was working as a consultant in the energy sector. Since then, I've been really impressed at how Elia has established itself as a strategic asset. This country's energy strategy is determined by what Elia does. It's no longer the generators which are setting the direction. That is a major change."



### Who would you like to thank in 2017?

**Chris Peeters:** "I would like to thank the four energy ministers for their constructive cooperation. We also worked well with our regulators in both Belgium and Germany. The users of our grid are important too, as are the employees of course who work day in day out to keep the lights on, while expanding our infrastructure and developing the system of the future."

**Bernard Gustin :** "I particularly wish to thank the management and Board of Directors for placing their trust in me. It's a great honour for me to be the chairman of such a highly respected company as Elia. Having returned, in part, to the energy sector after 15 years, I'm excited to be able to participate in it from a different angle."

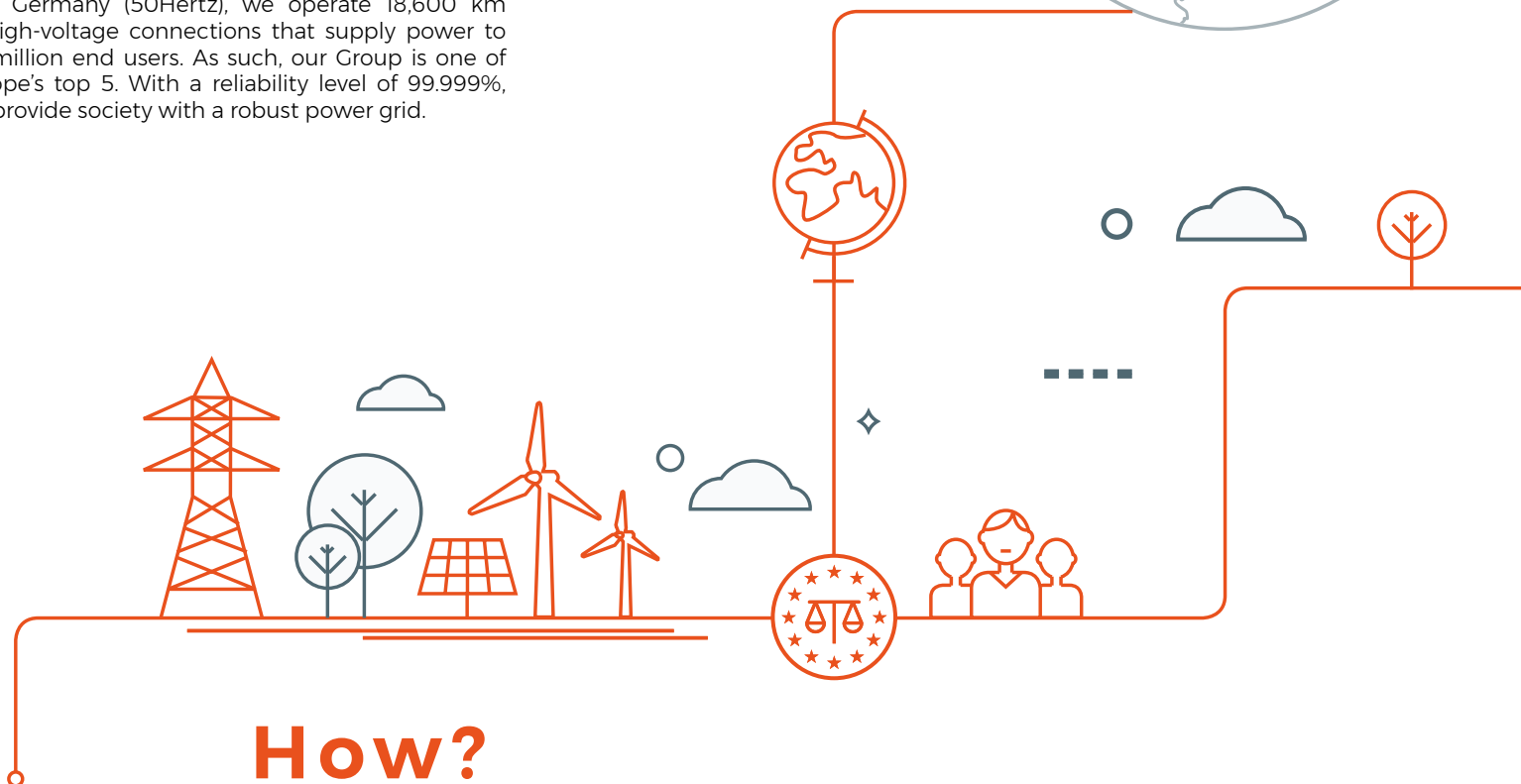


# The Elia Group

## \_Who?

### One of Europe's top 5 players

The Elia Group is active in electricity transmission. With subsidiaries in Belgium (Elia) and north-east Germany (50Hertz), we operate 18,600 km of high-voltage connections that supply power to 30 million end users. As such, our Group is one of Europe's top 5. With a reliability level of 99.999%, we provide society with a robust power grid.



## \_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 con-

tinuously improve our operational systems. We develop new market products enabling new technologies and market players to access our grid. This is how we make the energy transition happen.

# **What?**

## **Our core tasks**

### **Operating the electricity system**

Supply and demand must be kept balanced at all times. Operating the electricity system is an increasingly complex task due to the sharp rise in renewable generation sources, the arrival of new players and technologies and the development of supranational coordination. To ensure a reliable supply and efficient operational management of the medium- and high-voltage grid, Elia monitors the electricity system in real time. This requires sophisticated tools and processes, as well as specialist knowledge.

### **Facilitating the market**

The Elia Group makes its infrastructure available to all market players in a transparent, non-discriminatory way. Elia develops services and mechanisms allowing the market to trade on different platforms, which promotes economic competitiveness and the wellbeing of all.

### **Managing the infrastructure**

The Elia Group maintains and develops high-voltage equipment and infrastructure: lines, cables, transformers, and so on. The Group uses advanced technologies to modernise and extend its grid to enable it to integrate more renewable units.



# **Why?**

## **In the interest of society**

The power grid is a key pillar of the energy policy that supports our socio-economic prosperity. The 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, the Elia Group promotes both the integration of the European energy market and the decarbonisation of our society.

# \_Shareholder structure

GRI 102-45

In addition to its activities as a transmission system operator in Belgium and Germany, the Elia Group provides various consulting services to international customers through its subsidiary Elia Grid International (EGI). Elia is also part of the Nemo Link joint venture that is building the first subsea electrical interconnector between Belgium and the United Kingdom.

## Elia

Elia is Belgium's electricity transmission system operator (TSO).

## 50Hertz

50Hertz is one of the four German TSOs and operates in the north-east of Germany. It is owned by Elia (60%) and Industry Funds Management (IFM) (40%).

## Elia Grid International

With offices in Brussels, Berlin and Dubai, Elia Grid International (EGI) provides consulting and engineering services to the international energy market and develops power grid projects for third parties in all areas of electricity transmission (30-400 kV).

## Nemo Link

Nemo Link is a joint venture between Elia in Belgium and National Grid Nemo Link Limited, a subsidiary of the British transmission system operator National Grid Plc. It is building a subsea interconnector between Belgium and the United Kingdom, which is due to be operational in 2019.

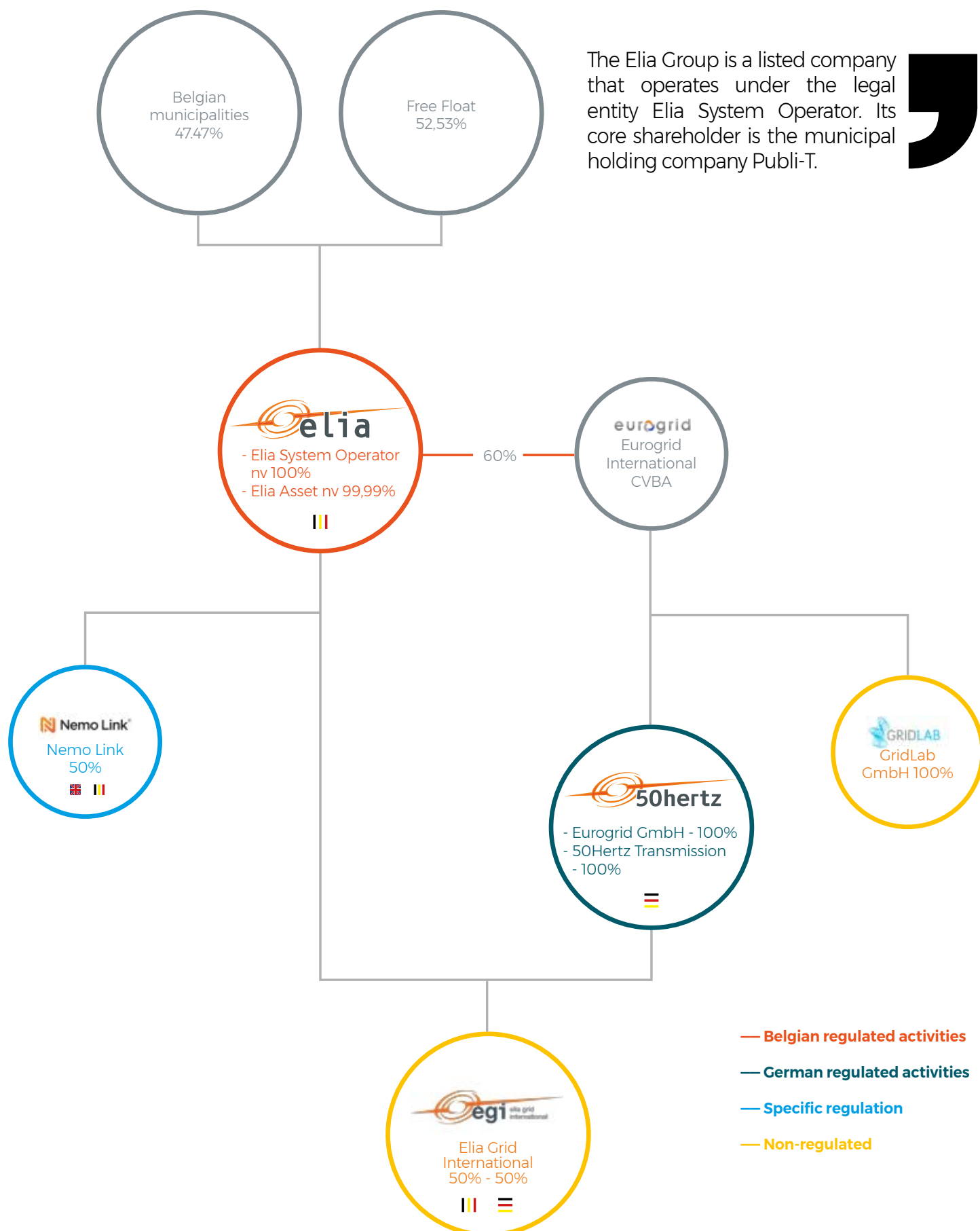
## Eurogrid International

Eurogrid International is a company owned and managed by Elia (60%) and the Australian investment fund IFM Investors (40%). Based in Brussels, Eurogrid International provides support services to its customers.

## GridLad GmbH

In 2008, 50Hertz Transmission GmbH and the Brandenburg University of Technology worked together to develop a grid simulator for the electricity system. In December 2010, the simulator was transferred to GridLab, a subsidiary of Eurogrid International and therefore of the Elia Group.



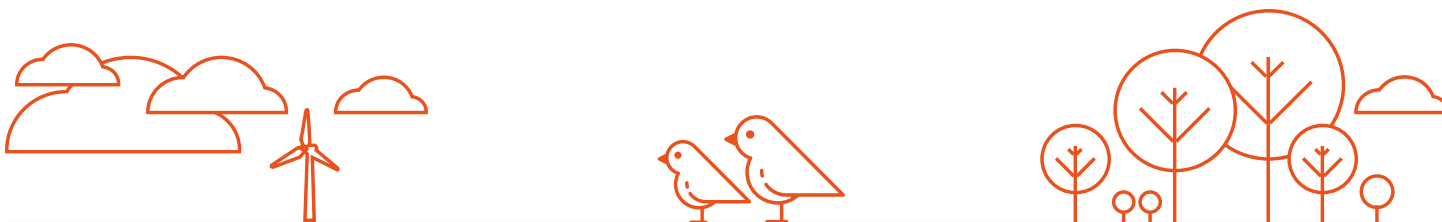


# Key figures 2017

## OPERATIONAL

**30 Mio**END USERS  
(Elia Group)**18,600 km**OF HIGH VOLTAGE LINES  
(Elia Group)**99.999%**RELIABILITY RATE  
OF THE GRID (Elia)**53.4%**RENEWABLE ENERGY  
(50Hertz)

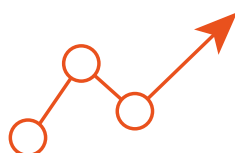
## ENVIRONMENTAL

**1,749.6 kg**IT MATERIAL WHICH GOT  
A SECOND LIFE (Elia)**13.62 km**OF BIRD PROTECTION IN BELGIUM  
(Elia)**34,000**TREES PLANTED THANKS  
TO THE LIFE PROJECT (Elia)

## FINANCIAL



**€ 1.62**  
GROSS DIVIDEND



**€ 216.6 mio**  
NORMALIZED REVENUE



**3.4 %**  
DIVIDEND YIELD  
(closing price 2017)

## SOCIAL



**2,343**  
EMPLOYEES  
(Elia Group)

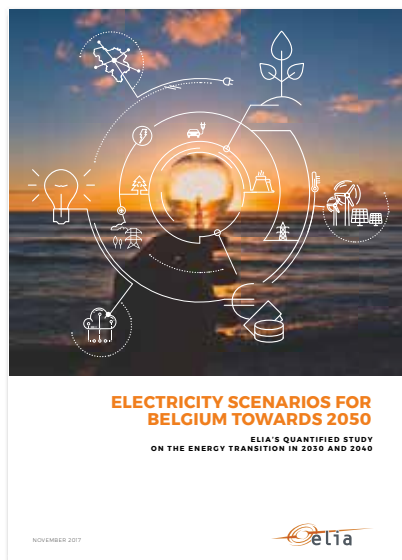


**222**  
NEW HIRES  
(Elia Group)



**24**  
NATIONALITIES  
(Elia Group)

# Elia in 2017



## ELIA PUBLISHES STUDY ON THE FUTURE OF THE BELGIAN ELECTRICITY SYSTEM TOWARDS 2050

In 2017, Elia made a fundamental contribution to the public debate on the future of the Belgian energy system by publishing the quantified study 'Electricity Scenarios for Belgium towards 2050'. In its conclusions, Elia called on the relevant authorities to take swift action to safeguard the Belgian energy system. The publication is widely considered a landmark document and it triggered a heated political and social debate on such issues as the statutory closure of Belgium's nuclear power stations in 2025. [ Page 59 ]

## IMPROVING SAFETY FOR OUR CONTRACTORS TOO

Safety is a top priority for Elia, which is why it launched the 'Safety for Contractors' programme in early April to further strengthen safety awareness amongst contractors. [ Page 29 ]



## OPENING OF THE NATIONAL CONTROL CENTRE

On 19 October, Elia opened its newly-renovated National Control Centre in the presence of the Federal Energy Minister Marie Christine Marghem. [ Page 33 ]

## COMMISSIONING OF STEVIN

On 21 November, Elia officially inaugurated the Stevin high-voltage line in the presence of Prime Minister Charles Michel and Federal Energy Minister Marie Christine Marghem. [ Page 43 ]





### KEY MILESTONES FOR THE MOG

2017 was an important year for the 'electricity plug' or Modular Offshore Grid (MOG). Elia's Board of Directors approved the investment for the project in mid-April. [ Page 42 ]



### PERMITS ACQUIRED FOR ALEGrO AND BRABO II

In 2017, Elia acquired the permits needed for ALEGrO and Brabo II, allowing work on both projects to start in 2018. ALEGrO is the first electricity interconnector between Belgium and Germany, while Brabo II aims to strengthen the high-voltage grid and consolidate security of supply in the Port of Antwerp and Belgium as a whole. [ Pages 41 & 44 ]



### START OF WORK TO LAY NEMO LINK SUBMARINE CABLE

On 7 September, Nemo Link, the joint venture between Elia and National Grid that will operate the first electricity interconnector between Belgium and the UK, started laying the first 59 km of the double submarine cable. [ Page 40 ]

### LAUNCH OF BIDLADDER

Late June saw the launch of BidLadder, a market platform developed by Elia enabling it to further boost liquidity on the balancing market and optimise its technical and economic performance. [ Page 57 ]

# 50Hertz in 2017



## SOUTH-WEST INTERCONNECTOR FULLY OPERATIONAL

The 200-km-long - thereof 161km in 50Hertz control area - South-West Interconnector - is fully operational after 15 years of development and construction. The 380 kV line between north-eastern Germany and Bavaria will ensure that Bavaria still has a reliable power supply following Germany's nuclear phase-out. The new line is having an immediate effect with improved congestion management and significant redispatch savings.



## 2030 NETWORK DEVELOPMENT PLAN

In early 2017, 50Hertz and Germany's other three transmission system operators released a 2017 version of the 2030 Network Development Plan, which sets out various future scenarios depending on how quickly Germany wants to implement the energy transition.



## NEW SUBSTATIONS

50Hertz commissioned five new substations in 2017 in Wolmirstedt, Heinersdorf, Hamburg, Putlitz and Altentreptow. Phase-shifting transformers were also commissioned in Röhrsdorf, on the border with the Czech Republic.

## COMPACTLINE PILOT CONSTRUCTION STARTED

In early October, 50Hertz started constructing a pilot for a new type of line. The CompactLine will make it possible to reduce landscape and nature intervention in sensitive areas caused by overhead lines. The compact design offers a good opportunity to integrate a new 380 kV line into sections of existing 220 kV lines. 50Hertz and its partners have been researching and developing CompactLine for three years. [ Page 99 ]





## WORK STARTED ON BACK-TO-BACK CONVERTER IN BENTWISCH

The 9th of May marked the start of the installation of the back-to-back converter at the Bentwisch high-voltage substation. This back-to-back converter is part of the Combined Grid Solution project, the first inter-connector that will link the Baltic Sea wind farms, Kriegers Flak (Denmark) and Baltic 2 (Germany). [ Page 49 ]



## 50HERTZ'S DIALOG MOBIL WINS RGI AWARD

On 1 June in Copenhagen, 50Hertz's Mobile Citizen's Office - or Dialog Mobil - received a prize from the Renewables Grid Initiative (RGI) for its innovative public participation and its closeness with citizens. Dialog Mobil is a van that drives around areas where information events are held, providing varied and important information on the expansion of the electricity grid. [ Page 79 ]



## 50HERTZ TURNS 15

In 2017, 50Hertz celebrated its 15<sup>th</sup> birthday! On 28<sup>th</sup> June 2002, 50Hertz Transmission GmbH was entered in the trade register - at that point of time still carrying the official title "Vattenfall Transmission GmbH". On 28 June 2002, Vattenfall Europe turned the high-voltage grid into an independent company and it was renamed 50Hertz. Elia and Australian investment group Industry Funds Management bought 50Hertz in the spring of 2010.

## AUDIT TO ACQUIRE ISMS CERTIFICATE

To improve the safety of the company as a whole, 50Hertz took part in an audit in 2017 to acquire ISMS certification in January 2018.



# Elia Grid International in 2017

## MEMORANDUM OF UNDERSTANDING WITH MALAYSIAN TSO

On 29 September, Elia and the Malaysian transmission system operator Tenaga Nasional Berhad (TNB) signed a Memorandum of Understanding with a view to establishing a strategic collaboration. The cooperation will cover a number of areas: asset management, cross-boundary system and market operations, grid development, network studies and renewable integration.



## TSO ASSESSMENT PROJECT IN VIETNAM

In March 2017, the Vietnamese power transmission system (NPT) asked EGI to perform a broad assessment of its activities and to propose a road-map, which will enable it to be compliant with international best practices by 2030. The results of this analysis were delivered end 2017. This is the first EGI project in South-East Asia, where the company intends to increase its activities.

On 11 December, EGI entered into a strategic alliance with EuroAsia Interconnector, the official EU project developer of the 2,000 MW interconnector between Israel, Cyprus and Greece. The agreement formalises cooperation on the development and implementation of the interconnector.

**EGI TO COLLABORATE ON INTERCONNECTOR BETWEEN ISRAEL, CYPRUS AND GREECE**



## HELPING GERMANY TO ACHIEVE THE ENERGY TRANSITION

In order to integrate even more wind energy into the grid, 50Hertz is planning the construction of new substations and lines to reinforce its network. EGI built and commissioned the new 380 kV substation 'Heinersdorf' in June.



## HVDC PROJECT COMBINED GRID SOLUTIONS

EGI plays an important role in the HVDC project Combined Grid Solutions, a back-to-back converter synchronising the Danish and German grid via a 30 km submarine line between the wind farms Kriegers Flak (Denmark) and Baltic 2 (Germany), located in the Baltic Sea. EGI works as the owner's engineer on the interface between the owner (50Hertz and EndK) and the Engineering, Procurement and Construction (EPC) contractor, for the construction of the converter station in Bentwisch, Germany. This project is an opportunity for EGI to expand its expertise in owner's engineer services, especially for HVDC projects.



## ASSET MANAGEMENT EXCELLENCE IN SAUDI ARABIA

National Grid SA is facing a broad range of challenges in managing the power system, such as a high growth in demand, a large area over which the assets are operated, and increasing integration of renewable energy sources and nuclear capacity. A detailed gap analysis performed by EGI in 2013 identified the optimal solution for dealing with these challenges.

# Group priorities

## \_We make the energy transition happen



”

**CHRIS PEETERS,**  
CEO OF THE ELIA GROUP

“THE ENERGY TRANSITION MAKES MANAGING THE ELECTRICITY NETWORK MORE COMPLEX. INNOVATION AND TECHNOLOGICAL ADVANCES WILL HELP TO GUARANTEE THE SECURITY OF SUPPLY IN THE FUTURE.”

As transmission system operator, Elia aspires to be a catalyst for the energy transition. After all, the power grid has a crucial role to play in the decarbonisation of the energy sector and of society in general.

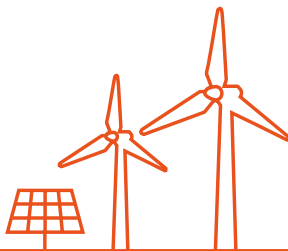
As well as the rise of renewable energy generation, the energy transition is also bringing other changes. Increasing digitalisation is driving the emergence of new market players and new technologies such as electric cars, battery storage, and so on.

The rise of digitalisation also means a bigger role for end users. As such, managing the network is more complex now than ever before. To guarantee continued security of supply in the future, the Elia Group is investing in grid infrastructure, innovation and technological advances.

However, these changes are not confined to national borders. With the growth in interconnectors and closer supranational cooperation, we are moving towards an integrated European electricity system.

In short, the energy transition is in full swing and it is irreversible.

### An evolving electricity system



— INCREASING RENEWABLE  
INTEGRATION AT  
EUROPEAN LEVEL



— EMERGENCE OF NEW  
TECHNOLOGIES AND  
PLAYERS DRIVEN  
BY INCREASING  
DIGITALISATION



— EUROPEAN INTEGRATION  
OF THE ELECTRICITY  
SYSTEM

## OUR VISION = OUR AMBITION

"WE WILL LEAD THE WAY IN THE ENERGY REVOLUTION BY DEVELOPING DIVERSIFIED, SUSTAINABLE AND RELIABLE ON- AND OFFSHORE ELECTRICITY SYSTEMS, THAT OPEN UP NEW POSSIBILITIES."

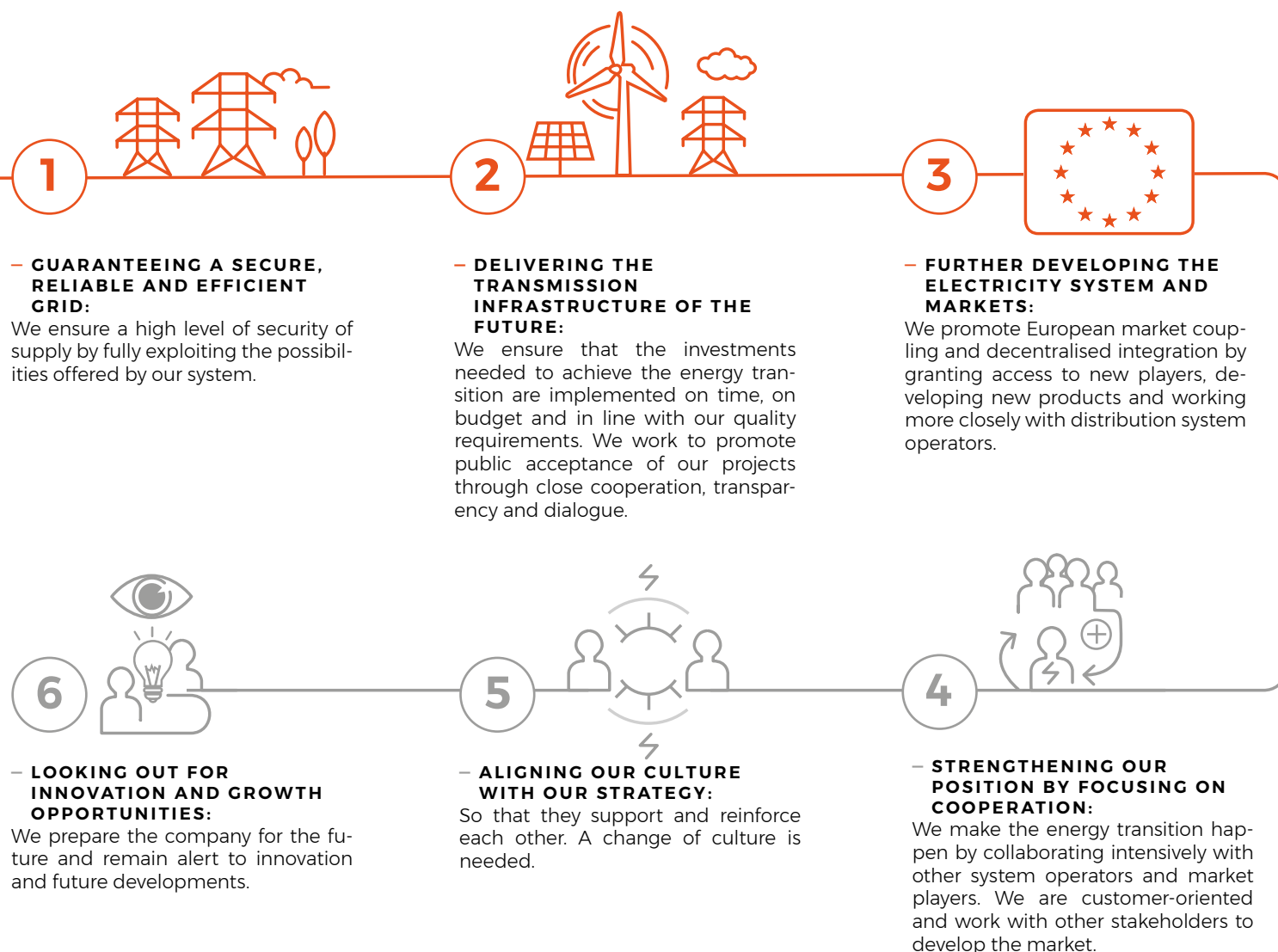
## OUR MISSION = WHAT WE WANT TO ACHIEVE AND HOW

"WE DELIVER THE INFRASTRUCTURE OF THE FUTURE AND INNOVATE IN SERVICES THAT WILL PAVE THE WAY TO A RELIABLE AND SUSTAINABLE ELECTRICITY SYSTEM, PLACING THE COMMUNITY'S INTEREST AT THE HEART OF ALL OUR DECISIONS. WE WILL CONTINUE ENSURING SECURITY OF SUPPLY AND SERVING OUR CUSTOMERS IN AN EFFICIENT, NON-DISCRIMINATORY WAY, WHILST PROTECTING THE SAFETY OF OUR PERSONNEL AND SUBCONTRACTORS."

## Our strategy

### The building blocks of our strategy

Our strategy sets out how we aim to fulfil our mission and consists of six building blocks:



## — Safety a top priority

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 Go for Zero programme. We ensure that Elia's safety instructions are properly applied in order to prevent incidents.



## — Innovation

Elia integrates innovative technology and keeps 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 so doing, we draw on our own expertise but are also keen to learn about and develop ideas from outside the Group through open innovation.

## — In the interest of society

A strong transmission system operator that always puts society first is key to successfully implementing the energy transition and to ensure that the grid is not only reliable but also sustainable and affordable. We believe that our technical

knowledge and analyses support policy-making and make an important contribution to the debate about the future of the energy system. This is always done in consultation with our many diverse stakeholders.

”

“AS OPERATOR OF THE HIGH-VOLTAGE GRID, THE ELIA GROUP REFUSES TO STAND ON THE SIDELINES. WE HIGHLIGHT THE CHALLENGES THAT EXIST, AS WELL AS THE OPPORTUNITIES.”



### — A RELIABLE SYSTEM:

An energy mix that allows demand to be met at all times, promoting economic activity and safeguarding our prosperity.



### — AN AFFORDABLE SYSTEM:

Thanks to its well-developed grid, Belgium has access to the most efficient sources of energy, both at home and abroad. This ensures price convergence with neighbouring countries and makes us more competitive.



### — A SUSTAINABLE SYSTEM:

Through renewable integration that fully exploits domestic potential and supplements this with renewable energy generation from abroad via additional interconnectors.

# Sustainability reporting

The Elia Group sees serving society as one of its core responsibilities, so it is a logical step for us to report on our corporate social responsibility (CSR) performance. In this annual report we discuss our financial, economic, social and environmental performance. For the GRI reference table, please consult the annex available on our website.

The Elia Group sees the Sustainability Report as a useful tool for managing and monitoring our CSR performance, helping us to do things better both internally and externally.

## Materiality matrix

GRI 102-44, 46 & 47

The Elia Group will phase in its sustainability reporting over several years. Our focus this year is laying a solid foundation on which to build a robust sustainability programme.

The topics derived from the above standards were used as input to define the Elia Group's materiality matrix. This matrix determines the relevant sustainability topics for the Elia Group's management and stakeholders.

The topics are clustered around the following sustainability enablers: Transmission Services, Organisational Structure, Employees, Environment, Fair Operating Practices and Community Involvement.

The results of the materiality matrix are summarised on page 22. The importance of the material topics is shown on the vertical axis, while the horizontal axis indicates Elia's performance in those areas.



### HAND-PICKED SUSTAINABILITY TOPICS

We used existing international sustainability standards to identify a number of relevant topics:

- Global Reporting Initiative (GRI)
  - sector supplement Electric Utilities
- Sustainability Accounting Standards Board (SASB)
  - Infrastructure Standards - Electric Utilities
- ISO 26000 standards



**TRANSMISSION SERVICES**

- 1 Availability, Reliability and Future power system
- 2 Demand-side Management
- 3 Research and Development
- 4 Systemic risk management (Disaster/ Emergency planning and response)

**ORGANIZATIONAL GOVERNANCE**

- 5 Organizational Structure & decision making
- 6 Board Independence
- 7 Business ethics

**EMPLOYEES**

- 8 Conditions of work and social protection
- 9 Social dialogue and stakeholder relations
- 10 Employee Health, safety and wellbeing at work
- 11 Human development and training in the workplace
- 12 Diversity
- 13 Accident & Incident Management
- 14 Discrimination and vulnerable groups
- 15 Economic, social and cultural rights
- 16 Fundamental principles and rights at work

**ENVIRONMENT**

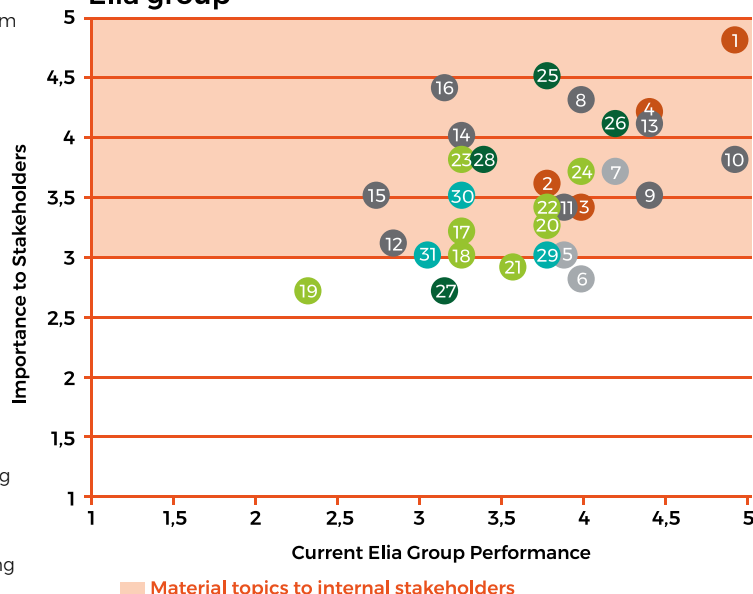
- 17 Environmental Management System
- 18 Waste and Hazardous Materials Management
- 19 Air pollution
- 20 Greenhouse Gas emissions
- 21 Energy Resource planning
- 22 Sustainable products & services
- 23 Biodiversity Impacts
- 24 Protecting consumers' health and safety

**FAIR OPERATING PRACTICES**

- 25 Corruption and Bribery
- 26 Legal & regulatory environment
- 27 Promoting social responsibility in the value chain/Supply chain
- 28 Respect for property rights

**COMMUNITY INVOLVEMENT**

- 29 Community involvement (including education and culture)
- 30 Employment creation and skills development
- 31 Technology development impacting community

**Elia group**

The materiality matrix indicates the following topics as the most material:



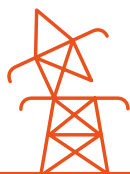
### Availability, reliability and future of the power system

This concerns providing information on Elia'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's own employees, as well as its subcontractors. This is translated into a robust programme 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 wellbeing 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.

Topics that are considered less material by internal stakeholders are the following:

- **Board independence** is rated less material due to the fact that this is a mature process at Elia. A clear corporate governance charter and internal procedures exist and are embedded in the organisation.
- **Air pollution** is considered as less material because this is not relevant for a transmission system operator. Elia's main activity is to transport electrical power using a fixed infrastructure.
- The internal stakeholders also rated **Energy Resource Planning** less material. This is potentially because the main part of its own electricity use is already from green electricity. Moreover, Elia's own electricity use can be considered immaterial versus the energy transported on Elia's grid.
- **Promoting social responsibility in the value chain/supply chain** is also considered less material as the main part of the spend is in Europe, which has a high level of maturity concerning social responsibility topics (e.g. low risk of child labour, minimum wage).

## Overview of Elia's engagement with stakeholders

GRI 102-42 & 43

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

Elia regularly organises Users' Group panels. Via these discussion groups, Elia can maintain an ongoing dialogue with its main customers and partners. Within the Users' Group, there are three working groups and four task forces. The task forces are set up to handle specific issues when necessary.

For additional information, see the GRI-annex available on our website.

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

## Sustainable Development Goals

Elia has also looked at the United Nations Sustainable Development Goals (SDGs). The following overview shows which SDGs can be linked to Elia's sustainability topics.



Good health and wellbeing is about ensuring healthy lives and promoting wellbeing for all, at all ages. Enablers of this SDG are Elia's activities on labour practices and employees.



The SDG on affordable and clean energy concerns access to affordable, reliable, sustainable and modern energy. Elia's actions regarding transmission services are enablers for this SDG.



Decent work and economic growth relates to promoting sustainable, economic growth and productive, decent work. Elia's efforts on the material topic 'Employees' is an enabler for decent work and economic growth.



Building resilient infrastructure, promoting inclusive and sustainable industrialisation and fostering innovation concerns the SDG industry, innovation and infrastructure. It is enabled by all actions on transmission services.



Sustainable cities and communities is about making cities and human settlements inclusive, safe, resilient and sustainable. The material topic on transmission services is an enabler for this SDG.



The SDG climate action relates to taking urgent action to combat climate change and its impact. Elia's actions on minimising its carbon footprint and other environmental initiatives are enablers.



Life on land concerns protecting, restoring and promoting sustainable use of terrestrial ecosystems, sustainably managing forests, combating desertification, and halting and reversing land degradation and biodiversity losses. The sustainable enablers for this SDG are Elia's efforts related to biodiversity within its environmental approach.



Partnerships for the goals relates to strengthening the means of implementation and revitalising the partnership for sustainable development. Elia has a strong partnership with Be Planet and other initiatives like Rising Youth. These partnerships are contributing to the realisation of this SDG.

# How can Elia guarantee round-the-clock, year-round power for my business?



**WOUTER DE GEEST,  
CEO BASF ANTWERPEN**

- WITH THE COMPANY SINCE 1982,  
CEO SINCE 2007
- CHAIRMAN OF CHEMICAL  
INDUSTRY FEDERATION  
ESSENSCIA

Energy is the lifeblood of our company. We've worked very hard - and successfully - over the past few years to make our processes more energy efficient, but a 24/7 production site like ours still requires a huge amount of electricity. If we want to continue to grow as a business and keep our operations here in the long term, a secure and competitively priced power supply is essential. How can I be sure that the supply of electricity is guaranteed all year round, and at affordable prices?



**DAVID ZENNER, HEAD OF CUSTOMER  
RELATIONS AT ELIA**

"The reliability of our high-voltage infrastructure and security of supply are of vital concern to Elia. Thanks to the tireless dedication of our employees, Elia has one of the top performing grids in Europe. To ensure that this remains the case in the future, we are building tomorrow's grid today. Our investment projects anticipate future developments such as the integration of renewable energy, increasing internationalisation and the emergence of new players and technologies. At the same time, we offer state-of-the-art products that meet the increasing demand for flexibility. We also participate actively in the energy debate and use our expertise to support policymaking. We are not just committed to the security of supply but also to a reliable, sustainable and affordable electricity system for all market players and in particular our industrial consumers. We believe that the grid is crucial to the further economic development of our industry, of Belgium and of our prosperity in general."

**99.9999%**

RELIABILITY GRADE OF THE ELIA GRID



# We ensure a secure, reliable and efficient grid

Elia has years of experience in managing its transmission grid and has built up indisputable technical expertise. As the energy transition progresses, the grid is having to accommodate increasing amounts of renewable energy. Such energy is more volatile, making the system operation more complex. In addition to the increased need for new flexible balancing products, Elia, like most infrastructure managers in Western Europe, is faced with ageing facilities.



**FRÉDÉRIC DUNON,**  
CHIEF ASSET OFFICER  
AT ELIA

**T**o cope with these changes, Elia is developing new maintenance policies aimed at maximising network availability, smoothing out peaks in equipment replacement and minimising costs. Elia 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. Operational excellence is key to safety, which is an absolute priority. As part of its commitment to safety, Elia is working towards a zero accident rate.

It relies on its staff to meet these objectives. Continuous development of technical, managerial and behavioural competencies is central to the remit of our Competence Centre.

“OUR PRIMARY OBJECTIVE IS FOR ANYONE WHO WORKS ON OR NEAR OUR FACILITIES - BOTH ELIA EMPLOYEES AND EXTERNAL STAFF - TO RETURN HOME SAFE AND SOUND EVERY DAY. WE FIRMLY BELIEVE THAT EXCELLING IN THIS AREA IS A PREREQUISITE FOR OPERATIONAL EXCELLENCE.”

## Our ambitions

### Safety at work

Safety is a top priority for Elia, which is why it applies the highest standards of safety to its employees, contractors and anyone exposed to its activities. Elia wants everyone to return home safely every day.

At Elia we insist that Health and Safety is at the very heart of the company. Our priorities are the Go for Zero safety behaviour programme and the burnout and stress prevention initiatives. We facilitate change and help our employees to be better prepared for the future transitions. We also strive to create more local empowerment and ownership versus central control.

### Operational excellence

As a grid operator, we aim to maximise the availability of our electricity system and keep the lights on at all times. 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 savings.

### Asset management

A sophisticated asset management strategy has been put in place to closely monitor the functioning of critical infrastructure components. Investment peaks are flattened thanks to a balanced replacement policy. As working methods evolve, staff need training to help them develop the requisite skills and techniques. We provide professional training courses for both our own staff and our contractors.

### A reliable grid 24/7

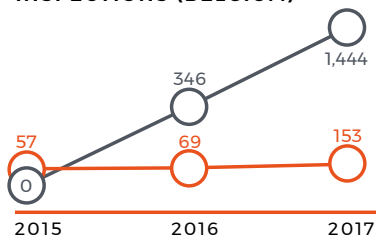
Elia strives to ensure a highly reliable power grid to support economic activity and the well-being of the population. To this end, optimal planning of its network and outages (scheduled outages for maintenance and projects) are vital, as well as efficient and safe, real-time operation of the electricity system.



## 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 giving the market maximum use of our infrastructure.

NUMBER OF SAFETY INSPECTIONS (BELGIUM)



- Safety Inspection by Safety
- Safety Inspection by Management



## What we achieved in 2017

### Safety always comes first

#### GLOBAL PREVENTION PLAN TO ENHANCE SAFETY

Elia has developed a five-year Global Prevention Plan for 2016 to 2020. The plan outlines planned prevention activities for the five-year period, including risk analysis, measures, objectives and required instruments. The comprehensive plan was put in place in close cooperation with stakeholders and was approved by Elia's management.

#### THE GO FOR ZERO SAFETY PROGRAMME

Safety is our top priority. In 2017 Elia worked intensively in order to achieve its ongoing objective: zero accidents, for its employees but also for its contractors, colleagues from the distribution system operators and third parties in the vicinity of its installations. Efforts are coordinated via the Go for Zero programme, which is an Elia-wide initiative and includes all the projects that aim to optimise safety and its culture within Elia.



**MAARTEN KONINGS, QUALITY, COMPETENCE & METHODS MANAGER AT ELIA**

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“IN OUR LINE OF WORK, SAFETY REQUIRES GOOD OPERATIONAL DIALOGUE BETWEEN ALL PARTIES OPERATING ON A WORKSITE. WE ARE STRENGTHENING OUR CAPABILITIES IN ORDER TO EXCEL IN THIS AREA, AS WELL AS IMPROVING OPERATIONAL DIALOGUE WITH OUR TECHNICIANS, WE WANTED TO ENHANCE THE SAFETY OF OUR CONTRACTORS AND THE DISTRIBUTION SYSTEM OPERATORS WE WORK WITH.”



### 01 People & technical skills

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

With this project, Elia wants to reinforce the safety culture. By teaching its employees the right methods and habits, Elia makes sure everyone works safely.

### 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. As such, this project has two pillars: operational dialogue and continuous improvement.

#### Operational dialogue

entails implementing appropriate communication systems for ensuring that planned activities can be carried out safely, efficiently, punctually, and with the highest possible level of quality.

#### Continuous improvement,

on the other hand, entails researching and developing solutions to operational problems.



**STÉPHANE OTTO,  
SAFETY MANAGER AT ELIA**

“WE CANNOT AND MUST NOT COMPROMISE ON SAFETY. INVESTING IN SAFETY IS NOT A COST BUT A MARK OF RESPECT FOR THE PEOPLE YOU WORK WITH.”

### 03 Operational & Safety Excellence with DSO

Elia shares a great many high-voltage sub-stations 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. The project is based on an action plan split into four priorities: knowledge of each other's organisations, stronger cooperation through operational dialogue, clear definition of roles, responsibilities and operating limits, and improved collaborative procedures, particularly as regards earthing coordination.

### 04 Safety For Contractors

In response to the energy transition, Elia is undertaking the most ambitious investment programme in its history. Between 500 and 800 subcontractor technicians are currently working on Elia projects to that end. Elia, in cooperation with its contractors, is striving to ensure that they, too, have optimal safety and zero accidents.

The Safety for Contractors programme was launched on 30 March 2017, at the second Elia Contractors' Day. The event was attended by over 120 participants, who took a keen interest in the new safety project.

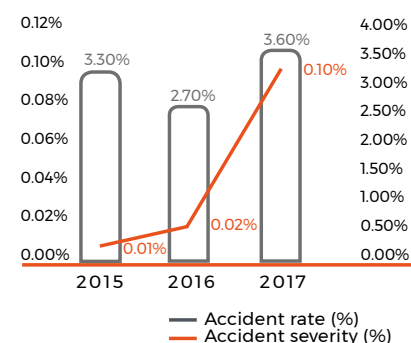
The Safety for Contractors project focuses on three main areas:

- introducing new collaborative approaches,
- establishing new training for contractors' work supervisors,
- developing a new qualification and evaluation process for selecting our contractors.

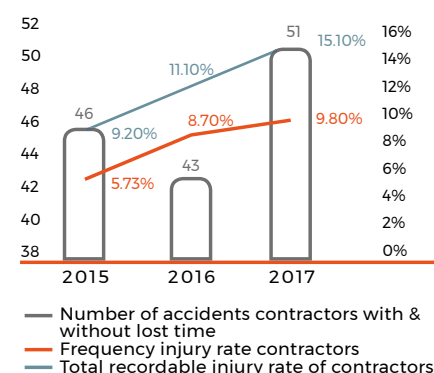
### 05 Safety Leadership

In 2017, Elia wanted to strengthen its corporate culture so that it would become second nature to all staff. With this in mind, it launched a programme aimed at structurally implementing 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.

#### ACCIDENT RATES (BELGIUM)



#### CONTRACTOR ACCIDENTS (BELGIUM)





**WALTER GEELEN,  
MAINTENANCE & COMMISSIONING  
SOUTH AT ELIA**

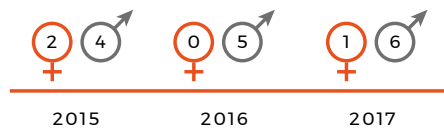
"SAFETY REMAINS OUR TOP PRIORITY. OUR GOAL IS ZERO ACCIDENTS. WE AIM TO ACHIEVE THIS BY PUTTING THE RIGHT SKILLS IN THE RIGHT PLACES AND FOCUSING ON GOOD OPERATIONAL DIALOGUE BETWEEN TEAMS AND ON CONTINUOUS IMPROVEMENT. IN 2017, A NUMBER OF TEAMS NOTCHED UP 300 DAYS OF WORK WITHOUT AN ACCIDENT (WITHOUT INCAPACITY FOR WORK). SOME TEAMS HAVE EVEN REACHED 1,000 DAYS OF WORK WITHOUT AN ACCIDENT!"

### SAFETY WEEKS

Each year, Elia organises Safety Weeks for its staff in May and September in an effort to raise their 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 2017, we discussed psychosocial risks and explained our comprehensive prevention plan for 2016-2020, as well as the importance of the safety culture within Elia. In September, the spotlight was on non-negotiables, i.e. behaviours that we no longer wish to see in the company. First aid training was also offered to our staff.

### NUMBER OF STAFF INJURED WITH AT LEAST ONE DAY OF LOST TIME (BELGIUM)



### NUMBER OF FATAL OCCUPATIONAL ACCIDENTS BY GENDER (BELGIUM)



### AWARENESS CAMPAIGN HIGHLIGHTING THE DANGERS OF ELIA FACILITIES

Safety is always Elia's top priority, both for our own staff and for outside parties who work on or near our facilities. In 2017, the company continued its awareness campaign highlighting the risks for those working near its electrical infrastructure.

*"As a result of this campaign, there was a sharp drop in the number of incidents during work near high-voltage lines in 2017. However, there are still instances of work being carried out without notifying Elia. As this is not only a safety issue but also a legal obligation, we urge anyone who is planning work to contact Elia beforehand so that safety measures can be communicated. More information is available on the website or from Elia's Contact Centre."*

Céline Ghyselen, Contact Centre Manager at Elia



306

NEW INSTALLATIONS PUT  
INTO SERVICE IN 2017

## Managing our assets

### ASSET MANAGEMENT EXCELLENCE

The Asset Management Excellence (AMEX) programme aims to ensure that every piece of equipment is worked on at the most appropriate time. To this end, Elia devises appropriate strategies for each category of assets depending on their age, condition and importance for the grid. These customised strategies help Elia to improve efficiency, boost asset reliability and optimise the need for outages, whilst continuing to prioritise safety.

The aim of the AMEX programme is to help us better understand our assets so that we can take the right decisions in terms of managing equipment life cycles (design, maintenance, decommissioning, etc.) whilst optimising risks and costs. AMEX launched in early 2016 and will run for several years.

In 2017, the first round of work (wave 1) led to significant cost reductions (e.g. retrofitting transformers). Tailored maintenance policies are also easing the workload and allowing new activities to be developed.

The study phase for cables, batteries and diesel generators (wave 2) was completed in 2017, and that for digital protection devices and gas-insulated systems (wave 3) is being finalised. Wave 4 (overhead lines and older-generation protection devices) started in October 2017 and will conclude in the first half of 2018. The fifth and final wave will take place in the second half of 2018 and 2019 and will cover telecoms, metering, medium-voltage substations and buildings.

### ASSET CONTROL COMMAND (ACC)

Elia is one of the first system operators in Europe to have a control centre for its assets. All dynamic data (i.e. data that changes over time) relating to our assets is sent there. This allows informed asset management decisions to be taken. For example, each asset is given a 'Health Index' indicator which has a bearing on the scheduled maintenance activities.

### MAINTENANCE & COMMISSIONING

The maintenance activities of Elia contribute significantly to our common goal of continuously delivering an outstanding service to all our customers. Additionally, in the current tariff period, Elia has the ambition to achieve an unprecedented level of investments in the high voltage grid compared to previous years.

In 2017, 306 new installations have been put into service, which is an increase of 10% on 2016 levels.



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**STÉPHANIE HAMMER,**  
AMEX MANAGER  
AT ELIA

“OVERALL, THE AMEX PROGRAMME WILL REDUCE MAINTENANCE COSTS BY SEVERAL MILLION EUROS A YEAR ON A LIKE-FOR-LIKE BASIS. AS WELL AS CUTTING COSTS, THE FIRST WAVE OF THE AMEX PROJECT HAS EASED THE WORKLOAD IN THE FIELD AND FREED UP STAFF TO FOCUS ON NEW ACTIVITIES.”



NICK DE DECKER,  
PROGRAM MANAGER AT ELIA

“USING CONNECTED CHECK-  
LISTS, OUR TECHNICIANS CAN  
LOG THE CONDITION OF EQUIP-  
MENT IN RECORD TIME. THIS  
INFORMATION IS SENT DIRECT-  
LY TO THE ASSET MANAGER,  
WHICH KNOWS IMMEDIATELY  
WHICH TOOLS NEED TO BE RE-  
PAIRED OR REPLACED. IN ADDI-  
TION, THE NEW AUTOMATIC SYS-  
TEM FOR DETECTING VISITORS  
ENTERING AND LEAVING OUR  
SUBSTATIONS ENHANCES SEC-  
URITY AND EFFICIENCY.”



## 7 lines

ELIA FITTED DYNAMIC  
LINE RATING  
EQUIPMENT ON  
SEVEN NEW 380 KV  
LINES IN 2017.



### OPTIMISING TRANSMISSION CAPACITY

Elia is continuing to invest in the development and use of Dynamic Line Rating in partnership with Ampacimon. This technology enables more accurate assessment of the actual transmission capacity on lines on which it is fitted. This capacity can then be optimised independently of the weather conditions. Elia fitted Dynamic Line Rating equipment on seven new 380 kV lines in 2017.

In addition, Real Time Thermal Rating (RTTR) equipment was installed on the Koksijde-Slijkens line. This technology calculates the line’s maximum transmission capacity in real time and is due to be rolled out in 2018.

### Modern Way Of Working

Launched in 2016, the Modern Way of Working (MWOW) programme aims to digitalise, automate and improve the tasks performed by technicians using new technologies. These technologies allow field work to be done faster and more efficiently while also enhancing safety and quality.

Elia 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.



## A reliable grid 24/7

### CRISIS MANAGEMENT

Elia regularly holds crisis drills simulating risk situations with the various stakeholders as preparation for managing real problems on the grid. These drills serve to test and improve the tools and processes in place and to ensure optimal communication between the various internal departments and the external units involved in the crises. Both Elia employees and external partners (ARPs, distribution system operators, transmission system operators, etc.) take part in the exercises.

### STEPS TO AVOID POWER SHORTAGES

Elia can detect a risk of power shortage up to seven days in advance (D-7). When Elia notifies the government of this risk, a technical briefing is organised on the same day. A consultation meeting is then held the next day to decide on the measures to be taken to reduce demand. One day before the risk is due to materialise (D-1), Elia must confirm to the government that the shortage is actually imminent. If all the measures taken are not sufficient to prevent the shortage, Elia is mandated to activate one or more tranches of the load-shedding plan (depending on the deficit). This measure is a last resort.

So far, Elia has not had to deal with a shortage, thanks to effective preparation and close cooperation with other system operators and partners. However, the procedure is designed to enable the problem to be dealt with as efficiently as possible.

### BLACK START SERVICE FOR COPING WITH BLACKOUTS

In the event of a total blackout on the grid, Elia needs to gradually restore the power supply in predefined stages. If neighbouring electricity transmission grids are not available, Elia can rely on various generating units that are capable of performing a black start. These units can start without an external electricity supply, allowing the gradual restoration of power to the grid. This service is covered by a black start contract (black start being an ancillary service) between Elia and the power generators. In 2017, Elia conducted two tests to ensure that this service was operating correctly. The first took place at Ham on 7 July and the second at Herdersbrug on 30 September, and both were successful.



### REFURBISHMENT OF ELIA'S NATIONAL CONTROL CENTRE

On Thursday 19 October 2017, the Federal Energy Minister Marie Christine Marghem opened Elia's newly modernised National Control Centre (NCC). The upgrade was needed to cope with the growing integration of renewable energy, which is making system operation parameters (international flows, generation and consumption) less predictable and more volatile. The NCC therefore required better facilities for viewing the increasingly complex and large volumes of data. Among other improvements, operators now have a more ergonomic view thanks to a large wall of screens combining a view of the normal operating grid with an overview of renewable energies. Security and access controls have also been strengthened with the introduction of new technologies and additional protections.

*"With the challenges of the energy transition and the growing integration of renewable energy, our operators have an increasingly complex job. The refurbished NCC provides them with the best conditions and tools to accomplish their core task of managing the security and balance of the electricity network."*  
Filip Carton, Head of the National Control Centre



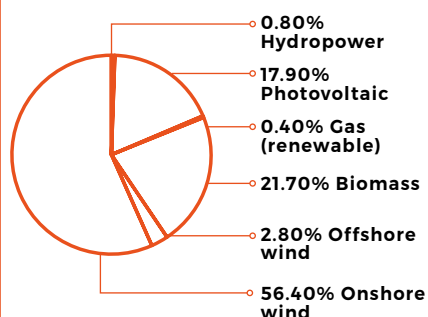
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## WHAT HAPPENED AT 50HERTZ?

# 53.4%

FEED-IN OF RENEWABLE ENERGY  
IN 50HERTZ'S CONTROL AREA  
IN 2017



### 53.4% renewable energy

50Hertz is one of the global leaders in integrating renewable energy. On average in 2017, 53.4% of power in 50Hertz's control area was generated from renewable energy sources (RES), and this was primarily from onshore wind.

### Wind record on 28 October 2017

On 28 October 2017, autumn storm Herwart achieved a new wind feed-in record. Around 1pm on that day, 50Hertz integrated no less than 14,266 MW of wind energy: 13,934 MW from onshore wind and 332 MW generated offshore.

### 10<sup>th</sup> System Security Conference

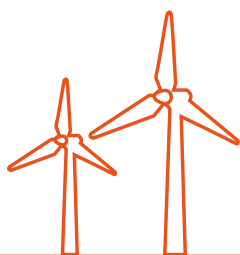
50Hertz held its 10<sup>th</sup> System Security Conference in November 2017. The most prominent agenda items at the conference were the EU's Clean Energy Package, exchanges of electricity at European level, critical grid situations and data exchange.

### An optimised redispatching platform

The redispatching processes at 50Hertz were optimised to better deal with grid congestion problems. Combined with additional investments in grid infrastructure, such as the 380 kV South West Interconnector completed in September 2017, savings of no less than €181 million in redispatching costs were achieved between start of operations of the first system in 2015 and 31st December 2017.

### Grid losses

In 2017, the grid losses of 50Hertz amounted to 2.4 TWh. The average grid losses of the extra-high voltage level were 231.7 MW and the substation accounted for 43.5 MW. 50Hertz has planned the first 400 kV, ultra-high voltage DC transmission line (HVDC) in its grid area, the 'SüdOstLink' between Saxony-Anhalt and Bavaria. This technique is better suited than conventional three-phase technology to transfer large quantities of electricity as it facilitates optimum control targeted over long distances, which results in low network losses.



## Promoting the right safety behaviours

Six reportable occupational accidents occurred at 50Hertz. The targets set for accident frequency and severity rates were not yet achieved in 2017. Every accident was assessed in detail, and work safety measures were adopted and put in place to prevent future occupational accidents.

A full set of measures will be implemented in 2018, and workplace safety will once again be prioritised to increase employees' awareness of safe behaviour.

## ...not forgetting contractors

Our occupational health and safety standards also apply to contracted companies working on 50Hertz construction sites. Our partners must therefore sign up to instructions on guaranteeing occupational safety and environmental protection, which are a mandatory part of our tenders and contract awards. In 2017, we made these instructions more

specific and transparent. During the contracting process and later via IT-supported construction monitoring by specially trained 50Hertz employees, we ensure that our suppliers comply with 50Hertz's strict safety requirements.

The number of work-related accidents in contracted companies declined in 2017. However, the 16 recorded accidents involving contracted companies are still more than 50Hertz would expect. Consequently, an Agreement on Quality Assurance on 50Hertz Construction Sites is included as an additional part of new contracts concluded from 1 July 2017. This allows us to carry out inspections without any restrictions. In 2018, we will be launching an internal communication campaign to further raise awareness among our workforce.

The quality assurance agreement for 50Hertz worksites forms part of new contracts concluded after 1 July 2017. This includes an unlimited right for 50Hertz to perform inspections and a system for reporting deviations from required standards.



Accidents at 50Hertz	2015	2016	2017
Accident rate <sup>1</sup>	3.0	2.0	4.5
Accident severity rate <sup>2</sup>	0.05	0.16	0.23



(1) Accident rate: Number of occupational accidents requiring at least 1 day off work x 1,000,000 / total number of hours worked.

(2) Accident severity rate: Number of lost-time days resulting from occupational accidents expressed in calendar days x 1,000 / total number of hours worked.  
Occupational accidents also include accidents that occur during travel and commuting.

No fatal accidents were recorded between 2015 and 2017.

# How can Elia integrate large quantities of renewable energy?



By 2020, the nine wind farms in the Belgian North Sea will be generating an average of 8 TWh of electricity each year. Thanks to the recent grid upgrade delivered by the Stevin project, all of this power will be able to reach consumers. A further 2,000 MW of offshore wind capacity is likely to come online after 2020. How will Elia manage to integrate this additional power generation?

#2\_

**ANNEMIE VERMEYLEN,  
SECRETARY GENERAL OF BOP**

- SECRETARY GENERAL OF BELGIAN OFFSHORE PLATFORM (BOP) SINCE 2012
- BOP IS AN ASSOCIATION THAT CHAMPIONS THE INTERESTS OF THE OFFSHORE WIND INDUSTRY



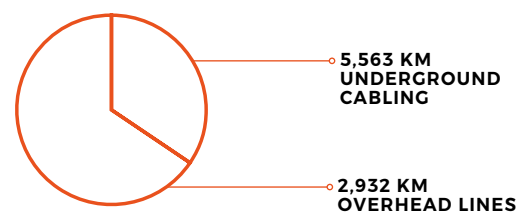
**TOM PIETERCIL,  
MOC PROGRAMME MANAGER AT ELIA**

“Elia is actively preparing for the increase in offshore wind generation, which is why we started developing a power grid in the North Sea in 2016. By 2020, there will be a large SwitchYard platform 40 km off the coast of Zeebrugge. This Modular Offshore Grid (MOG) will bundle together the cables from the new wind farms, allowing 2.2 GW of offshore wind energy to be brought onshore.

Should Belgium decide to further expand its offshore wind capacity after 2020, additional grid infrastructure will be needed to prevent bottlenecks. In that case, we will set out our future needs in the Federal Development Plan 2020-2030 to be published in late 2018. Wind energy is extremely variable, so accurate weather forecasting is key to keeping the electricity system balanced. Elia has developed a whole range of balancing products to offset differences between supply and demand.”

# 8,495 Km

TOTAL LENGTH OF THE NETWORK (BELGIUM)



For a comparison with 2015 and 2016, we refer to the annex.



# We deliver the transmission infrastructure of the future

The Elia Group is currently rolling out the biggest investment programme in its history. As well as modernising its existing facilities, it is also investing heavily 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. Through all these measures Elia is driving the transition to tomorrow's energy system.



**MARKUS BERGER,**  
CHIEF INFRASTRUCTURE  
OFFICER AT ELIA

**B**est-in-class project management is absolutely vital if the implementation of our ambitious investment policy is to remain manageable. Elia uses specially tailored working methods and decision-making approaches and closely monitors progress on its investment projects, thus ensuring that projects are delivered on time and within the proposed budget and quality criteria.

At the same time, we are paying greater attention to public support for our infrastructure work. Thanks to extensive stakeholder management, we engage constructively and transparently with all relevant parties throughout the decision-making process and during the implementation phase.

“WE ARE ON A GOOD TRACK TOWARDS DELIVERING OUR AMBITIOUS INVESTMENT PLAN TO FACILITATE THE INTEGRATION OF RENEWABLES AND ACCESS TO THE EUROPEAN MARKET, AS WELL AS CONTRIBUTING TO THE SECURITY OF SUPPLY.”

# Our ambitions

## Delivering on time, budget and quality

We aim to deliver the future grid on time to allow Belgian society to grasp the benefits of the energy transition. We want to provide value-for-money power for society and take care of designing and constructing the grid with the highest quality standards in order to deliver a reliable grid that continues to support economic activity.

## Integrating renewables into both centralised and decentralised systems

With our infrastructure spanning from 380 kV down to 30 kV, we want 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.

## Developing strong grid interconnections together with neighbouring countries

We develop grid interconnections to support the competitiveness of our country: to find the cheapest energy wherever it is produced, while offering export opportunities to our domestic plants.

We build interconnections to enable the integration of renewable generation at European level, allowing us to complement our domestic renewables with imported renewables produced abroad.

Our interconnections support the security of supply, by allowing imported energy to supplement the domestic renewable and conventional production, therefore satisfying demand at all times.

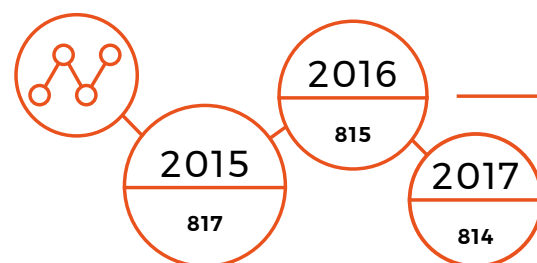


## OBJECTIVES

We prepare to develop the grid of the future that strongly connects Belgium's renewable energies, onshore or offshore, into the European system to give every player - large or small - access to an optimal performing energy market in order to create the highest levels of welfare for society:

- Delivering on time, budget and quality
- Integrating renewables into both centralised and decentralised systems
- Developing strong grid interconnections together with neighbouring countries

## NUMBER OF SUBSTATION LOCATIONS



# What we achieved in 2017

## Infrastructure projects

### Towards a more interconnected European grid

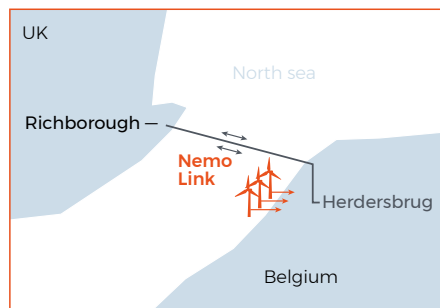
The Elia Group's grids are part of the European continental interconnected system, which extends from Portugal to Bulgaria and from Norway to Italy. This interconnectivity safeguards security of supply throughout Europe, allows renewable energy to be procured where it is generated and provides access to the cheapest energy available. Elia believes that these interconnections are important. As such, it is currently working on the construction of two interconnectors: Nemo Link and ALEGrO.



#### NEMO LINK

- First subsea electricity connection between the United Kingdom and Belgium
- Joint venture between Elia and National Grid
- 140 km of cable linking Richborough (Kent) and Herdersbrug (Bruges)
- Capacity of 1,000 MW
- Elia's first direct-current (HVDC) project
- Due to be commissioned in early 2019

In September 2017, Nemo Link began laying the first 59 km of submarine cable between the UK onshore landing point and the French offshore section. On 11 September, the cable was pulled in at the beach of Pegwell Bay (Kent), marking a key milestone in the project.



The remaining 71 km will be installed in Belgian territorial waters during spring and summer 2018. The interconnector is scheduled to be commissioned in early 2019, allowing two-way energy transit between the United Kingdom and Belgium.

In 2017, civil engineering work took place at the site of the two converter stations in Richborough (Kent) and Herdersbrug (Bruges). These facilities will transform the alternating current into direct current, and vice versa.



# 140 KM

OF CABLE (Nemo Link)

# 1,000 MW

CAPACITY (Nemo Link)



**TIM SCHIJVENS,**  
PROJECT MANAGER NEMO LINK  
AT ELIA

"NEMO LINK MARKS ANOTHER STEP IN THE INTEGRATION OF THE ELECTRICITY GRID BETWEEN MAINLAND EUROPE AND THE UNITED KINGDOM. A WELL-INTEGRATED GRID BENEFITS CONSUMERS AND BOOSTS OVERALL PROSPERITY AS IT PROVIDES ACCESS TO CHEAP, RENEWABLE ENERGY ANYWHERE IN EUROPE AND ALLOWS EXCESS ENERGY TO BE EXPORTED WHEN NECESSARY."





## ALEGrO

- New interconnector between Germany and Belgium
- Joint venture between Elia and Amprion
- 90 km of cable (49 km in Belgium and 41 km in Germany)
- Will link the Lixhe (Visé) and Oberzier converter stations
- Capacity of 1,000 MW
- Elia's second direct-current (HVDC) project
- Due to be commissioned in 2020

In November 2017, Elia acquired the permits and authorisations needed to launch the Belgian side of the Aachen Liège Electrical Grid Overlay (ALEGrO) project. ALEGrO will contribute to the integration of renewable sources of energy, price convergence between the markets and security of supply.

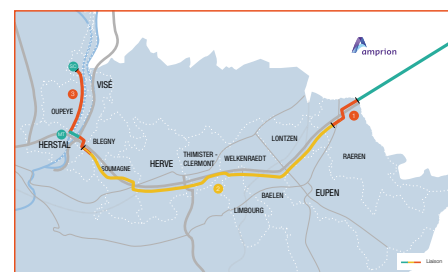
The connection will run underground for the entire 90 km route (49 km in Belgium) and will mainly follow existing infrastructures (highways and railways). Work will begin in 2018, with commissioning due in 2020.

# 90 KM

OF CABLE (ALEGrO)

# 1,000 MW

CAPACITY (ALEGrO)



**MARCEL NEVEN,  
MAYOR OF VISÉ**

"PROJECTS LIKE ALEGrO HAVE A SCOPE THAT EXTENDS FAR BEYOND THE BOUNDARIES OF OUR MUNICIPALITY. IT'S IMPORTANT TO BEAR IN MIND THE WIDER PUBLIC INTEREST WHEN CONSIDERING THE ISSUES SURROUNDING SUCH PROJECTS. HOWEVER, THE VIEWS OF OUR RESIDENTS ALSO HAVE TO BE TAKEN INTO ACCOUNT. COMPANIES LIKE ELIA HAVE LEARNED TO ANTICIPATE THIS AND ARE NOW ADOPTING A GENUINE POLICY OF TRANSPARENCY TOWARDS LOCAL RESIDENTS, BY HOLDING INFORMATION MEETINGS FOR EXAMPLE."



## Facilitating offshore energy

With the MOG, Nemo Link and Stevin projects, Elia is making the necessary upgrades and developments between Belgium's interior and coast via an energy hub in the North Sea. As well as bolstering security of supply, they will also strengthen the development of inter-connections with neighbouring countries.



### MOG

- MOG = Modular Offshore Grid
- Two offshore platforms located around 40 km from the coast
- Will receive cables from the new offshore wind farms
- Connected directly to the Stevin substation in Zeebrugge

In April 2017, Elia's Board of Directors approved the investment for an 'electricity plug' or Modular Offshore Grid (MOG). The choice of a MOG is of strategic importance for Belgium's future in terms of its participation in the further development of renewable energy in the North Sea.



**TOM TRAPPENIERS,**  
INTERFACE & INTEGRATION  
MANAGER MOG AT ELIA

"AS EARLY AS 2010, ELIA ALREADY HAD PLANS TO DEVELOP ITS OFFSHORE ACTIVITIES. BY ENGAGING ACTIVELY WITH POLITICIANS, THE FEDERAL AND REGIONAL AUTHORITIES, THE REGULATOR AND NUMEROUS WIND FARM REPRESENTATIVES, IT WAS ABLE TO PUT FORWARD THE MOG CONCEPT IN 2015. LESS THAN TWO YEARS LATER, WE'RE STARTING WORK ON THE PROJECT. THIS IS UNPRECEDENTED FOR A PROJECT OF SUCH MAGNITUDE AND COMPLEXITY."



ON 21 NOVEMBER 2017, THE STEVIN PROJECT WAS INAUGURATED IN THE PRESENCE OF PRIME MINISTER CHARLES MICHEL, FEDERAL ENERGY MINISTER MARIE CHRISTINE MARGHEM AND A HOST OF MARKET PLAYERS.



The MOG will consist of two offshore platforms located approximately 40 km off the coast of Zeebrugge. They will act as a 'plug' for cables from the new offshore wind farms. Elia is currently building a platform called Offshore Switchyard (OSY), from where two cables will run to the Stevin substation to bring offshore wind power to the mainland. There will also be a third cable to the Stevin substation from the platform built by Rentel. Elia will purchase this cable, which will become part of the MOG. It will also lay the cable between the OSY and Rentel platforms.





## STEVIN

- Double 380 kV line between Zeebrugge and Zomergem (47 km)
- Capacity of 3,000 MW
- Key to the integration of offshore renewable energy, and vital for exchanging electricity with the United Kingdom (Nemo Link) and enhancing security of supply at the Port of Zeebrugge
- First 380 kV underground line in Belgium (over 10 km)



With Stevin, Elia is forging one of the missing links to the coastal grid, allowing electricity generated by offshore wind farms and energy carried by the interconnector with the UK to be optimally integrated into the Belgian high-voltage grid.

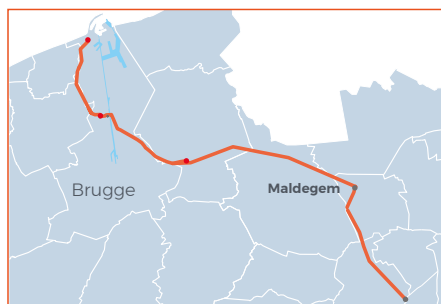
This project is a vital link for ensuring a reliable electricity supply, particularly in coastal regions. Its aim is to reinforce the Belgian high-voltage grid by means of a double 380 kV high-voltage line between Zomergem and Zeebrugge, representing a distance of 47 km. A new substation in Zeebrugge and two new transition substations in Bruges and Damme will also be built.

With the link now operational, Elia is starting work on the second phase of the project: dismantling 53 km of existing lines (in Bruges, Damme, Maldegem and Eeklo), 35 km of which will be buried. This work will continue until 2020.



**WILLIAM STAS,**  
STEVIN PROJECT LEADER  
AT ELIA

"THE STEVIN SUBSTATION IN ZEEBRUGGE IS BELGIUM'S LARGEST HIGH-VOLTAGE SUBSTATION. IT WORKS WITH THE THREE HIGHEST VOLTAGE LEVELS: 150 KV, 220 KV AND 380 KV. A UNIQUE CONFIGURATION!"



## DOUBLE TUNNEL PIPE UNDER THE BOUDEWIJN CANAL

For environmental reasons, 10 km of the 47 km Stevin project runs underground. To maintain its 3,000 MW transmission capacity, the underground section was divided into four parallel copper wire systems. In addition, a double tunnel pipe was built to traverse the Boudewijn Canal. Each pipe is situated at a depth of 32 metres and has a diameter of 14 metres. Shafts were constructed on both sides of the canal, through which technicians can descend to carry out maintenance work. Placing the 380 kV connection underground was a major technical feat and a first for Belgium.



## Reinforcing the grid

Given the increasing complexity of the electricity system, Elia remains committed to reinforcing the existing grid. Many projects are currently underway to address this need and accommodate local renewable energy generation.



### BRABO

The final permit required for phase two of the Brabo project was granted in October 2017. The project aims to strengthen the high-voltage grid and consolidate security of supply in and around the Port of Antwerp and, more generally, to increase Belgium's import/export capacity.

Brabo is divided into several phases, which Elia is implementing between 2016 and 2023.

**Brabo I** (the Doel-Zandvliet connection and Zandvliet substation): The upgrade of the second high-voltage line between Doel and Zandvliet is complete and the line was commissioned on 25 October 2016. The additional phase-shifting transformers at Zandvliet were commissioned in November 2015 and June 2016. This is a vital step towards greater security of supply during critical winter periods.

**Brabo II** (the Zandvliet-Lillo-Liefkenshoek connection): The existing 150 kV high-voltage line will be upgraded to a 380 kV connection on the right bank of the River Scheldt in the Antwerp district of Berendrecht-Zandvliet-Lillo and the municipality of Stabroek. The connection will follow the current route along the A12 between the high-voltage substations at Zandvliet (close to BASF) and Lillo (close to the Liefkenshoek tunnel). This connection will cross the River Scheldt to Beveren on the left bank, where it will be connected to the existing 380 kV connection (Doel-Mercator). Elia began laying high-voltage cables (150 kV) under Scheldelaan and Kruisweg in Antwerp in March 2017.

**Brabo III** (the Liefkenshoek - Mercator connection): From Liefkenshoek, the existing 150 kV connection will be upgraded to 380 kV. This line will run over a distance of 19 km from Liefkenshoek (municipality of Beveren), via the Kallo high-voltage substation (municipality of Beveren), to the Mercator high-voltage substation (municipality of Kruibeke).



**RAF VANDENBOER,**  
ELIA'S PUBLIC ACCEPTANCE  
OFFICER FOR BRABO

"IT WAS DIFFICULT BUT IN THE END, WE'VE ESTABLISHED A STRUCTURAL PARTNERSHIP WITH THE PORT OF ANTWERP COMMUNITY AND THE MUNICIPALITY OF STABROEK. A GREAT TAKE-OFF POINT FOR OUR NEXT STEPS IN THE BRABO II PROJECT!"





**DORIEN JANNIS,**  
**BOUCLE DE L'EST PROGRAMME MANAGER**  
**AT ELIA**

"THE GRID IN THE EAST OF THE PROVINCE IN LIÈGE IS SATURATED AND CAN NO LONGER ACCOMMODATE EXTRA GENERATION FROM RENEWABLES. THIS PROJECT IS CRUCIAL FOR THE INTEGRATION OF RENEWABLES AND ALSO TO SECURE GRID RELIABILITY."



## BOUCLE DE L'EST

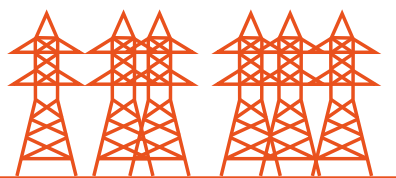
In February 2017, Elia inaugurated the first stage of its mammoth project to modernise and upgrade the Boucle de l'Est (East Loop). This first upgrade connects Malmédy, Waimes, Amel and Bütgenbach. The project is part of the Walloon power infrastructure development plan.

This project is vital for the development of renewable energy generation in the region and key to ensuring reliable grid operation. It will enable a number of renewable energy projects (biomass, wind, etc.) to be developed and to inject their energy securely into the grid.

**Stage 1** of the Boucle de l'Est project (the Bévercé-Bütgenbach-Amel connection) was commissioned in early December 2016.

**Stage 2** of the project involves replacing and upgrading the overhead line connecting the Bévercé (Malmédy), Bronrome, Trois-Ponts (Coo) and Brume sites located in the municipalities of Malmédy, Stoumont, Stavelot, Spa and Malmédy. The work is scheduled for 2019-2022.





# 110 km

(Mercator-Avelin)



## MERCATOR-AVELIN

Elia is planning to upgrade 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 line upgrade is subdivided into three projects: Mercator-Horta, Horta-Avelgem and Avelgem-Avelin.

### 1. Mercator-Horta

Elia secured the planning permission, declaration of public utility and highway permit for the Mercator-Horta project in May 2017. At the end of that month, work started on the Kruibeke (Mercator) high-voltage substation and on the line itself to strengthen the pylons and foundations along the entire route. Work to replace the conductors with high-temperature low-sag (HTLS) conductors will begin in April 2018.

The Mercator-Horta connection is an overhead high-voltage line linking Kruibeke and Zomergem, a distance of 49 km. It was built in the 1970s and crosses 12 municipalities. Elia wants to upgrade the line to help it cope with the increasing integration of renewable generation units. Upgrading the line will also enable more power to be imported from/exported to other countries.

### 2. Horta-Avelgem

The Horta-Avelgem line is a 380 kV high-voltage overhead connection built in the 1970s. It runs for 40 km from Zomergem (Horta high-voltage substation) to Avelgem. The line is located in the provinces of East Flanders and West Flanders and crosses eight municipalities.

Between 2018 and 2021, Elia will replace the conductors on the existing high-voltage line, consolidate the pylons and their foundations, and modify the switchgear at the Avelgem high-voltage substation.

### 3. Avelgem-Avelin

Elia plans to upgrade the 380 kV high-voltage overhead connection linking the Avelgem (Belgium) and Avelin (France) substations by 2021. This line also dates from the 1970s. This joint project with the French high-voltage system operator RTE affects two Flemish and five Walloon municipalities. It covers a distance of 23 km and includes 54 pylons. The work is scheduled for 2018-2021.





## SCHELLE-MALDEREN-MECHELEN

The Schelle-Malderen-Mechelen project comprises four subprojects:

- the reconfiguration of three high-voltage substations at Schelle, Malderen and Tisselt (to facilitate demolition of the lines and cable laying and to replace outdated equipment),
- the demolition of the 70 kV overhead line between Schelle and Mechelen,
- the laying of a new 150 kV cable connection between Malderen, Tisselt and Mechelen,
- the demolition of the 70 kV overhead line between Malderen, Tisselt and Mechelen.

It aims to enhance the region's security of supply.

In 2017, Elia dismantled the 70 kV line between Schelle and Mechelen and also began adapting the high-voltage substations at Schelle and Malderen. This is expected to be completed during the first quarter of 2019. The project is scheduled for completion in 2022.



## AALTER

This project aims to upgrade the high-voltage grid in the Lakeland industrial zone and boost its energy transit capacity in order to guarantee continued security of supply for households and local businesses in Aalter, Knesselare and Wingene.

The project will also offer local businesses based in the industrial zone greater scope to expand: not only because of the planned expansion of grid capacity, but also thanks to the space freed up by moving the high-voltage substation to Léon Bekaertlaan, where Elia has a site ready to accommodate a new substation. The work is scheduled to take place from mid-2018 to late 2020.



## RABOSÉE-BATTICE

Elia was granted planning permission for the Rabosée-Battice project in October 2017. Work will begin in 2018. To meet the various changing consumption and generation needs identified in the region, Elia proposes to build a new 150 kV underground electricity connection linking the Battice substation and Rabosée (Wandre-Haut). Here, the underground link will be connected to the 150 kV Bressoux-Cheratte-Lixhe overhead connection, which will require the construction of a new transition substation at Rabosée.



## Cutting costs

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 €20 million over the first two years of the 2016-2019 tariff period.



# €20 mio

SAVINGS IN 2016 AND 2017



**HARALD VAN OUTRYVE D'YDEWALLE,**  
PURCHASING MANAGER AT ELIA

"BOOST HAS HERALDED A NEW APPROACH IN THE COMPANY, IN PARTICULAR AN ACKNOWLEDGEMENT THAT TECHNICAL SPECIFICATIONS SHOULD BE CHALLENGED TO MAKE SURE THEY FIT WITH THE COMPANY'S NEEDS AND WHAT IS AVAILABLE ON THE MARKET."



**ILSE TANT,**  
CHIEF PUBLIC ACCEPTANCE OFFICER  
AT ELIA

"IN ORDER TO REAP THE FULL BENEFITS OF AN INTEGRATED MARKET, WHILE AT THE SAME TIME MEETING OUR SUSTAINABILITY OBJECTIVES, IT IS VITAL THAT THE DEVELOPMENT OF BELGIUM'S GRID INFRASTRUCTURE STAYS AHEAD OF MARKET DEVELOPMENTS.

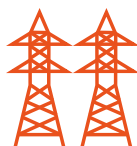
## Federal Development Plan 2020-2030

In line with its legal obligation to draw up a federal development plan every four years, Elia began preparing a report on the medium-term future of the Belgian high-voltage grid (Federal Development Plan 2020-2030) in 2017.

Elia notes that a fundamental change in the context is underway as the network evolves from lagging to lead-

ing, meaning that the electricity network is determining the speed at which the energy transition takes place. Elia therefore advocates an accelerated approach to infrastructure development in order to fully exploit the advantages of the energy transition. The Federal Development Plan 2020-2030 will be finalised in 2018 and put out to public consultation.

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



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



**02** Open communication and cooperation during the entire development process from a very early stage.



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



# WHAT HAPPENED AT 50HERTZ?



## New substations

50Hertz commissioned five new substations in 2017 in Wolmirstedt, Heinersdorf, Hamburg, Putlitz and Altdorf. Phase-shifting transformers were also commissioned in Röhlsdorf, on the border with the Czech Republic.

## Combined Grid Solution is a world first!

This unique joint project between 50Hertz and the Danish system operator Energinet will be the world's first interconnector between two offshore wind farms of different nationalities: the Kriegers Flack (DK) and Baltic 2 (DE) projects, which are located barely 30 km apart. Commissioning is scheduled to take place from late 2018.

## The Hansa PowerBridge project

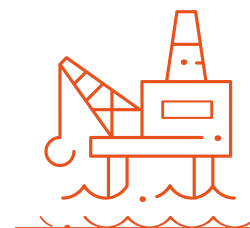
50Hertz and the Swedish transmission system operator Svenska kraftnät have taken another step forward in the development of the Hansa PowerBridge project, the around 300 km, approximately 700 MW offshore interconnector between Germany and Sweden. On 19 January 2017, the two system operators signed a detailed cooperation agreement concerning the schedule and construction. With a planned commissioning date of around 2025/2026, the submarine cable will link Germany's substantial wind generation output with the vast storage capacity of Swedish hydropower plants.

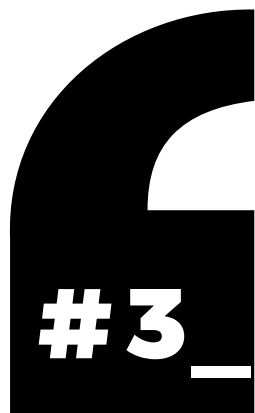
## South-West Interconnector

The South-West Interconnector between Saxony-Anhalt and Bavaria has been fully operational since September 2017 – an important milestone for 50Hertz. The development stage of the 200 km - thereof 161km in 50Hertz control area - connection lasted 15 years. The 380 kV line is intended to ensure a reliable power supply for Bavaria following Germany's nuclear power phase-out. Since the new connection was fully commissioned, there have been fewer congestion problems in 50Hertz's control area, which has reduced costs incurred by redispatch measures considerably.

## Ostwind1

50Hertz made substantial progress on a number of offshore projects in 2017. A second cable was laid for the Ostwind1 offshore grid connection project, meaning that the Wikinger wind farm can be connected in 2018.





How can  
Elia ensure  
that our  
industry  
remains  
competitive  
with other  
countries?

**PIETER TIMMERMANS,  
CEO OF THE FEDERATION OF  
ENTERPRISES IN BELGIUM (FEB)**



– CHIEF EXECUTIVE OFFICER OF  
VBO/FEB SINCE 2012  
– VBO/FEB IS A MULTI-SECTOR  
EMPLOYERS' ORGANISATION  
REPRESENTING 50,000  
BUSINESSES



**JAMES MATTHYS-DONNADIEU,  
HEAD OF MARKET DEVELOPMENT AT ELIA**

If we want Belgian companies to remain competitive, our electricity price must be comparable to that of neighbouring countries. While our industries are energy-efficient, they are more energy-intensive than those of our neighbours. As well as the various taxes and surcharges, the electron price and transmission tariffs are key factors. Securing an identical electron price to those of neighbouring countries is an objective in itself. The capacity available at the borders at any given time is the primary determinant for this price.

"The Belgian electricity market is linked to markets in neighbouring countries via interconnectors. This means that we can always use the most efficient generating facilities to meet demand, regardless of whether they are in Belgium or abroad. The desired outcome is convergence between the Belgian electricity price and those of neighbouring countries.

Elia is playing an active role in designing the electricity system of the future to ensure that it remains reliable, sustainable and competitive against the backdrop of the energy transition. Our recent study 'Electricity Scenarios for Belgium towards 2050' is a tangible example of this."



# We develop the electricity system and markets

Given the growth in renewable energies and their highly volatile 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 the market to new players and technologies, Elia aims to boost the security of supply, while also making market prices more competitive.

**D**eveloping these cross-border balancing mechanisms requires greater cooperation and coordination at the national and supranational levels, as well as an appropriate legislative framework. To achieve this, Elia ensures that every market player has transparent, non-discriminatory access to the grid.

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



**PASCALE FONCK,**  
CHIEF EXTERNAL RELATIONS OFFICER  
AT ELIA

“IN ADDITION TO AN AMBITIOUS CHANGE PROGRAMME ADAPTED TO THE RAPIDLY EVOLVING ENVIRONMENT, WE ALSO REFLECT ON HOW TO MANAGE THE SCHEDULED NUCLEAR PHASE-OUT BY 2025 AND THE POSSIBLE TRANSITION SCENARIOS FROM A MARKET AND SYSTEM PERSPECTIVE.”



”

**PATRICK DE LEENER,**  
CHIEF CUSTOMERS, MARKETS  
& SYSTEM OFFICER AT ELIA

“IN 2017, ELIA AND THE DISTRIBUTION SYSTEM OPERATORS CARRIED OUT A PILOT PROJECT TO INTEGRATE FLEXIBILITY AT THE DISTRIBUTION LEVEL INTO SYSTEM OPERATION. THE LAUNCH OF THIS COOPERATION IS VITAL AGAINST THE BACKDROP OF INCREASING RENEWABLE ENERGY AND THE ASSOCIATED VARIABILITY.”

## Our ambitions

### Towards an 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, as there is less of a focus on national markets. Consumers can access the cheapest energy wherever it is available.

### Harmonising electricity market rules across Europe

Initiated by the European Commission, the European network codes are drawn up on the basis of proposals by the European 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. Furthermore, each network code forms an integral part of the drive to create a single energy market and to achieve the EU's 20-20-20 goals.

### Our expertise at the community's service

Elia is an active member of a number of national and European working groups 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 is highly customer-oriented and sets up specialised working groups in order to gain a better insight into market players' needs and requirements and to identify the best solutions.

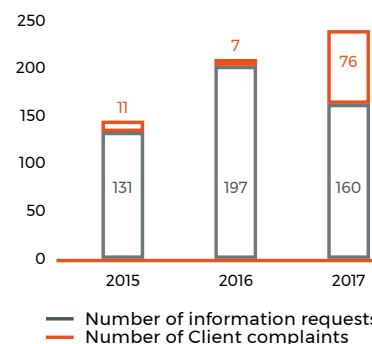


## OBJECTIVES

We give every player access to the energy markets, regardless of their size, the kind of technology they deploy and their role in the market, so that they can fully exploit the economic benefits:

- Redesigning the Belgian balancing market to encompass all kinds of technologies and market players, independently from the grid they are connected to
- Integrating Belgium into a wider European balancing market

**CLIENT INFORMATION AND COMPLAINTS REQUESTS (BELGIUM)**



# What we achieved in 2017

## Real-time balancing on a day-to-day basis

To make sure the grid runs smoothly 24 hours a day, the operators activate the regulation tools needed to ensure that the grid remains balanced at all times, which resulted in a grid reliability rate of 99.999% in 2017. They have access to reserves to manage the electricity grid, commonly referred to as 'ancillary services'. These reserves contribute to maintaining the frequency and voltage on the grid, managing congestion and balancing generation and consumption in real time.

The control centre coordinates energy flows on the grids, in close cooperation with international coordination centres (such as Coreso and TSCNET) and transmission system operators in neighbouring countries. The reliability of the electricity grid and the country's security of supply depend on their collaboration.



**KRISTIEN CLEMENT-NYNS,**  
ANCILLARY SERVICES MANAGER  
AT ELIA



"OUR AIM IS TO OPEN UP OUR BALANCING MARKET FOR NEW PLAYERS AND NEW TECHNOLOGIES BY INNOVATION IN OUR SYSTEMS AND MARKET PRODUCTS. THEREFORE WE HAVE EMBARKED ON AN AMBITIOUS CHANGE PROGRAMME FOR THE BALANCING MARKET."

## THERE ARE THREE DIFFERENT SERVICES FOR KEEPING THE GRID BALANCED:

1

**Primary reserve  
FCR**

### Frequency Containment Reserve (FCR) or primary reserve

Activated upwards and downwards automatically and on a continuous basis, almost instantly (within 0 to 30 seconds), as required to stabilise the frequency of the European grid. In the event of a deviation, all of Europe's transmission system operators work together, enabling them to provide enough power to cover two concurrent serious incidents (e.g. the loss of two 1,500 MW generation units) within 15 minutes. This reserve is supplied by generation units or offtake sites.

2

**Secondary reserve  
AFFR**

### Automatic Frequency Restoration Reserve (aFRR) or secondary reserve

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. It is supplied by generation units.

3

**Tertiary reserve  
MFRR**

### Manual Frequency Restoration Reserve (mFRR) or tertiary reserve

Can be activated upwards manually at Elia's request. It is used to address a major imbalance in the area managed by Elia and/or to deal with congestion problems. There are several types of tertiary reserve and the reserve can be supplied by generation units or offtake sites.



## Extension of the primary control market to include new technologies

On 1 May 2017, Elia introduced a new contractual framework governing the provision of the primary frequency control service (FCR or R1). This allows new technologies such as batteries and decentralised generation to participate in grid balancing. This development is in keeping with the multiannual development plan drawn up by Elia in 2016 in close collaboration with the relevant distribution system operators and market players, following changes to Belgium's generating facilities.

## Integration of non-CIPU units into the secondary reserve

Since mid-2016, Elia has been examining the feasibility of integrating units, other than large gas-fired generation units, into the secondary reserve and opening participation to units of various sizes, fuelled by diverse technologies (e.g. biogas, cogeneration, heat pumps).

In 2017, Elia carried out a pilot project entitled 'R2 Non-CIPU' in collaboration with Actility, EDF Luminus and Next Kraftwerke. The results of this project suggested it would be beneficial for the aFRR



(automatic Frequency Restoration Reserves or secondary reserve) market to be opened up to non-CIPU flexibility. Elia will develop a new design proposal for the aFRR including a technical and economic assessment of energy transfer implementation. This will be presented for stakeholder consultation in 2018.

## Extension of the current secondary reserve market

Elia conducted a study on the possible extension of the current secondary reserve market. After presenting the different scenarios and undertaking a stakeholder survey, it put forward an implementation proposal in early March 2017, based on market feedback.

Previously, the secondary market was restricted to certain scenarios: for day-ahead it was only open to CIPU units and, for intraday, only if those CIPU units suffered an outage.

After consulting stakeholders, Elia suggested opening up the secondary market to all units (CIPU and non-CIPU) and in all circumstances (outage or otherwise) from 31 December 2017.

This opening of the market clearly adds value and will allow Belgium to become one of the frontrunners in Europe in terms of the exchange of reserves.

## Study on dynamic dimensioning of reserve needs

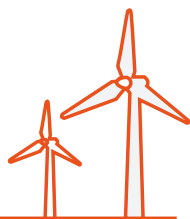
In October 2017, Elia unveiled a new method to 'dynamically' size balancing reserve needs in near-real time based on day-ahead predicted system conditions, including offshore and onshore wind power, solar photovoltaics, electricity demand, power plant schedules and transmission assets.

The study demonstrates that the proposed alternative methodology improves the reliability and efficiency of reserve procurement, particularly in future systems with increasing renewable generation. The actual application of dynamic dimensioning is subject to a follow-up study on dynamic ('daily') procurement of the tertiary reserve in 2018.

## Study on the pricing methodology used for the settlement of activated balancing energy

Elia analysed the advantages and disadvantages of moving to a 'paid-as-cleared' methodology earlier than planned under EU legislation. The new methodology aims to introduce a better market dynamic. Elia also set out an implementation plan and undertook a cost-benefit analysis.

Based on an initial estimate, the study concludes that the new pricing methodology could be implemented for mFRR in the second half of 2019 at the earliest, and for aFRR in late 2020 at the earliest, provided that there is sufficient liquidity in the relevant markets. This estimate is liable to change based on further analysis and a detailed project schedule, as well as other priorities set by Elia, CREG and other market players.



## Strategic reserve

### WHAT IS IT?

The strategic reserve is a concept that was implemented for the first time during the winter of 2014-2015. It is designed to address the structural shortage of installed generation capacity in Belgium brought about by the temporary or permanent shutdown of power stations (for either economic or technical reasons). The reserve is intended to help maintain security of supply during the winter period.

Ahead of each winter period and on the instructions of the Energy Minister, Elia organises a call for tenders for power stations that have announced that they will be shutting down and for demand-side managers.

The reserve capacity established may be activated during the period from 1 November to 31 March; it may not be used for any other purpose. Each year, strategic reserve demand is assessed for the following winter.

### WHEN IS IT ACTIVATED?

The strategic reserve is activated where a 'structural capacity deficit' is identified (according to economic or technical criteria) based on market forecasts or other information available to Elia the day ahead of a given day or several hours in advance.

In 2017 the Belgian and European authorities have been in contact to investigate if the Belgian mechanism of strategic reserve is compatible with the applicable EU State aid rules, and in particular with the 'Guidelines on State aid for environmental protection and energy 2014 - 2020' (EEAG).

Even though there is not yet a final, public decision from the European authorities, Elia and CREG have been formally informed of the commitments that the Federal Minister of Energy has taken towards the European Commission with the aim of obtaining a positive final decision. To the extent possible, these commitments have already been taken into account for the next winter period 2018-2019.



## The strategic reserve for winter 2017-2018

In line with the Electricity Act, Elia conducts an annual probabilistic analysis of Belgium's security of supply for the next winter by 15 November. This analysis, together with the opinion of DG Energy, is an important element to be taken into account by the Federal Minister for Energy to decide on the need for a volume of strategic reserve. On 15 January 2018 the Federal Minister of Energy instructed Elia to constitute a reserve of 500 MW for this winter (2018-19).



### SITUATION ON THE GRID DURING THE COLD SPELL

*"During the winter of 2016-2017, a period of cold weather in Belgium and France led Elia to consider activating the strategic reserve in mid-January 2017. In the end this didn't happen as weather conditions in France improved. Working in close coordination with other European transmission system operators, Elia managed to maintain security of supply without having to activate the strategic reserve. In Belgium, the various market players made every effort to ensure optimal generating facilities and to keep their customer portfolios balanced."*

Kristof Sleurs, Head of Operations NCC at Elia





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**HANS VANDENBROUCKE,**  
HEAD OF THE BELGIAN MARKET  
MODEL TEAM AT ELIA

“BIDLADDER ALLOWS SMALLER UNITS TO PARTICIPATE IN FLEXIBILITY. UNTIL NOW, THIS WAS ONLY POSSIBLE FOR UNITS WITH A MINIMUM CAPACITY OF 25 MW. BIDLADDER OPENS UP THE BALANCING MARKET TO THE DEMAND SIDE AND DECENTRALISED GENERATION, THEREBY LEVERAGING THEIR FLEXIBILITY. THIS IN TURN, MEANS GREATER LIQUIDITY FOR ELIA.”



## The BidLadder project

### ENABLING MARKET PLAYERS TO PUT AVAILABLE FLEXIBILITY ON THE MARKET

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 grid 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, and will be available for the distribution system in early 2018.

Elia will facilitate data exchange within BidLadder by means of the DataHub platform, developed in collaboration with distribution system operators.

## The DataHub project

### FACILITATING FLEXIBILITY EXCHANGES WITH DISTRIBUTION SYSTEM OPERATORS

On 1 January 2018, Elia and the distribution system operators (DSOs) launched a joint platform called T-DSO DataHub for exchanging data between them. This is needed for the verification and settlement of the flexibility volumes activated at Elia's request, as part of the ancillary services designed to manage grid balance. T-DSO DataHub enables all market players and grid users to offer flexibility to Elia.

Its development follows the launch, in late June 2017, 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.

## Extension of the flow-based method

Elia is currently working to extend the flow-based method to include intraday for the Central West Europe (CWE) region. In August 2015, the flow-based method was launched for only day-ahead. Elia is also seeking to extend the flow-based formula for the Eastern European (CORE) regions, in order to comply with the guidelines set out in the network codes.

Up to that point, international electricity exchanges in the CWE region had been governed by the transmission capacity available at each border.

The flow-based model is based on a more detailed simulation of network components and enables capacity to be allocated by high-voltage connection rather than by border. This more complex, but more accurate system, provides market players with more detailed information and offers them a wider range of import and export options.



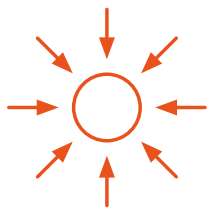


## The ENCODE project

### IMPLEMENTATION OF EUROPEAN NETWORK CODES

In Belgium, Elia launched the ENCODE project designed to implement the EU network codes at national level and, at the request of the federal energy authorities, initiated consultations with market players via the Elia Users' Group on the main aspects associated with implementing the codes.

The aim is to submit a proposal for the amendment of the Federal Grid Code in May 2018 and, later in the year other proposals, based on the network codes, to the relevant authorities. All these proposal submissions will be preceded by public consultations organised by Elia.



## The MARI and PICASSO projects

### BALANCING MARKET INTEGRATION

Elia signed two Memoranda of Understanding in 2017 related to the integration of the balancing markets. The MARI and PICASSO projects anticipated the EU Guideline on Electricity Balancing coming into force.

– **The MARI project** - In early April 2017, as part of the MARI project, 19 European transmission system operators (TSOs) signed a Memorandum of Understanding for the design, implementation and operation of a new platform for the exchange of balancing energy from Frequency Restoration Reserves with manual activation or mFRR (R3 - tertiary reserves).

– **The PICASSO project** - In July 2017, as part of the PICASSO project, eight TSOs signed a Memorandum of Understanding for the design, implementation and operation of a platform for common activation of balancing energy from automatic Frequency Restoration Reserves or aFRR (R2 - secondary reserves). The TSOs ensured that market players were involved early on in the design phase of these integrated markets, with public consultations launched in late 2017 to gather input from market participants. Under EU regulations, these platforms should be up and running no later than the end of 2021.



**SILVIO FERREIRA,**  
PROJECT MANAGER AT ELIA

“ELIA'S NEW CALCULATION PLATFORM, POWERFACTORY, IS FLEXIBLE AND WILL MAKE IT EASIER TO DEVELOP NEW PROCESSES FOR COPING WITH FUTURE CHALLENGES RELATING TO GRID SECURITY OR CAPACITY CALCULATIONS (DYNAMIC AND VOLTAGE STABILITY, INTRODUCTION OF HVDC, ETC.).”

## The iCAROS project

### COORDINATION OF ELECTRICAL INSTALLATIONS

In a rapidly changing environment, Elia is reviewing its processes for coordinating the electrical installations of grid users (currently governed by the CIPU contract). As part of this review, it launched the iCAROS project (Integrated Coordination of Assets for Redispatching and Operational Security) in 2017. This will enable the implementation of new operational data exchanges for the coordination of electrical installations and the management of congestion risks, as well as the new roles required by the European Guideline on Electricity Transmission System Operation.

Elia issued a design note in 2017, which it put out for consultation in early December. In 2018, it will publish a new version of this note taking into account the feedback from market players, with a view to preparing the implementation.



## The Loftie project

### IMPROVING GRID SIMULATIONS

Running grid simulations requires even more advanced tools as well as a grid model management integrating forecasts from one day to ten years ahead. New data and IT architecture has been developed and implemented within Elia to enable the relevant departments to perform all their analyses in a more modern and flexible environment.

The Loftie project (Load Flow Tools and Insourcing of Expertise) was launched in 2014. The new PowerFactory tool was phased into service in 2017. It enables the incorporation of changes in the business processes of the operational planning and grid development departments, namely the modelling of renewable generation and medium-voltage substations (DSOs), increased automation to enable more scenarios to be implemented, and compatibility with the new ENTSO-E codes and standards.

Operational planning migrated to PowerFactory in several phases, starting with weekly planning in June 2017. Daily planning was migrated in November 2017.

The next goal for Loftie in 2018 will be to fully model renewable generation in operational planning's security calcu-

lations. This major change will make it possible to move towards the conditional weekly planning of multi-scenario outages, while improving the quality of the daily planning simulations.

## Our expertise at society's service

### STUDY ON THE FUTURE OF THE BELGIAN ENERGY SYSTEM

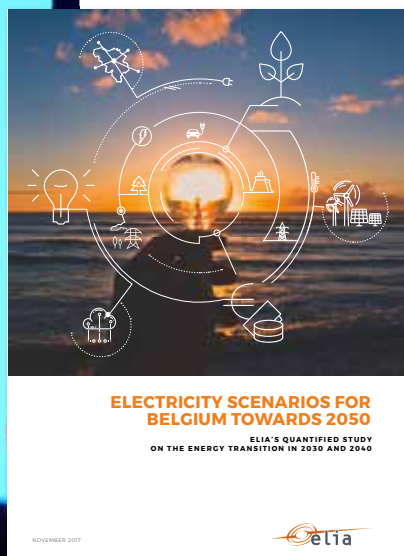
In a new study on the future of the Belgian energy system, published in November 2017, Elia calls on the Belgian authorities to take swift action. 'Electricity Scenarios for Belgium towards 2050' argues that it is high time to make decisions that will safeguard the Belgian energy system and the country's welfare and prosperity. The rapid and fundamental changes brought about by the energy transition create new needs and requirements and there is the additional challenge of the 2025 nuclear exit required by law. In addition to the many challenges, Elia's study also describes the industrial opportunities for Belgium as Europe's 'Energy Roundabout'.

Elia published the report to support policymakers working on an inter-federal Energy Pact. It looked at both the short term (statutory closure of all Belgian power stations in 2025) and longer term (achieving the COP 21 climate standards by 2050).

The study triggered a lively public debate in Belgium and is still widely regarded as a landmark document. Among other things, Elia noted that the replacement capacity for nuclear energy in 2025 would not come from nowhere and that 3.6 GW of flexible thermal power plants would be needed – with a support mechanism – to absorb the shock of the nuclear exit.

The study also showed that additional interconnectors are a 'no regrets' option. They contribute towards the achievement of Belgium's climate goals and offer the best guarantee for ensuring prices that are competitive compared to neighbouring countries. Additional interconnectors also bring industrial opportunities for our domestic generation market: Belgium can establish itself as a first mover to realise the concept of the Energy Roundabout within a European context.

The future study was presented in detail at Elia's annual Stakeholders' Day on 17 November 2017. The report was discussed in advance with numerous market players and interest groups and enjoyed widespread support in the sector when launched.



**ROXANNE VANDE ZANDE,**  
GRID CODES AND REGULATED CONTRACTS  
MANAGER AT ELIA

"OUR STUDY WAS AN EYE-OPENER FOR BOTH THE SECTOR AND POLICYMAKERS. WE SHOWED THAT NEW CAPACITY WILL BE NEEDED IN EVERY FUTURE SCENARIO, INCLUDING A PARTIAL NUCLEAR EXTENSION. BY DOING NOTHING, BELGIUM WOULD ALMOST AUTOMATICALLY END UP IN A DOOMSDAY SCENARIO FROM 2025, IN WHICH AT LEAST 4 GW OF NUCLEAR CAPACITY WOULD HAVE TO BE EXTENDED AT SHORT NOTICE OR THERE WOULD BE SERIOUS SUPPLY ISSUES FOR YEARS TO COME, RESULTING IN SIGNIFICANT ECONOMIC DAMAGE TO THE COUNTRY."

## Rewenables Grid Initiative

Since 2011, Elia has been a member of the Renewables Grid Initiative (RGI), a coalition of environmental organisations (such as the WWF and Birdlife) and system operators. Their shared aim is to generate consensus around the grid expansion needed to integrate renewables, while respecting biodiversity and the environment.

In 2017, RGI organised a number of webinars and workshops on community compensation measures and improving public acceptance by undergrounding high-voltage lines. In addition, various workshops were held to help the NGOs understand how transmission system operators develop and expand their networks, which led to a greater appreciation of the many obstacles that TSOs face.



## Global Energy Interconnection Development and Cooperation Organisation

In November 2017, the Elia Group, via Elia Grid International, joined the Global Energy Interconnection Development and Cooperation Organisation (GEIDCO), an international body based in China. GEIDCO facilitates and promotes the establishment of a global system of energy interconnections. It does this by compiling development plans and proposals for technical standards with the help of industry experts.

The Elia Group wishes to contribute its expertise to this international initiative for the development of interconnections.



### OUR COLLEAGUES IN ENERGY ASSOCIATIONS

Elia is committed to cooperating and maintaining good relationships with all market players. This is helped by the fact that some of our managers are members of sectoral organisations. 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.





# WHAT HAPPENED AT 50HERTZ?

## WindNODE



The WindNODE project got under way in January 2017 with an initial consortium meeting at 50Hertz's Netzquartier building attended by all partners. WindNODE is a joint research project in which over 70 partners are coming together to develop new decentralised and sustainable solutions for the energy transition. The goal is to efficiently integrate large quantities of renewable electricity into the energy system while keeping power grids stable. WindNODE will use the possibilities offered by digitalisation to create a smart energy system and allow the coordinated operation of many different partners in a decentralised system.

## Berlin Energy Transition Dialogue

In March 2017, Elia and 50Hertz were jointly represented at the third Berlin Energy Transition Dialogue, a German federal government organisation. The Elia Group supported a number of sessions at the two-day event, where we demonstrated our experience in integrating renewable energy and explained how the transmission system needs to be modified to cater for this.

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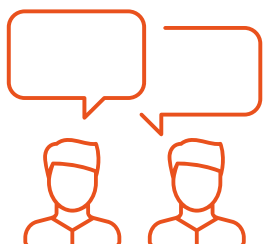
**BORIS SCHUCHT,**  
**CEO 50HERTZ**

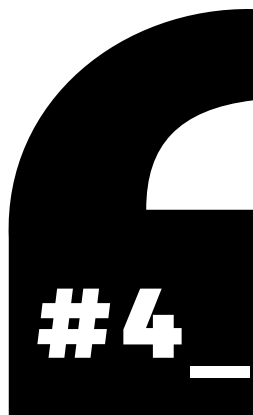
“RENEWABLE ENERGY SOURCES HAVE EVOLVED INTO A DOMINANT SOURCE OF ENERGY, PARTICULARLY IN OUR CONTROL AREA. INNOVATION AND SMART GRID CONTROL ARE ESSENTIAL FOR ENSURING THAT RENEWABLE ENERGY IS INTEGRATED SAFELY AND EFFICIENTLY. WINDNODE COMBINES BOTH OBJECTIVES.”



## Roundtable for Europe's Energy Forum

On 18 October, 50Hertz's CEO Boris Schucht took part in an open discussion in Brussels on the future operation of the European electricity system as part of the Clean Energy Package. In a joint effort with other European transmission system operators, the Regional Energy Forum (REF) model was presented to Maroš Šefcovic, the European Commissioner for Energy Union. These REFs could improve coordination between existing Regional Security Centres (RSCs) such as Coreso and TSCNET.





How will Elia  
return our  
beach to its  
former glory  
once the  
cable works  
have been  
completed?

LEON INKEBERGHE -  
MANAGER OF ICARUS SURFCLUB,  
ZEEBRUGGE

The beach and shoreline form the back-drop to our surf club so they have to look pristine. Our members also use the beach a lot to practice their surfing and leave their kites on the sand. We're very grateful that Elia has consulted us about the works and is completing them as quickly as possible. However, having a safe and clean beach again afterwards is just as important.

- KEEN KITESURFER FOR THE  
PAST SIX YEARS  
- NEW MANAGER OF ICARUS  
SURFCLUB IN ZEEBRUGGE



**MATHIEU DONCHE -  
NEMO LINK BE PROJECT  
MANAGER AT ELIA**

"Ensuring that the beach looks its best after the works is a priority for us. This means carrying out the work to a high standard to prevent subsidence, and not leaving any waste behind. We will therefore dig the work area to make it level and sift the sand. We determine and discuss our working method in advance with stakeholders, in this case the surf club."

21,824 m

STEVIN PROJECT LINES INTEGRATED  
IN THE LANDSCAPE

85 ha

THE SURFACE AREA OF SUSTAINABLE  
CORRIDORS CREATED EACH YEAR SINCE 2015



# We cooperate to strengthen our TSO position

Elia's activities have an impact on the country's socio-economic development. As a key player in the energy system, Elia is committed to improving dialogue and coordination with the various market parties. It also aims to be a sustainable and responsible company that works hard to help reduce the ecological footprint of its operations and develop projects for the community.



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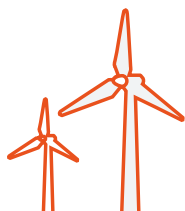
**ILSE TANT, CHIEF PUBLIC  
ACCEPTANCE OFFICER AT ELIA**

**E**lia wishes to take account of society's needs and concerns at every stage of its infrastructure projects. We approach our stakeholders with empathy and integrity. To this

end, Elia has developed a policy defining its ambitions and actions on sustainable development. The policy focuses on four main areas: economy, environment, society and employment.

“WE STRENGTHEN DIALOGUE WITH ALL STAKEHOLDERS AND OUR INTERNATIONAL COLLEAGUES TO PUT FORWARD SOLUTIONS THAT ARE IN THE INTEREST OF SOCIETY.”

# Our ambitions



## Economy

Elia upgrades its grid to enable greater renewable integration and thus supports Belgium's energy mix and the EU's ambitions on renewables.



## Employment

Elia aspires to be a sustainable employer concerned for the safety of all. To achieve this, it relies on a motivational and robust corporate culture that allows it to meet all the challenges of the energy sector in an agile way.



## Environment

Elia incorporates more environmental targets into its activities in order to make the best possible contribution to the energy transition and promotes biodiversity around its facilities.



## Society

Elia seeks to upgrade its grid in a spirit of dialogue and cooperation with local residents. Its electricity system must be reliable and affordable, and must be maintained and developed in the interest of the community.



## OBJECTIVES

**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.**

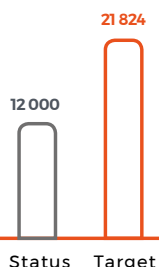
- Having a positive impact on society by realising further grid development enabling proper integration of renewable energy in the EU grid of the future
- Expanding dialogue with stakeholders and keeping them informed throughout the entire duration of projects
- Performing the necessary studies and analyses and acting as an advisor to the different governments with regard to the realisation of the energy transition in the interest of society



## What we achieved in 2017

### Building a relationship on trust and dialogue

#### BIODIVERSITY - STEVIN LANDSCAPING INTEGRATION



Elia is keen to lessen the impact of its facilities on the landscape and plants large numbers of trees and shrubs on the land it owns. For more information about Elia's sustainability measures, see the annex.

### MEETINGS WITH LOCAL RESIDENTS AFFECTED BY INFRASTRUCTURE PROJECTS

Informing and listening to residents impacted by its infrastructure projects is a priority for Elia. As such, the transmission system operator organises regular information sessions in partnership with affected municipalities. These sessions inform local residents about the impacts, objectives and challenges of upcoming works, as well as answering any questions they may have. Newsletters, websites and brochures are also used to ensure optimal communication throughout the works.

### INVITING LOCAL RESIDENTS TO LEARN ABOUT WHAT WE DO

In May, Elia held an open day for the public at its brand new Stevin high-voltage substation in Zeebrugge. The visit was part of the Open Site Days, an initiative by the Belgian Construction Confederation which sees a number of projects opened to the general public. It was the first time Elia had taken part in the event. With over 2,000 people attending, the day proved such a success that Elia plans to initiate another project in 2018. For more information about Stevin, see page 43.

### COOPERATION WITH CUSTOMERS AND PARTNERS

Elia is committed to maintaining good relations with its customers and its partners, the distribution system operators (DSOs). To this end, it adopts a number of approaches.

Naturally, it has key account managers who deal with these parties directly on a day-to-day basis. In addition, events and meetings are organised to keep them informed of Elia's activities, the various products it offers and how it sees the future of the grid in Belgium.

### SCHOOLS' DAY AT THE STEVIN SUBSTATION

On Friday 5 May, Elia organised a Schools' Day at its Stevin site in Zeebrugge. The initiative helped to raise awareness among future generations about changes in the energy system.

The unique experience of visiting a new, high-voltage substation proved a hit with students and teachers alike.





**PHILIPPE CORNELIS,**  
PUBLIC ACCEPTANCE OFFICER  
AT ELIA

"OUR AIM IS TO INVOLVE CITIZENS AND LOCAL AUTHORITIES AS EARLY AS POSSIBLE IN ORDER TO ACCOMMODATE THEIR NEEDS AND PRIORITIES. IT'S ALSO IMPORTANT TO MAINTAIN THE CLOSEST POSSIBLE CONTACT THROUGHOUT THE PROCESS SO THAT WE CAN REACT AS QUICKLY AS POSSIBLE."



## DIALOGUE AT THE HEART OF THE STEVIN PROJECT

Elia informed and involved hundreds of stakeholders at each stage of the Stevin project, from the eight municipal administrations through to local residents. In other words, it implemented the Stevin project in a way that took its surroundings into account. So how do local mayors feel about the project now?

**Renaat Landuyt (Mayor of Bruges)**

"The additional measures that Elia proposed were key to reaching a compromise. The Stevin substation blends in as well as it can and is surrounded by vegetation. The city council is happy with this solution as it allows us to protect our residents, while also enhancing their living environment."

**Joachim Coens (Mayor of Damme)**

"Damme places a high value on the quality of its surroundings. We're pleased that we were able to work with Elia to find a solution for those residents who were still being impacted visually. They were able to request free planting of vegetation to reduce the visual impact. The town council felt this was a very constructive way forward."

**Marleen Van Den Bussche (Mayor of Maldegem)**

"Elia was always willing to reach a mutual agreement on a suitable route. We hope that it will continue to engage with us on a permanent basis as this is the best guarantee for the well-being of Maldegem's residents."



## ELIA'S USERS' GROUPS

The Users' Groups are specific discussion groups comprising representatives of grid users, partner DSOs and other market players. They enable Elia to disseminate information to market players and to consult them on specific issues relating to the operation of the electricity market. The Users' Groups can convey views and problems to the relevant minister, administrative authority or regulator, or undertake other initiatives. Three working groups are active: System Operation, Belgian Grid and European Market Design. Ad hoc groups may also be set up to address more specific topics.

Elia carries out a satisfaction survey every other year to gather feedback on its services from its customers and partners. This survey is a very important tool for Elia to find out about expectations and areas for improvement. The next one is due in late 2018.



### SATISFACTION SURVEY

## COOPERATION WITH REGULATORS

### CREG

In late 2017, CREG approved a revision of all the levies that Elia receives in connection with its public service obligations. The revised levies have been applied from 1 January 2018. The levy for Walloon green certificates was maintained at its existing level by freezing a certain volume of certificates in late summer 2017.

In the field of ancillary services, CREG granted approval for the method that Elia has developed to gauge the volumes of ancillary services that it will require to manage the electricity system safely and reliably.

We cooperate to strengthen our TSO position



**RAPHAËL BOURGEOIS,**  
**KEY ACCOUNT MANAGER AT ELIA**

"ELIA ALSO ORGANISES A NUMBER OF ANNUAL EVENTS TO INFORM GRID USERS, OUR PARTNERS AND STAKEHOLDERS MORE GENERALLY ABOUT OUR STRATEGY, ACTIVITIES AND PRODUCTS. THESE INCLUDE THE STAKEHOLDERS' DAY, ARP DAY FOR ACCESS RESPONSIBLE PARTIES, AND CUSTOMERS' DAY FOR CUSTOMERS DIRECTLY CONNECTED TO ELIA'S GRID AND OUR PARTNER DSOs."

In late June, CREG set the various targets that Elia will be encouraged to achieve in 2018 within the framework created by the Tariff Methodology and left to CREG's discretion. Among other things, the targets aim to promote a better match between supply and demand.

CREG adopted a decision on the tariff balances for 2016 following Elia's tariff report.

CREG also adopted a series of decisions relating to the integration of the European energy markets, in particular the Common Grid Model, as well as regional requirements for harmonised allocation rules and long-term transmission rights for the CORE Region. It also addressed the single allocation platform and its cost-sharing methodology.

The rules on the operation of the balancing market were amended to open up the primary reserve market to new technologies and to open up non-reserved tertiary control power to non-CIPU technical units.

In late January, CREG approved the changes made to the Access Responsible Party contract, allowing the participation of free bids for tertiary energy control for non-CIPU technical units (BidLadder project) among other things.



### VREG

In 2017, the Flemish Electricity and Gas Regulatory Body, VREG, was required to approve the changes made to the Access Responsible Party contract. VREG also approved the Investment Plan that Elia prepared in order to develop the networks it operates at voltage levels of 70 kV and below, which is in line with the regulatory obligations incumbent on it as a local transmission system operator in Flanders.

### CWAPE

The Walloon Energy Commission, CWaPE, approved the Adaptation Plan prepared by Elia for the development of the local transmission network in the Walloon Region. In addition, CWaPE and Elia exchanged information within the framework of the operation of the Walloon green certificates market and, more specifically, in the areas in which Elia has obligations.

### BRUGEL

The Brussels Energy Regulator, Brugel, issued a favourable opinion on Elia's Investment Plan for the regional transmission network that Elia operates in the Brussels Region.



### GO15 ANNUAL MEETING IN BRUSSELS

The Elia Group organised GO15's 2017 Annual Meeting, which took place in Brussels from 22 to 24 October. GO15 is an initiative launched by the world's 19 largest system operators, which account for 70% of global electricity demand and provide electricity to 3.4 billion users on six continents. The Annual Meeting was an opportunity for the CEOs of participating TSOs to discuss the future of power grids and reaffirm their commitment to facilitating the energy transition.

### INTERNATIONAL COOPERATION

Elia and 50Hertz are active members 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

The regional technical coordination centre 'Coordination of Electricity System Operators' (Coreso) brings 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 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%) in the holding HGRT<sup>1</sup>, which is a shareholder (49%) 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% of Europe's electricity consumption.

#### GO15

The 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.

1.. HGRT stands for Holding de Gestionnaires de Réseau de Transport, a holding company comprising Amprion, APG, Elia, RTE, Swissgrid and TenneT.

## Helping community projects

### SUPPORTING PROJECTS OUR EMPLOYEES ARE INVOLVED IN

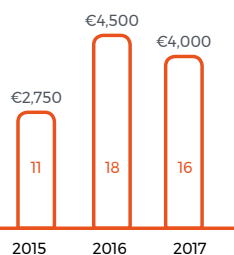
Any Elia employee involved in a community or charity-run project can request a contribution from Elia. The contribution is worth €250 and can be applied for once a year. Elia donated a total of €4,000 to 16 of these projects in 2017. Elia supported initiatives to provide meals for young refugees, construct new buildings for the Scouts and run arts workshops in a children's hospital, amongst others.

### HELPING YOUNG REFUGEES GET INTO WORK

In 2017, Elia took part in a training scheme for young refugees, 'Rising Youth', in partnership with the Flemish employment agency VDAB and IRIS Anticorrosion, a company specialising in the condition and maintenance of industrial production sites.

"24 young refugees received training under the Rising Youth scheme, and 23 of them went on to get jobs. This is something we're extremely proud of. In December 2017, the project won the Best Sustainable Partnership Award at an event organised by The Shift, the Belgian network association on sustainability. We intend to build on this momentum by organising another training session in spring 2018." Valérie Legat, Environmental Expert at Elia

#### CHARITY PROJECTS SUPPORTED



- Number of employees who proposed a charity project
- Total budget invested to support charity projects

## TEACHING YOUNG PEOPLE ABOUT THE CHALLENGES OF THE ENERGY TRANSITION

In October 2017, the system operators Elia, Eandis and Infrax launched ElectriCITY, a free educational pack for children aged 10 to 14. The pack aims to make young people aware of the importance of electricity and the rational use of energy. In 2018, Elia will finalise the German and French versions with the distribution system operators in Brussels and Wallonia.

## Partnering with experts

Elia is aware of the importance of taking advice from experts to boost the sustainable development of its activities. It therefore forges partnerships with organisations that can guide it in its sustainable and socially responsible choices.

### COLLABORATING WITH BE PLANET TO MAKE OUR ACTIONS MORE SUSTAINABLE

In February 2017, Elia became a partner of Be Planet, a 'public utility foundation' (fondation d'utilité publique/stichting van openbaar nut). Be Planet supports innovative citizens' initiatives that have a beneficial environmental impact and that could play a role in the energy transition.



IGOR LEFEBVRE,  
ENVIRONMENT MANAGER AT ELIA

“BE PLANET'S MISSION DOVETAILS PERFECTLY WITH OUR SOCIAL ROLE AS A GRID OPERATOR. BE PLANET HAS THE POTENTIAL TO HELP US BRIDGE THE GAP WITH LOCAL NETWORKS AND TO WORK BOTTOM-UP ON ENHANCING BIODIVERSITY AND ENERGY EFFICIENCY.”



## FLEMISH ENERGY MINISTER PLAYS ELECTRICITY

The Flemish version of ElectriCITY was unveiled on 17 October 2017 during study days for teachers at Technopolis in Mechelen. Flemish Energy Minister Bart Tommelein came to support the initiative and was soon trying it out for himself - with great enthusiasm!



Following a call for projects organised for Elia by Be Planet, six projects were selected:

- Bûûmplanters (focusing on biodiversity in Brussels),
- ‘Maximilian Park’s Farm’ (training the public to reuse waste and consider bio-energy solutions),
- ‘Days Without Meat’ (raising participants’ awareness of their impact on the climate),
- ‘Terre@air’, (educating the public about sustainable energy),
- SeaWatch-B (addressing biodiversity in a maritime environment)
- ‘Samenwerking voor Agrarisch Landschap/ the ‘Cooperation for Agricultural Landscape Association’ (dealing with reusing wood waste).

These organisations were selected in connection with Elia infrastructure projects to create and support environmental and social initiatives in the regions where Elia operates.

## Reducing the impact of our activities

In addition to partnerships with organisations, Elia also works to minimise the impact of its activities on the environment, both in its activities in the field and in its administrative buildings.

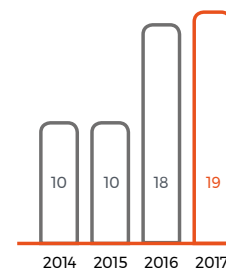
### GREENPULSE: FOR STRUCTURED ENVIRONMENTAL MANAGEMENT

In 2016, Elia set up an environmental governance programme called Greenpulse to make a lasting contribution to the energy transition. Greenpulse defines Elia’s environmental mission and responsibility, its environmental priorities, and the applicable policies and procedures. A three-year action plan was drafted in order to implement these changes. In time, the Greenpulse programme will enable Elia to establish an integrated environmental management system within the company.

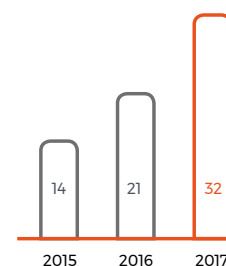
### SOIL STUDIES AND REMEDIATION

Elia has developed a new soil management policy. Its aim is to draw up an inventory of the soil condition of land belonging to Elia in the Walloon and Brussels regions. This will enable environmental risks and the associated costs to be managed more effectively and a schedule of priorities to be drawn up in accordance with existing and future legislation. This policy will be amended in the Walloon Region in 2018, in response to likely changes in legislation.

#### SOIL STUDIES CARRIED OUT



#### NOISE STUDIES CARRIED OUT



### NOISE MANAGEMENT

Elia’s facilities should not generate noise pollution. They are governed by acoustic standards, varying from region to region, which must be respected. Noise pollution can be caused, for example, by transformers in high-voltage substations, high-voltage lines and pylons. Underground lines do not make any noise.

In addition, noise studies are always carried out upstream of Elia’s infrastructure projects to ensure that the standards are not exceeded.



”

**VALÉRIE JADOT,**  
ENVIRONMENTAL EXPERT  
AT ELIA

“ELIA’S ENVIRONMENTAL POLICY ON NOISE AIMS NOT ONLY TO COMPLY WITH CURRENT LEGISLATION BUT ALSO TO MINIMISE NOISE POLLUTION, WHICH CAN SOMETIMES BE REPORTED BY PEOPLE LIVING NEAR OUR FACILITIES.”

**SF<sub>6</sub>**

SF<sub>6</sub> gas has been used for over 30 years as an electrical insulator in high-voltage devices, including gas-insulated switchgear (GIS). GIS is often used in densely populated areas because it is much more compact when compared to traditional switchgear which uses air as an insulator.

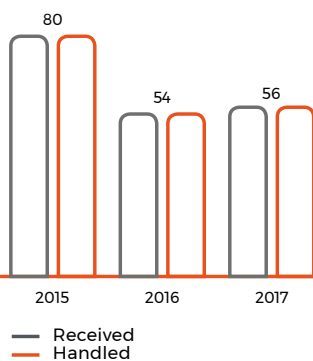
Elia has developed an investment and maintenance policy to reduce the risk of SF<sub>6</sub> leakage. Manufacturers must guarantee a very stringent maximum percentage of SF<sub>6</sub> loss throughout the lifetime of the facilities. The maintenance policy aims to keep operations involving compartments filled with SF<sub>6</sub> to a minimum. The volume of SF<sub>6</sub> gas installed on the Elia grid (36 kV to 380 kV inclusive) is 98 tonnes.

Consumption of SF<sub>6</sub> gas (as a replacement and as a top-up in the event of a leak) is closely monitored using a system that tracks each cylinder of SF<sub>6</sub>. The SF<sub>6</sub> leak rate for all Elia facilities was 0.59% in 2017.

**ELECTRIC AND MAGNETIC FIELDS**

The electric and magnetic fields given off by high-voltage infrastructure have a very low frequency (50 Hz). Elia is very much aware of local residents' concerns over the potential health risks posed by electromagnetic fields, and as such keeps them informed as much as possible.

Around 78 measurements were performed in the field in 2017 at the request of local residents, and approximately 30 requests for information were handled.

**FOLLOW-UP OF REQUESTS FOR INFORMATION CONCERNING ELECTROMAGNETIC FIELDS<sup>1</sup>**

**Upon request, Elia offers free measurements of electromagnetic fields at properties close to its facilities. For more information, see the annex.**

**BBEMG PRESENTS FINDINGS ON ELECTROMAGNETIC RADIATION**

The Belgian BioElectroMagnetics Group (BBEMG) held a seminar on 22 September 2017 to present the findings of its ongoing research into electromagnetic radiation. Such seminars are held every four years. Once again, the same conclusion was reached: there is no proof that magnetic fields have an effect on health but the research cannot entirely rule it out.

*"We continue to cooperate fully with research into the possible impact of magnetic fields. We know that many people living near high-voltage lines wonder whether this has implications for their health. We have to take this into account and it is therefore in everyone's interest that further scientific research is carried out."* Vincent Du Four, Environmental Expert at Elia

1. Please note that these measurements are performed on third-party requests received at the contact centre



### STRIPPING AND PAINTING OF PYLONS

As part of its facility maintenance activities, Elia regularly (every 15 years on average) strips and paints its pylons to protect them from corrosion. It subcontracts this work to companies specialised in painting.

Elia's grid still features a number of black steel pylons coated with lead paint; after all, lead paint treatment was very common in the past. To prevent lead dust or lead chips from spreading when the paint is stripped off the pylons, the pylons are wrapped up in tarpaulins before work begins. Once the pylons have been stripped, the tarpaulins are removed and the pylons are painted in the open air.

The paints used nowadays meet the highest environmental standards. When work is complete, Elia and its subcontractors jointly inspect the ground around the pylons to make sure that their activities have not polluted the surrounding area.

### CARBON ASSESSMENT

Elia has been conducting a carbon assessment since 2010 to identify direct and indirect emissions from its activities and is taking steps to reduce greenhouse gas emissions from its activities.

Elia has set a target of reducing emissions related to mobility and building consumption by 20% compared to 2010. It aims to:

- **reduce the carbon impact of mobility** by, among other things, encouraging decentralised work (teleworking or satellite offices), promoting public transport over cars, giving training in ecodriving and incorporating clean vehicles with low CO<sub>2</sub> emissions into its fleet;
- **reduce the energy consumption of its administrative sites** by conducting regular energy audits and integrating sustainability into day-to-day building management.

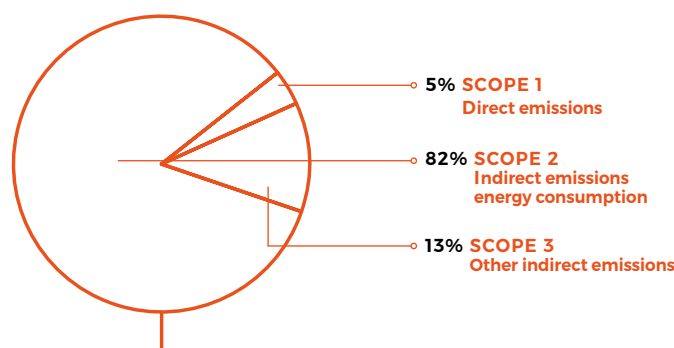
Developing a grid that allows the integration of renewable energies has a positive impact on the quality of the energy mix and will therefore be beneficial in terms of loss-related emissions.



**VALÉRIE LEGAT**  
ENVIRONMENTAL EXPERT AT ELIA

"IN ADDITION, ELIA IS ROLLING OUT A PROGRAMME TO MEASURE AND MONITOR CONSUMPTION AT HIGH-VOLTAGE SUBSTATIONS AND IS EXPLORING WAYS TO REDUCE CO<sub>2</sub> EMISSIONS FROM ANCILLARY-EQUIPMENT LOSSES AT SUBSTATIONS. ELIA IS THEREFORE DOING EVERYTHING IT CAN TO REDUCE SF<sub>6</sub> LEAKS."

### CARBON ASSESSMENT



More details can be found on the annex.



### ELIA AWARDED 'AWARENESS' STATUS BY CDP

Elia completed the Carbon Disclosure Project (CDP) questionnaire for the first time in 2017. CDP is an organisation that evaluates companies' environmental measures. Elia was awarded a C classification ('Awareness'). The assessment shows that Elia has started to implement changes in its strategy by reducing greenhouse gas emissions or identifying risks and opportunities.

### LIFE BIODIVERSITY PROJECT DELIVERS ITS CONCLUSIONS

The LIFE Elia-RTE project, which was launched in September 2011 with funding from the European Commission and the Walloon Region, delivered its conclusions in late December 2017. Aimed at transforming the corridors under high-voltage lines into eco-corridors, the project exceeded its initial objectives by some margin. The corridors beneath high-voltage lines are now no longer considered as areas of no interest but rather as places in which local biodiversity can flourish. 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.

In the past, trees were cut down and vegetation shredded. Now, Elia 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.



### LIFE PROJECT EXTENDED TO FLANDERS

As it was co-funded by the Walloon Region, the LIFE project was initially only implemented in Wallonia. However, Elia has decided to extend the concept to Flanders by financing biodiversity measures itself. It has also allowed a shepherd to use some of the land under the 380 kV Zutendaal-Maaseik line. The area is now grazed by around 250 sheep, which help to manage the vegetation.

### LANDSCAPING THE SPACE BENEATH PYLONS

Keen to adopt a sustainable method for managing its pylons while strengthening the ecological network, Elia asked non-profit organisation Faune & Biotopes to implement biodiversity enhancement measures along the high-voltage line between Gramme and Achène. Some 32 native shrub species and seven wild-flower meadows were planted along the 70-pylon section in 2016.

The choice of landscaping at each pylon base is a compromise between biodiversity, landscape and the associated cost. Some pylons cannot be enhanced in this way, such as those situated along a boundary or hedge and those in grazed meadows. In any case, their location means that no additional boost to biodiversity is needed.

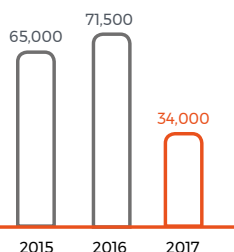


**JOHAN MORTIER,**  
LIFE PROJECT MANAGER  
AT ELIA

"AS WELL AS ENHANCING AND RESPECTING LOCAL BIODIVERSITY, THE LIFE PROJECT ALSO SIGNIFICANTLY REDUCES COSTS AND DIRECTLY CONTRIBUTES TO BETTER ACCEPTANCE AND INTEGRATION OF OUR LINES IN THEIR ENVIRONMENT."



### NUMBER OF SHRUBS PLANTED AS PART OF LIFE



## PROTECTING BIRDS FLYING NEAR OUR LINES

Elia wants its high-voltage overhead lines to have as little negative impact on birdlife as possible, in line with its environmental policy aimed at preserving and enhancing biodiversity in Belgium. It has therefore developed a bird protection policy comprising a number of focal areas.

### 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% 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 considerably reduce the risk of collision.

### 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.

### Reducing nuisance caused by large flocks of birds

Where possible, Elia reduces the noise pollution caused by birds that sometimes congregate in large numbers on our facilities. Such animal behaviours are not always easy to control and also cause problems for Elia, such as paint corrosion due to excrement.

### Felling and pruning trees and bushes

When trees and bushes near its facilities need to be felled or pruned, Elia takes care to do so at the correct time of year to limit the disruption to bird habitats.



# 13.62 km

OF BIRD PROTECTION SINCE 2016





## A SUSTAINABLE AND ECO-FRIENDLY WATER TREATMENT SOLUTION AT MONNOYER

As part of its commitment to sustainable buildings, Elia has developed an autonomous, sustainable and environmentally friendly solution for wastewater treatment at its Monnoyer site. For the site's drainage system, which was virtually non-existent, it created a 1,700 m<sup>2</sup> pool complete with vegetation, which serves as a storm basin, a haven for biodiversity and a lagoon. A reed bed ensures natural purification of wastewater. There is also a rainwater recovery tank, which reduces the amount of mains water used.



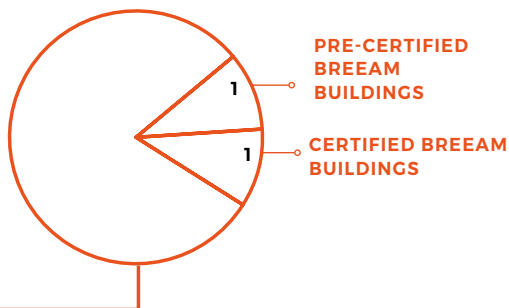
**PIERRE VAN BAMBEKE,**  
IT INFRASTRUCTURE & OPERATIONAL  
SERVICES MANAGER AT ELIA

"ELIA ALSO GIVES A SECOND LIFE TO ITS USED IT EQUIPMENT BY PARTNERING WITH SCHOOLS AND OTHER INTERESTED ORGANISATIONS."



flexibel  
samen  
verantw  
onderm

### OFFICES OWNED BY ELIA<sup>(1)</sup> (10 BUILDINGS)



## SUSTAINABLE-BUILDING POLICY

With regard to its buildings, Elia follows a policy of sustainable development and respect for the environment. New Elia buildings (Créalys and Monnoyer) comply with sustainable-building principles as certified under the Building Research Establishment Environmental Assessment Method (BREEAM). This certification is based on nine analysis criteria (management, health and well-being, energy, transport, materials, waste, water, land use, ecology and pollution) and is the benchmark standard when it comes to sustainable construction.

A policy of sorting and reducing waste is also in place at each of Elia's administrative sites. The company seeks to reduce the amount of paper it uses and has opted for fair trade and/or organic food in all of its canteens.

## BEEHIVES ON ELIA SITES

In keeping with its sustainable building-management policy, Elia has two beehives at its Monnoyer site. Once a year, the honey harvested from the hives is sold to staff and the proceeds are donated to a good cause. Elia will set up three beehives at its Créalys site near Gembloux in 2018, and in 2019 it will be the turn of the Merksem site to welcome bees.

As well as doing its bit to help bees, Elia is also involved in analysing air quality in Brussels. In late 2016, the company BeeOdiversity, which helped Elia set up its beehives, teamed up with Elia and a number of other Brussels-based companies to take an inventory of biodiversity and pollution in the Belgian capital. The results of the analysis are available on BeeOdiversity's website.

(1) Elia also hires an office building.



### WASTE MANAGEMENT

Elia has adopted a sustainable waste sorting policy that relies on the responsible behaviour of its employees. At its administrative sites, it has set up a sorting system facilitated by centralised islands, in which the staff restaurants participate. These sites also operate a comprehensive waste reduction policy, including measures to reduce excessive packaging, cut down on paper towels in the toilets and eliminate plastic cups in coffee machines. Plastic cups alone used to generate 3.3 tonnes of waste each year.

At its technical sites, Elia created two new waste facilities in 2017, ensuring optimal storage of all types of waste, including hazardous materials. A further four such facilities are planned. By taking these measures, Elia aims to guarantee high-quality sorting of each type of waste and to ensure that where possible, waste is recycled or reused.

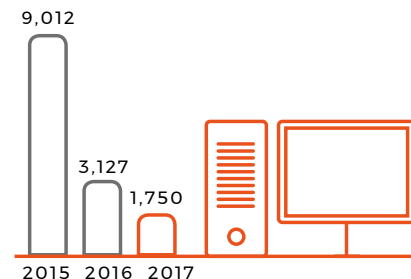


### PROMOTING SUSTAINABLE FOOD

As of September 2017, Elia's new catering contract stipulates the introduction of the Good Food label, which helps businesses in the Brussels-Capital Region to serve sustainable food in their restaurants. The underlying reason for the label is that Elia wants to offer its employees sustainable food that adheres to its environmental, ethical and health commitments. Elia therefore favours organic, local and seasonal produce, products with minimal packaging and/or products that are part of a fair trade scheme.



### IT EQUIPMENT GIVEN A SECOND LIFE (Kg)





# WHAT HAPPENED AT 50HERTZ?

50Hertz accepts its social responsibility and feels an obligation to support the common good. This includes active commitment to environmental and climate protection in our sphere of activity. 50Hertz protects flora, fauna and biodiversity, uses natural resources conservatively and keeps the energy consumption and emissions of our activities as low as possible.

## Dialogue with stakeholders

GRI 102-43

Transparent and proactive dialogue with our stakeholders concerning grid development and the enhancement of existing grid capacity is very important to 50Hertz.

Dialogue with stakeholders begins at a very early planning stage. This includes consultation on the network development plan, as well as on grid reinforcement and expansion projects. Info-markets, district conferences, planning forums, expert workshops, theme-specific brochures or freephone numbers are essential components of civic participation.

In 2017, Dialog Mobil received the "Good Practice of the Year Award" from the Renewables Grid Initiative (RGI). With the "Dialog Mobil", 50Hertz informs local residents of cable construction projects in the affected regions and gives them the opportunity to get involved.



## Environmentally conscious player

The development of the high-voltage grid is necessary for transporting steadily increasing amounts of renewable energies over long distances. 50Hertz works every day to keep the impact of its activities on people and nature to a minimum, from the reinforcement of its grid to its administrative activities. This is demonstrated by the following two examples.

### Grid losses

In 2017, grid losses amounted to 2.4 TWh. The average grid losses of the extra-high voltage level were 231.7 MW and those of the substation were 43.5 MW. 50Hertz is rolling out new techniques which are better suited than conventional technology.

### SF<sub>6</sub>

Since 2005, 50Hertz has been following the "Voluntary Commitment of SF<sub>6</sub> Manufacturers and Users". Its aim is to reduce the loss rate measured in the total stock from 0.8 percent in 2004 to 0.6 percent in 2020.

50Hertz achieved the reduction of the loss rate far below 0,6% already in 2017. The exact loss rate in 2017 was at 0,06%.



## Protection of birds

High-voltage lines affect bird life but 50Hertz is making great efforts to minimise this impact.

In 2017, a new species-specific method was developed for the systematic determination of the effects on the species population in order to identify more targeted precautionary and compensatory measures. The installation of 30 km of bird protection markers in the existing network is planned for 2018.

50Hertz actively supported the establishment of a hotline developed by NABU, a German environmental association, so bird accidents with high-voltage lines can be reported and analysed.

50Hertz also carried out a comparative study on the effectiveness of spiral and flap markers and also installed cameras on two voltage fields of the electricity grid in a bird sanctuary. All measures and projects are designed to prevent future collisions at such locations with even greater precision.

In 2017 the 50Hertz conference "Bird protection on extra-high voltage overhead lines - methods, scope and feasibility" took place. More than 80 representatives of public authorities, environmental associations, infrastructure planners and experts exchanged views on how bird protection can succeed without endangering energy turnaround projects.



# 30 km

30 KM OF BIRD PROTECTION MARKERS PLANNED IN 2018



How can I be sure I'm in  
the best role at every stage  
of my career?



#5\_

**DIRK WELLENS,**

- ELECTRONICS ENGINEER
- ELIA EMPLOYEE SINCE THE COMPANY WAS FOUNDED IN 2000

I used to work for Elia's predecessor CPTE. In the first few years, I mostly worked in IT, dealing with all the technical aspects of national dispatching. When they asked me to take over as head of the regional dispatching centre, I felt completely outside my comfort zone. After that, I had the opportunity to work in the Infrastructure Division and in the field with Assets. All these changes meant that I got to know different Elia departments very well. It gave me a complete overview of the company. My latest challenge is setting up the Assets New Technologies Implementation Department. We're responsible for ensuring that Assets has the skills and expertise needed to launch and manage new technologies. My career to date has been extremely varied. But is that true for other colleagues too?



**MARIANNE CELIS,  
BUSINESS PARTNER AT ELIA**

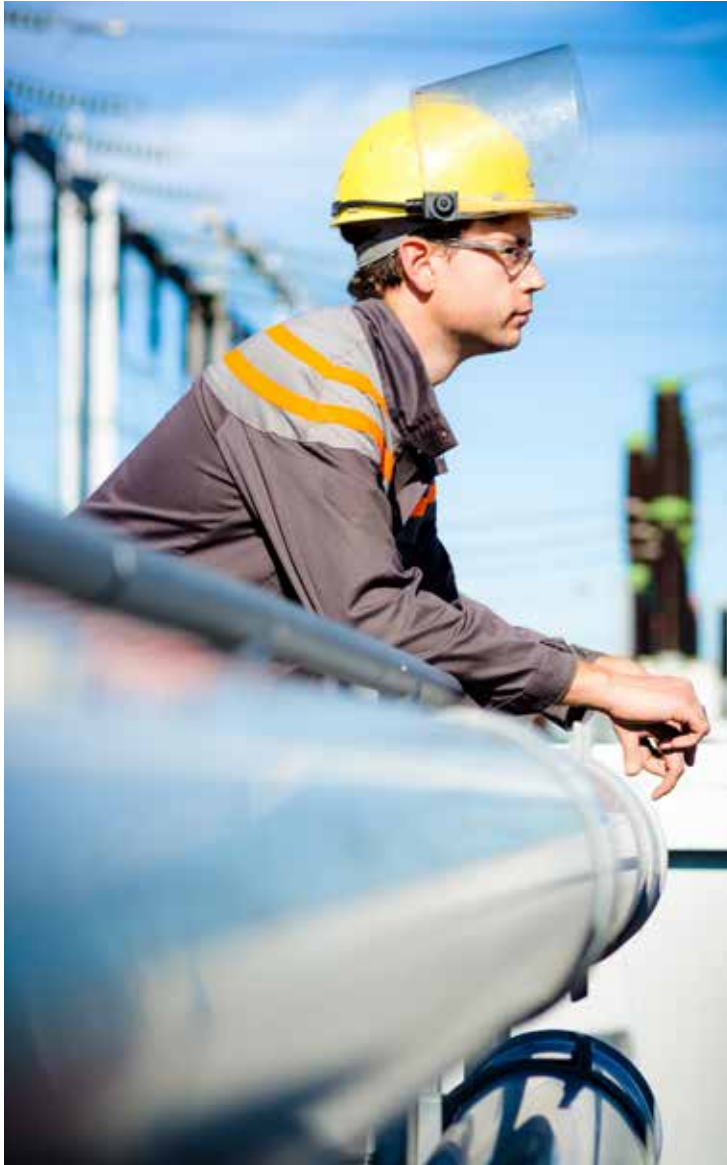
"At Elia, we have a system of career and competency management that encourages people to develop as individuals and thereby improve their performance. They work with their line managers to identify the right training for them. We also discuss their short- and longer-term career ambitions. Our talent team promotes mobility among executives to ensure cross-functionality and cross-fertilisation between divisions. This is a win-win for both Elia and its employees, who get to experience a range of roles and can continue to learn and evolve throughout their career with us. This system creates a special dynamic within the company."

1,350

COLLEAGUES (ELIA)

2,343

COLLEAGUES (ELIA GROUP)



# We align culture with strategy

As a transmission system operator, Elia is committed to developing the competencies needed to cope with the many challenges of the future. It has to be an agile company with the right expertise, one that can change at the same pace as the world around it. The energy world is changing, so Elia has to change too. That is why, in 2016, Elia introduced a new set of values designed to inspire a new corporate culture, with the aim of strengthening its teams and activities and making sure it is all set to manage the grid of the future.



**PETER MICHIELS,**  
CHIEF HR & INTERNAL  
COMMUNICATION OFFICER AT ELIA

**I**n 2017, Elia surveyed every one of its employees to see how much progress was being made. Where were they in relation to the new values? How much further did we still have to go? What processes were needed to facilitate the cultural change currently taking place at Elia?

To implement this cultural change, Elia is adopting a top-down approach in which management sets an example for every employee. An action plan is currently being developed to bring Elia's new culture to life. It will start with the management, then senior managers and gradually work its way down to all Elia employees.

"WE ARE COMMITTED TO EACH OTHER'S SUCCESS AND EACH OTHER'S IMPROVEMENT SO THAT EVERYONE WHO WORKS WITH US HAS OPPORTUNITIES TO PERFORM AT THEIR BEST, IN A WAY THAT IS SUSTAINABLE OVER TIME. WE ARE ONE TEAM WHERE EVERYONE COUNTS, IN ORDER TO SERVE THE SOCIETY."



# Our core values and aspirational values

## Our core values

Our three core values reflect fundamental principles that are deeply rooted within Elia.

### SAFETY ALWAYS COMES FIRST

Safety always comes first, everywhere and for everyone! As a company, we constantly invest in safety and expect our staff (both in the field and at administrative sites), our subcontractors, our colleagues - the distribution system operators -, and all others to work safely and responsibly at all times.

### SERVING THE COMMUNITY

Elia wants to play its central role in the sector to the full and create value for the society. Elia's employees keep that aim in mind in everything they do, constantly asking themselves what the society wants, and how they can help make improvements.

### TARGETING PERFORMANCE

Elia's employees strive for maximum efficiency and quality so as to attain or, better yet, surpass their targets. They are results-oriented and deliver projects and services on time.

## Our aspirational values

In a changing energy sector, four 'revamped' aspirational values are key to achieving Elia'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 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.



## OBJECTIVES

We want to attract the brightest talents by being the leading energy company in Belgium and a leading TSO in Europe.

- Establishing a new corporate culture with a new vision and ambition
- Developing an extended talent and organisational development programme
- Embedding a safety culture by increasing the safety awareness of employees and contractors
- Creating a high performance organisation to empower people to take more initiatives and enable quicker decision-making



## Our ambitions

### Elia as Top Employer

We strive to have a thorough understanding of the available and required talent in the organisation, to identify possible talent gaps and create action plans to fill them, including internal recruitment and succession planning strategies. 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.



**SHANNA JACOBS,**  
RECRUITMENT MANAGER AT ELIA

“ELIA IS COMMITTED TO EQUAL OPPORTUNITIES FOR ALL CANDIDATES, REGARDLESS OF GENDER, AGE, BACKGROUND OR RELIGION. IT ALSO BELIEVES IN GIVING A CHANCE TO YOUNG PEOPLE AND LESS YOUNG PEOPLE, WHO CAN SOMETIMES FIND IT DIFFICULT TO LAND A JOB. ELIA REGULARLY ATTENDS JOB FAIRS TO MEET FUTURE CANDIDATES FROM ALL EDUCATIONAL BACKGROUNDS (ENGINEERS, TECHNICIANS, ETC.).”

Our culture is based on four pillars to ensure a strong and efficient team working towards the same vision:



**Leadership  
development**



**Health and  
safety culture**



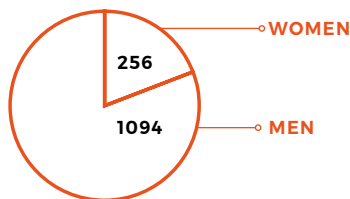
**Acting in the  
interest of society**



**Agility and  
initiative-taking**



**GENDER  
DISTRIBUTION  
AT ELIA**



**The percentage of male employees is largely reflective of the energy sector, with most of the technicians working in the field being men. For more information about gender distribution within the Elia Group, see the annex.**

### Performance & career development

Since 2015, Elia has been developing a catalogue of specific technical competencies. It has identified priority competencies and the support needed to develop local competencies. A learning path has also been developed to train staff in priority competencies where necessary.

To develop a competency, Elia relies on three key components: a clear and shared understanding of the results to be achieved, proficiency indicators, and a continuous learning environment.

### Diversity

People in all their diversity are what matter. Elia has staff spanning a range of nationalities, age groups and experiences. Our activities require a multiplicity of talents, and we strive to form teams that excel at what they do. We believe that our teams are enriched by diversity. Because accountability and the good of the community are central to our culture, we aim to use our company's diversity as a tool for social and professional integration.



## INTERNATIONAL EXCHANGE PROGRAMME BETWEEN ELIA AND 50HERTZ

In 2017, Elia and 50Hertz developed a joint exchange programme for employees of the two companies. Eight employees were selected to take part for a period of two to six months. A report will be produced in the first months of 2018 to share the conclusions and give more details about a possible second round of exchanges.

*"The exchange programme between Elia and 50Hertz is a great opportunity to expand our knowledge, share our respective experiences and forge new ties. It's also a great way to strengthen intergroup cooperation. I'm only at the start of my time at 50Hertz but I've already learnt a lot about offshore projects in Germany."* Erwann Bauwens, Project Leader Nemo



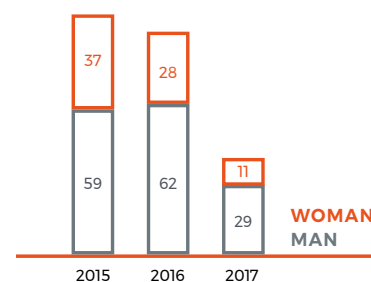
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## Developing our employees' competencies

Thanks to a large catalogue of workshops, we enable executives to develop and empower their teams, lead change and deliver results, thereby promoting leadership development. We provide training for technical, safety and soft competencies and establish continuous improvement routines to ensure consistent and sustainable safety behaviours. We incorporate public acceptance and transparency into day-to-day processes to promote and reward modest and responsible behaviours as well as assertive, yet collaborative communication.

**AVERAGE HOURS OF TRAINING BY GENDER (BELGIUM)**



## What we achieved in 2017



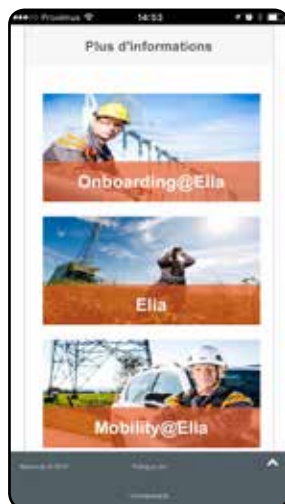
### Horizon 2020: factoring in the impact of an ageing population

The ageing population is an undisputed fact and also has an impact on businesses and how they are structured - a trend reinforced by changes to Belgian legislation governing pensions. The top of the age pyramid is widening and the number of older workers is on the rise. For example, almost 38% of Elia employees are over the age of 45. This situation requires a conversation between the employer and more experienced employees about career aspirations and prospects.

With this in mind, in 2014 Elia launched the Horizon 2020 project aimed at drawing up a HR and corporate policy factoring in age to provide an attractive and sustainable career framework. Mindful of the fact that there is no one-size-fits-all solution, Elia is currently working on a range of career development plans, all of which seek to strike an appropriate work-life balance.

# 38%

OF ELIA EMPLOYEES ARE  
OVER THE AGE OF 45



### WELCOME APP FOR NEW HIRES

June 2017 saw the launch of a mobile app for new Elia employees. The Welcome App allows new hires to learn about Elia in an interactive way between signing their contract and their first day at work.

*"It's important to us that we give each and every newcomer the best possible welcome. This new app ensures that every new hire has the key information they need well ahead of their first day so they feel more at ease and can hit the ground running from day one."* Kimberly De Laet, Training & Development Manager at Elia



### New employer value proposition

*'Powering Your Future. What is your impact on Tomorrow?'* Elia's new employer value proposition, unveiled in 2017, aims to give fresh impetus to its positioning as an employer and to exemplify its new values.

### Care4Energy: promoting well-being

In 2016, Elia launched Care4Energy, an umbrella programme bringing together all of the company's initiatives to promote well-being. It aims to work with employees and for employees to create a sustainable, healthy and safe environment based on well-being and respect, so that everyone has the energy and vitality they need to shape the energy landscape of the future together.

Elia's focus in 2017 was on mental and emotional health. Following a survey to identify employees' stress levels and sources of stress, a general action plan was drawn up for each department. Training sessions about stress were a key component of this plan.



**BARBARA VERHAEGEN,**  
INTERNAL COMMUNICATION  
MANAGER AT ELIA

“CULTURAL CHANGE IS PIVOTAL IN ENABLING THE EXECUTION OF THE ELIA STRATEGY. WE ARE HITTING THE LIMITS OF WHAT WE CAN ACHIEVE IN THE CURRENT WAY OF WORKING.”

## Cultural change

With decarbonisation, digitalisation and decentralisation, the energy sector is going through many changes at present. Elia is committed to developing the competencies needed to cope with the challenges of the future. It has to be an agile company with the right expertise, one that can change at the same pace as the world around it.

That is why, in 2016, Elia introduced a new set of values designed to instil a new corporate culture that will stand us in good stead for managing the grid of the future.

In 2017, Elia surveyed every one of its employees to see how much progress was being made. Where were they in relation to the new values? How much further did we still have to go? What measures were needed to facilitate the cultural change currently taking place at Elia?

To implement this transformation, Elia believes in an approach based on personal change, in which management sets an example for every employee. An action plan is currently being developed to bring Elia's new culture to life. It will start with the management, then senior managers and gradually work its way down to all Elia employees.

## Satisfaction surveys

In 2017, Elia's HR Department conducted numerous satisfaction surveys to find out how employees were feeling about the cultural changes currently underway. As a result, Elia has the information it needs to implement an action plan to facilitate this change.

A survey of psychosocial risks among Elia employees enabled a better assessment of the situation within the company and identified areas for attention to be included in the action plan that will be launched in 2018. In 2017, team workshops helped to deliver improvements in psychosocial risks, and a training programme on awareness/management of stress and burnout was also rolled out.

## Mobility at Elia

Congestion on the roads, and the time wasted as a result, are a strong argument for introducing a different approach to mobility. In addition to offering staff the option to work remotely, Elia is continuing to apply its sustainable mobility policy, which aims to limit journeys and offer a flexible, varied range of solutions for getting to work or travelling for other professional reasons.

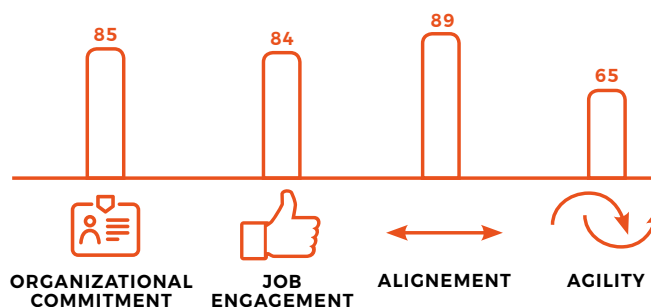
### TOTAL PARTICIPATION IN THE SURVEY ON PSYCHOSOCIAL RISKS



### TOTAL PARTICIPATION SURVEY ON SAFETY CULTURE



**A survey on safety culture undertaken in 2017 found that Elia's employees have a positive perception of safety within the company. The results were used to assess the suitability of the actions being taken and to determine the priorities that need to be worked on in order to continue improving safety.**



**In 2017, a satisfaction survey was conducted among all Elia employees. It found commitment levels among Elia staff remained high, except when it came to agility. More information about the survey can be found in the annex.**



## WHAT HAPPENED AT 50HERTZ IN 2017?

50Hertz is convinced that the success of a company is entirely based on the success of its employees. It is the responsibility of the company to help employees develop their skills, to foster their health and commitment, involve them in decisions and guarantee equal opportunities for all.

# 2.8%

SEVERELY DISABLED  
EMPLOYEES

### **"Say it!" - the employee satisfaction survey launched in 2017**

"Say it!", 50Hertz's comprehensive survey of employees, took place for the third time in 2017. Topics such as cooperation, cross-divisional processes and leadership behaviour were evaluated, and all employees, as well as members of the Management Board, were able to share their views openly. The detailed results will be discussed within the respective teams in workshops in the first quarter of 2018, and any necessary measures put in place. The survey participation rate was 91%.

### **Annedore-Leber-Berufsbildungswerk**

Promoting diversity and equal opportunities at 50Hertz also means giving people with health impairments the same opportunities as their other colleagues. As early as 2013, an inclusion agreement was concluded to promote people with health impairments in their working lives. In 2017, the proportion of severely disabled employees in our workforce was 2.8 percent. Depending on the job requirements in the commercial and technical areas, the quota will be successively increased in the future. In 2017, a cooperation agreement was concluded with the Annedore-Leber-Berufsbildungswerk and a special apprenticeship scheme for those with impairments was established.

### **Give the word to young employees**

50Hertz is keen to give its youngest employees a voice, as they are the future of our economy. It therefore held the first trade union elections especially for young employees in 2017.



## 50Hertz gains OHSAS recertification

In December 2016, 50Hertz was again awarded Occupational Health and Safety Assessment (OHSAS) certification. OHSAS is a British standard that assesses and certifies companies' occupational health and safety management systems. A successful, follow-up audit was conducted in November 2017. Security is also a top priority for 50Hertz.

## Further development of employees' competencies

The average training costs per participating employee amounted to around 1350 euros in the reporting year 2017. In addition, executives can participate in 50Hertz tailor-made training modules to develop their own leadership skills. Since 2014, 94 employees have collaborated on practical cases encountered in their day-to-day management across divisions and hierarchies.

## Diversity

50Hertz is committed to promoting diversity and strongly condemns any discriminatory act in the work environment. All employees have equal rights, regardless of their ethnic origin, age, gender, sexual identity, religious affiliation, political views, nationality, social background or other factors. The number of different nationalities among 50Hertz staff has increased significantly. The company employed its first severely disabled apprentice in 2017. There is also a very active women's network at 50Hertz.

For more information on the distribution of men and women at 50Hertz, see the annex.

## Happy birthday, 50Hertz!

50Hertz celebrated its 15th birthday in 2017. And what better way to do it than in the company of all its employees?



# 15 years



# How does Elia stay up-to-date with technological developments to make the energy transition happen?

#6\_

Our electricity system is facing huge challenges. As small-scale generation and decentralisation increase, there is a greater need for digitalisation and platforms to facilitate multi-level cooperation. As well as integrating renewable energy, our grid will also have to be capable of transmitting substantial volumes of imported and exported power. Over the past 25 years we have imported an average of 6 TWh net per year, but this will be rising to 13-30 TWh by 2030, depending on the scenarios. Technology can play its part in keeping the grid secure and manageable, alongside cooperation and exchanges with our neighbours. However, it's important that we have an accurate idea of their future generating facilities so that we can assess the needs of the Belgian system as efficiently as possible.



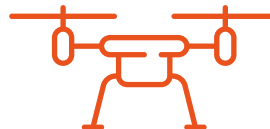
**DANIELLE DEVOGELAER,**  
ENERGY EXPERT, FEDERAL  
PLANNING BUREAU

- MEMBER OF THE FPB'S ENERGY AND TRANSPORT TEAM SINCE 2004
- ENERGY EXPERT SPECIALISING IN ELECTRICITY MODELLING



**ALEXANDRE TORREELE,**  
ELIA STRATEGY & INNOVATION

“Changes in the energy sector are gathering pace. Driven by the energy transition, new players are emerging and new economic models are being developed. Technology facilitates and accelerates these changes. However, innovation also offers opportunities for the transmission system operators of the future. Elia tests and integrates new technologies in collaboration with all the market players. In 2017, we carried out tests involving digital technologies such as robots, machine learning and blockchain. Our aim is to determine whether these innovations can add value to our core business. This will help us to ensure that the market continues to operate efficiently in a new renewable and decentralised energy system.”





# 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 us now and in the future.

**I**nnovation is the catalyst for a swift energy transition. We are preparing for the future by keeping our eyes open for new developments in infrastructure management, system operation and the integration of our markets in a European context.

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 has a range of initiatives that foster and reward innovative thinking, to ensure that our employees remain at the forefront of new developments.



**MENNO JANSSENS,  
INNOVATION MANAGER AT ELIA**

"WE ARE COLLABORATING WITH DIFFERENT PLAYERS TO DEVELOP SOLUTIONS THAT WILL ALLOW US TO FURTHER DEVELOP THE GRID AND OPERATE THE SYSTEM IN A MORE DIGITAL, DECENTRAL AND RENEWABLE WORLD."

## Our ambitions

### Excelling in managing assets on the grid of tomorrow

Renewable energy integration and increased interconnection demands more of our infrastructure. The adoption of new technologies allows Elia to improve the use of our assets in many ways, providing increased capacity, lower risk or higher efficiency and reliability without increasing the impact of our infrastructure.

### Developing and managing the electricity grid 2.0

Elia designs the expansion and the reinforcement of the grid according to the expected needs. Today and certainly more in the future, Elia will have to cope with the increase of renewable energy within the energy system and progressive decentralisation, whereby more production capacity is being installed in Belgian households. So, to meet future needs, Elia plans to develop and operate the power system 2.0.

### Continuing to play a pioneering role in market facilitation

Elia is the market facilitator and design an efficient and transparent electricity market in Belgium to ensure a smooth transition to European market integration. Elia continuously collaborates with different stakeholders so the market can be adapted in line with the evolving needs of the power system. To keep this position, Elia is working on increasing the liquidity on the balancing market.

### Open innovation through collaboration

In a world of widely distributed knowledge, Elia has decided to go for open innovation. We cannot afford to 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.



## 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 renewable energy system



## What we achieved in 2017

### Spatial imagery

Drones, photogrammetry, LIDAR, ground penetrating radar and more: new technologies with a spatial component are arriving at Elia, bringing both challenges and opportunities. The Spatial Imagery project aims to distribute knowledge about this technology, encouraging business departments to create opportunities that utilise it with a view to developing a structural and visionary approach.



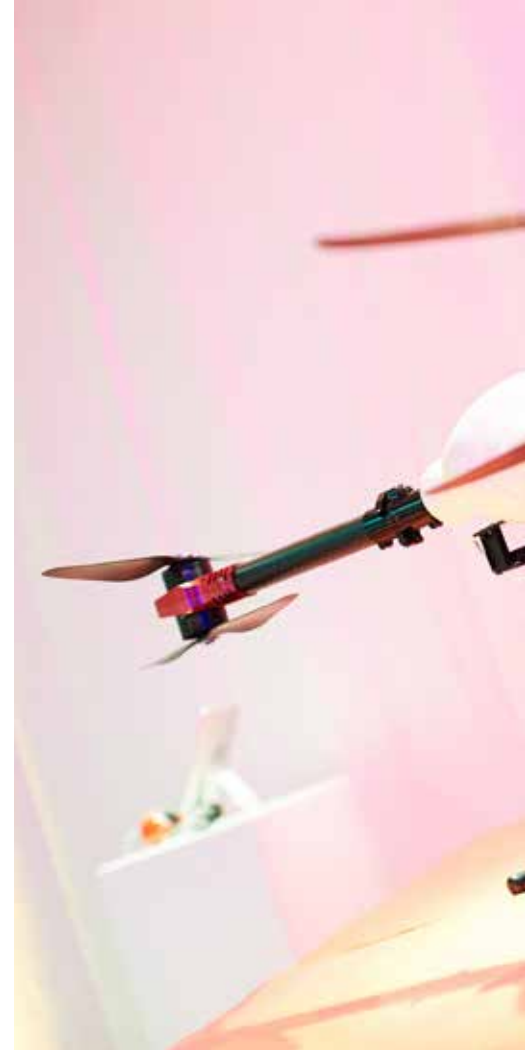
**MICHEL UWAERTS,**  
INNOVATION EXPERT  
AT ELIA

"THE GROWTH TOWARDS A DIGITISED, MORE ACCURATE AND AI-SUPPORTED VIEW OF OUR GRID INFRASTRUCTURE IS EXPECTED TO GREATLY BENEFIT THE VALUE TRIANGLE: SAFETY, QUALITY AND EFFICIENCY."

Two types of spatial imagery technology are investigated:

– **Photogrammetry** = the art of obtaining reliable information about physical objects and the environment by recording, measuring and interpreting photographic images and patterns. This allows engineering teams to design high-quality 3D models quicker and more accurately. With photogrammetry, a series of photos can be used as a basis for creating a 3D model. This requires far less work than a manual 3D drawing.

– **LIDAR** (Light Detection and Ranging technology) = extensively used for atmospheric research and meteorology. It is also being tested as a way of better managing vegetation under high-voltage corridors as it can model infrastructure and line sag more accurately. With LIDAR, a point cloud reflected by light can reveal what is happening on the ground. In practice, we can use LIDAR to put together a point cloud for all infrastructures and the environment surrounding them. Once processing the data, the sag of high-voltage lines can be accurately modelled under various circumstances, thus improving efficiency and quality.



### INNOVATIVE INSULATING ARMS FOR STEVIN

In 2017, two new technologies were commissioned in connection with the Stevin project.

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.





### 3D printing at Elia

Starting with logistics and spare parts management, Elia is exploring the use of 3D printing throughout the company. The aim is to find cost-effective ways to deliver qualitative spare parts as and when they are needed. The first case has been successfully implemented in the field, representing a long-term cost saving.

Previously circuit breaker caps deteriorated prematurely due to the UV sensitivity of the material. For almost the same cost, Elia used 3D printing to develop a more qualitative spare part, which requires less maintenance, saving both time and money.



### GARPUR

Historically in Europe, power system reliability management has been predominantly relying on the 'N-1' criterion - whereby the system should be able to withstand an unexpected failure or outage of a system component (power plant, transmission line or transformers) at all times.

Today, the increasing uncertainty of generation due to intermittent energy sources, and the growing complexity of the pan-European power system, increase the need for new reliability criteria with a better balance between reliability and costs.

The European project GARPUR aims to develop new probabilistic criteria and relevant indicators for assessing reliability at various stages (grid development, asset management and grid operation) and evaluate their practical use (compared to the current 'N-1' criterion).

To that end, GARPUR is examining every facet of the approach applied between the grid development stage (which is decided upon several years in advance) and real-time operation, and devising European recommendations to enable a gradual switch to a probabilistic approach.

### Distributed flexibility

Having explored the industrial and residential sector, Elia wants to facilitate the medium sized consumers (tertiary sector) to unlock their flexibility. In order to get an initial idea about the needs and potential of the tertiary sector, Elia has conducted a demo on one of its own buildings that enabled it to assess the controllability of three devices: a chiller, an air handling unit and a humidifier.

The test showed that the chiller and the humidifier were able to deliver flexibility in an aggregated way, in other words their activation and hold-on times fulfilled provision requirements. Elia also paid attention to the lessons learnt during the test. The main one being that controllability of the load is not guaranteed. Devices sometimes cannot be curtailed as they are following a given operation schedule and are bound to strong interdependencies with other devices.



”

**GIANNOPOULOS GEORGIOS,  
SYSTEM SERVICES PRODUCT MANAGER  
AT ELIA**

“ACCESSING DECENTRALISED FLEXIBILITY IS A COMPLEX TASK THAT NEEDS TO BE TRANSLATED INTO SIMPLE, AUTOMATED ACTIONS THAT CONSUMERS CAN UNDERSTAND AND TAKE ON BOARD.”

## Advanced machine learning to support dispatching

The integration of renewable energy is making the grid more and more complex; as a result, it is becoming vital to be able to predict grid imbalances within a very short time frame.

This project sets out to develop a model to detect the correlation between the various parameters influencing grid imbalance and predict any imbalance within a period of 15 minutes to an hour.

Elia hopes to first test and then demonstrate the usefulness of artificial intelligence in heightening the control centre engineers' awareness of the situations they face and in supporting their decision-making.

"As a system operator it has become much harder to understand system imbalance scenarios. The impact of variable generation, such as wind power and solar energy, is just one consideration, but there are also others, like increased activity on intraday markets, flexible generation units and so on. This means that system operators have to process and interpret huge quantities of data very quickly. Technologies and models built by data scientists will help to crunch down all this information and enable us to make correct decisions." Matthias Masschelin, Head of Energy Scheduling & Balancing at Elia



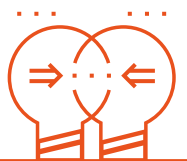
**ADRIEN GILLÈS, INNOVATION  
PROJECT LEADER AT ELIA**

"BLOCKCHAIN TECHNOLOGY HAS THE POTENTIAL TO PROFOUNDLY ALTER HOW THE ENERGY SECTOR OPERATES. BY ENABLING CITIZENS TO MAKE ELECTRICITY TRANSACTIONS DIRECTLY BETWEEN EACH OTHER, BLOCKCHAIN COULD SERVE AS A VECTOR IN THE ENERGY TRANSITION."

## Blockchain

With an increasingly distributed enerBlockchain is a technology that can be used to for the decentralised validation and storage of transactions between parties. The financial sector was the first to take an interest in this technology, but recent developments have expanded its scope and made it attractive to other industries. Organisations and start-ups around the world are now considering blockchain technology to be a potential solution for a decentralised energy system.

Blockchain should reduce transaction costs, enable the active involvement of a larger number of participants and, consequently, accelerate the transition to a cleaner, more reliable and more affordable energy system. To assess the impact of blockchain technology on its sectors, Elia joined the Energy Web Foundation (EWF), an organisation that focuses on developing blockchain technology in the energy sector. Harnessing the EWF ecosystem, Elia aims to demonstrate the potential of blockchain by testing use cases based on actual internal processes.



## GRASP

In collaboration with the Université Libre de Bruxelles (ULB), Elia is working on the development of new methods to plan and operate the Belgian power system within the PhD project GRASP.

GRASP seeks to develop a grid reliability assessment model for the operational planning stage. This model would factor in the scope for forecasting errors regarding wind and solar power generation.

Moreover, GRASP is rooted in existing practices and suggests new procedures with a view to issuing recommendations based on a prototype that can be tested directly using real-life situations in Belgium.

## Enervalis

In September 2017, Elia acquired a stake in Enervalis, a start-up that develops energy management software. By partnering with Enervalis, Elia aims to innovate and strengthen its expertise in order to better contribute to the development of the future electricity system in which digitalisation and decentralisation will play an increasingly important role.

"The goal of our company is to deliver sustainable energy solutions that allow electricity producers, distributors and consumers to optimise energy supply, storage and demand flexibility. I am convinced that our cooperation with Elia will bring these to a new scale and this will benefit the community." Stefan Lodeweyckx, founder and CEO of Enervalis.



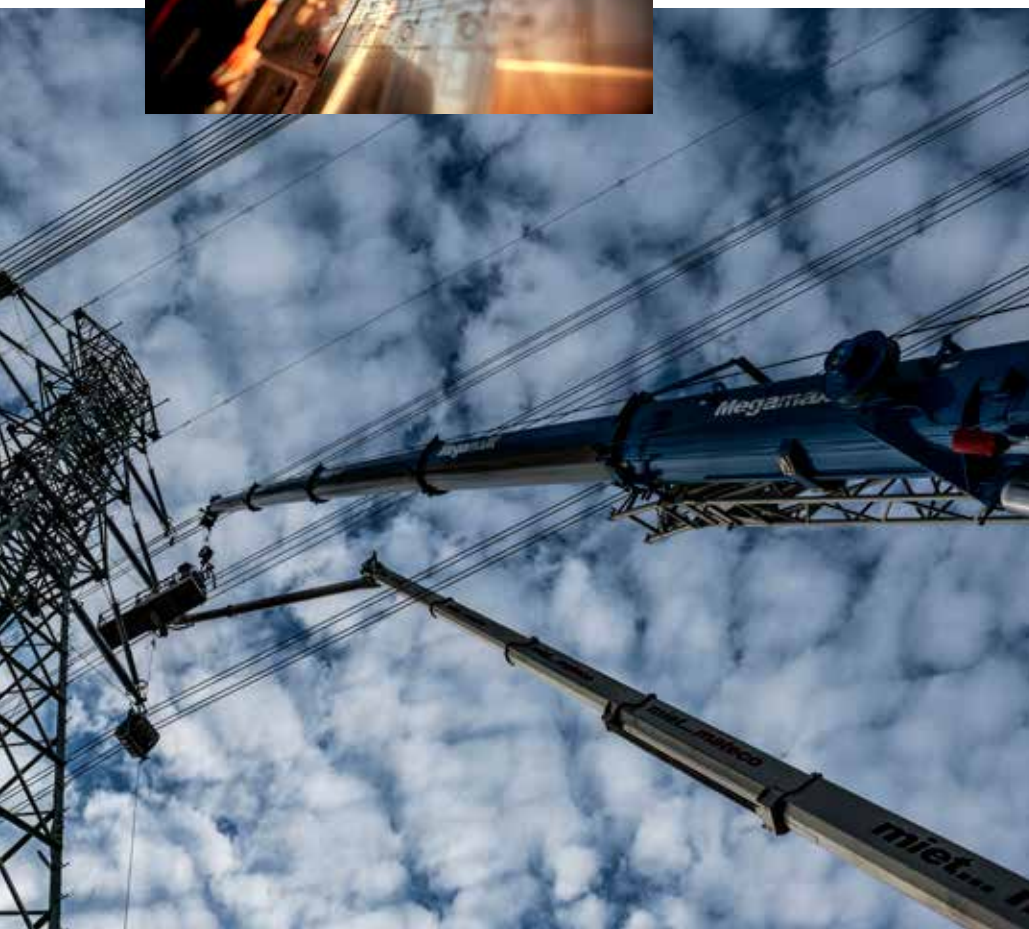
## HACK BELGIUM: INNOVATING FOR BELGIUM

Fifteen Elia employees took part in Hack Belgium on 4, 5 and 6 May. 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 in events such as Hack Belgium,

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 mindset that is so important to the company's future. Elia will be taking part in the next Hack Belgium between 26 and 28 April 2018.

*"With the development of new technologies like Internet of Things and Electric Vehicles, interaction with different sectors like IT, Telecom and Automotive becomes increasingly important. The Hack was the perfect occasion to meet innovators from these industries and develop a new perspective on innovation projects for Elia."*

Manoël Rekingier, Innovation Project Manager at Elia





## Local inertia

With the increasing penetration of renewable energy sources at the expense of conventional sources and the growth in storage solutions connected to the grid, the total inertia available on the network is decreasing. While this reduction does not pose a risk to the European continental grid, it does raise the issue of inertia distribution. If an imbalance in this distribution occurs (as has already happened on the UK network), grid protection systems can be triggered, causing local power cuts.

This project investigates the phenomena related to the distribution of inertial response that may significantly impact future power system operation. The research investigation will develop

modelling tools, techniques and expertise with specific regard to the effect of distribution of inertia in the power grid, as well as considering related factors such as grid topology, RES penetration, and overall system security.

This project was granted financial support by the 2017 Energy Transition Fund. It aims to finance measures to encourage and support research and development in innovative energy projects, as well as to maintain or develop any system ensuring security of supply and the balance of the network. This fund is financed by a fee payable by Engie Electrabel, amounting to 20 million euros per year, in exchange for the extension of the reactors of Doel 1 and 2.



## ELIA'S FIRST OPEN INNOVATION CONTEST

In October 2016, Elia organised the Open Innovation Challenge in order to identify start-ups that are proposing tools to enhance public acceptance of infrastructure projects. The contest was won on 16 February 2017 by Gilytics, a Zurich-based start-up. Gilytics provides an interactive platform using 3D visualisation and augmented reality to improve public participation in the planning phases of new projects.

*"The tool of Gilytics allows us to define various constraints (soil, habitat, protected nature area, technical limitations, etc.) and allocate them a specific weight. It then identifies the optimum route. In the proof of concept, the results converged with the route that Elia had proposed, which validated the work done by our experts."*

Johan Maricq, Innovation Project Leader at Elia.





# WHAT IS HAPPENING AT 50HERTZ?

## Pilot project with a new type of insulating gas

A new type of 110 kV, gas-insulated switchgear is being built at the Charlottenburg high-voltage substation. Instead of sulphur hexafluoride ( $\text{SF}_6$ ), a mix of insulating gases with less environmental impact will be tested. The gas mixture, known as  $\text{G}^3$ , has the same technical characteristics as  $\text{SF}_6$  but a global warming potential that is 99% lower.

## CompactLine

In late 2017, 50Hertz began building a pilot of a new type of line with shorter, narrower pylons and therefore a reduced environmental impact.

The test line runs for two kilometres and will include five pylons. It is connected to the Jessen North substation. The design of CompactLine should enable a 220 kV line to be replaced with a 380 kV line, without altering the route. 50Hertz plans to start testing the pilot project from summer 2018.

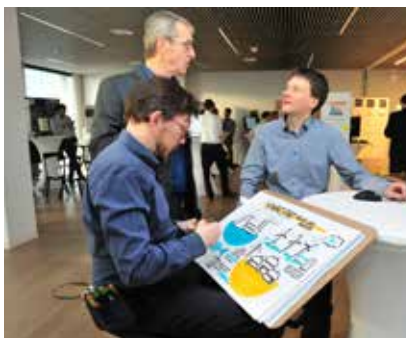
## Innovation Day @ 50Hertz

The company held its 5<sup>th</sup> Innovation Day on 13 November. 50Hertz employees were briefed on 19 ongoing research and development projects, and exchanged ideas about technical developments and process innovations.



# 99%

THE GAS MIXTURE, KNOWN AS  $\text{G}^3$ , HAS THE SAME TECHNICAL CHARACTERISTICS AS  $\text{SF}_6$  BUT A GLOBAL WARMING POTENTIAL THAT IS 99% LOWER.



# Corporate Governance Statement

Elia satisfies specific obligations in terms of transparency, neutrality and non-discrimination towards all stakeholders involved in its activities.

At Elia, corporate governance is based on two pillars:

- the 2009 Corporate Governance Code<sup>1</sup>, which Elia has adopted as its benchmark code;
- the Act of 29 April 1999 on the organisation of the electricity market and the Royal Decree of 3 May 1999 on the management of the electricity transmission system applicable to Elia as a transmission system operator.

## Board of Directors



**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**

# Composition of the management bodies as at 31 December 2017

## Board of Directors

### CHAIRPERSON<sup>2</sup>

- Bernard Gustin, independent director

### DIRECTORS<sup>3</sup>

- Michel Allé, independent director
- Luc De Temmerman, independent director
- Frank Donck, independent director
- Cécile Flandre, director appointed upon proposal of Publi-T
- Claude Grégoire, director appointed upon proposal of Publi-T
- Bernard Gustin, independent director<sup>4</sup>
- Philip Heylen, director appointed upon proposal of Publi-T
- Luc Hujoel, director appointed upon proposal of Publi-T
- Roberte Kesteman, independent director<sup>5</sup>
- Jane Murphy, independent director
- Dominique Offergeld, director appointed upon proposal of Publi-T
- Rudy Provoost, director appointed upon proposal of Publi-T<sup>6</sup>
- Saskia Van Uffelen, independent director
- Geert Versnick, director appointed upon proposal of Publi-T

### REPRESENTATIVE OF THE FEDERAL GOVERNMENT WITH AN ADVISORY ROLE

- Nele Roobrouck

## Advisory committees to the Board of Directors

### CORPORATE GOVERNANCE COMMITTEE

- Luc Hujoel, Chairman
- Frank Donck
- Philip Heylen
- Jane Murphy
- Saskia Van Uffelen

### AUDIT COMMITTEE<sup>7</sup>

- Michel Allé, Acting Chairman
- Luc De Temmerman
- Frank Donck
- Dominique Offergeld
- Geert Versnick

### REMUNERATION COMMITTEE<sup>8</sup>

- Luc De Temmerman, Chairman
- Claude Grégoire
- Saskia Van Uffelen

## Auditors<sup>9</sup>

- KPMG Réviseurs d'Entreprises SCCRL, represented by Alexis Palm
- Ernst & Young Réviseurs d'Entreprises SCCRL, represented by Patrick Rottiers

## Management Committee<sup>10</sup>

- Chris Peeters, Chairman and Chief Executive Officer
- Markus Berger, Chief Infrastructure Officer
- Patrick De Leener, Chief Customers, Market & System Officer
- Frédéric Dunon, Chief Assets Officer
- Pascale Fonck, Chief Officer External Relations
- Peter Michiels, Chief Human Resources & Internal Communication Officer
- Ilse Tant, Chief Public Acceptance Officer
- Catherine Vandenborre, Chief Financial Officer

## Secretary-General

- Gregory Pattou

(1) The Corporate Governance Code can be found on the website of the Corporate Governance Committee ([www.corporategovernancecommittee.be](http://www.corporategovernancecommittee.be)).

(2) Miriam Maes, independent director, was chairwoman until 16 May 2017. Claude Grégoire was vice-chairman until 16 May 2017 and acting chairman from 16 May 2017 until 21 December 2017. Geert Versnick was vice-chairman until 16 May 2017. Bernard Gustin was appointed as chairman from 21 December 2017.

(3) Peter Vanvelthoven was appointed director upon the proposal of Publi-T until 19 March 2017. Jacques de Smet was appointed independent director until 16 May 2017. Miriam Maes was appointed independent director until 27 October 2017.

(4) Bernard Gustin was appointed director from 16 May 2017.

(5) Roberte Kesteman was appointed director from 27 October 2017.

(6) Rudy Provoost was appointed director from 16 May 2017.

(7) Jacques de Smet was chairman of the Audit Committee until 16 May 2017. Michel Allé was appointed acting chairman from 22 June 2017.

(8) Jacques de Smet was a member of the Remuneration Committee until 16 May 2017.

(9) KPMG Réviseurs d'Entreprises SCCRL was represented by Benoît Van Roost until 16 May 2017. Ernst & Young Réviseurs d'Entreprises SCCRL was represented by Marnix Van Dooren until 16 May 2017.

(10) Peter Michiels was appointed member of the Management Committee from 3 January 2017 and Patrick De Leener was appointed member of the Management Committee from 1<sup>st</sup> February 2017. Frank Vandenberghe was Chief Customers, Market & System Officer until 1<sup>st</sup> February 2017.

## Board of Directors

The Boards of Directors of Elia System Operator and Elia Asset consist of 14 members, none of whom perform an executive role within either of those two companies.

The same directors sit on the Boards of both companies.

Half of the directors are independent directors, satisfying the conditions set out in Article 526ter of the Belgian Companies Code, Article 2(30) of the Act of 29 April 1999 on the organisation of the electricity market and in the articles of association, and having received a positive opinion ("avis conforme"/ "eensluitend advies") by the CREG on their independence. The other half are non-independent directors appointed by the General Meeting upon proposal of Publi-T, as per the current shareholder structure (see also the 'Shareholder structure' section on page 113 of this statement).

In accordance with provisions stipulated by legislation and the articles of association, these Boards of Directors are supported by three committees – the Corporate Governance Committee, the Audit Committee and the Remuneration Com-

mittee – which are the same for Elia System Operator and Elia Asset. The Boards of Directors ensure that these committees operate in an efficient manner.

In accordance with the Act of 29 April 1999 on the organisation of the electricity market, the Belgian Companies Code and the articles of association of Elia System Operator and Elia Asset, at least one third (1/3) of the Board members must be of the opposite gender to the remaining two thirds. This one-third rule is applied proportionately to the independent and non-independent directors.

In addition, in accordance with the Corporate Governance Code 2009, the Internal Regulations of the Board of Directors and the Act of 3 September 2017 on the disclosure of non-financial information and diversity information by certain large companies and groups, the composition of the Board of Directors is based on gender diversity and diversity in general, as well as on the complementarity of skills, experience and knowledge.

When searching for and appointing new directors, special attention is paid to diversity parameters in terms of age, gender and complementarity.

## CHANGES IN THE COMPOSITION OF THE BOARD OF DIRECTORS

The directorships of the following directors were renewed in 2017, having expired during the year:

- Jane Murphy was reappointed by the Ordinary General Meeting of 16 May 2017 as an independent director of Elia System Operator and Elia Asset.
- Cécile Flandre, Claude Grégoire, Philip Heylen and Dominique Offergeld were reappointed by the Ordinary General Meeting of 16 May 2017 as non-independent directors of Elia System Operator and Elia Asset.

The following persons were appointed as directors of Elia System Operator and Elia Asset in 2017:

- Bernard Gustin was appointed by the Ordinary General Meeting of 16 May 2017 as an independent director of Elia System Operator and Elia Asset (succeeding Jacques de Smet).
- Rudy Provoost was appointed by the Ordinary General Meeting of 16 May 2017 as a non-independent director of Elia System Operator and Elia Asset (succeeding Peter Vanvelthoven, who resigned as a non-independent director of Elia System Operator and Elia Asset with effect from 19 March 2017).
- Roberte Kesteman was appointed by the Special General Meeting of 27 October 2017 as an independent director of Elia System Operator and Elia Asset (succeeding Miriam Maes).

In addition, Bernard Gustin was appointed Chairman of the Board of Directors on 21 December 2017, succeeding Claude Grégoire, who had been appointed Acting Chairman on 16 May 2017.

Michel Allé was appointed Acting Chairman of the Audit Committee from 22 June 2017.

## TERM AND EXPIRY OF DIRECTORSHIPS AND APPOINTMENT PROCEDURE

The directors of Elia System Operator and Elia Asset are appointed or reappointed for a six-year term.

The directorships of all of the directors are due to expire after the 2023 Ordin-

## DIVERSITY WITHIN THE BOARD OF DIRECTORS

Number of people on the Board of Directors of Elia System Operator and Elia Asset as at 31 December 2017		Unit	2017
Men	Aged 30 - 50		2
	Aged over 50		7
Women	Aged 30 - 50		1
	Aged over 50		4

ary General Meeting of Elia System Operator and of Elia Asset for the financial year ending 31 December 2022, with the exception of the directors mentioned below, whose directorships expire on different dates.

Luc De Temmerman, Frank Donck, Luc Hujoel, Saskia Van Uffelen and Geert Versnick's directorships of Elia System Operator and Elia Asset will expire after the companies' 2020 Ordinary General Meeting for the financial year ending 31 December 2019.

Michel Allé's independent directorship of Elia System Operator and Elia Asset will expire after the companies' 2022 Ordinary General Meeting for the financial year ending 31 December 2021.

The six-year term of these directorships diverges from the term of four years recommended by the Belgian Corporate Governance Code, a fact justified by the technical, financial and legal specificities and complexities associated with the tasks of the transmission system operator, which call for greater experience in those areas.

It should be remembered that the appointment of independent and non-independent directors of the Elia System Operator and Elia Asset Boards of Directors, as well as the composition and operation of their committees, are subject to specific corporate governance rules. These provisions are laid down in the Act of 29 April 1999 on the organisation of the electricity market and in the companies' articles of association.

The Act of 29 April 1999 on the organisation of the electricity market gave the Corporate Governance Committee an important task in the proposal of candidates for the role of independent director. The directors are appointed on the basis of a list of candidates drawn up by the Corporate Governance Committee. For each candidate, the Committee takes into account the up-to-date CV and their sworn declaration concerning the independence criteria as stipulated by legislation applying to Elia and the company's articles of association. The General Meeting then appoints the independent directors. These appointments are submitted to the CREG for

its opinion ("avis conforme"/ "eensluisend advies") on the independence of each independent director. A similar procedure applies where an independent directorship becomes vacant during the relevant term of office and where the Board co-opts a candidate proposed by the Corporate Governance Committee.

The Corporate Governance Committee therefore acts as a nominating committee for independent directors. For the appointment of non-independent directors, there is no nominating committee to make recommendations to the Board. This situation therefore deviates from that prescribed by the Corporate Governance Code. This divergence can be explained by the fact that the Board of Directors always strives, insofar as possible, for consensus. Moreover, no significant decision can be made without a majority within the groups of independent directors and non-independent directors.

#### **BOARD OF DIRECTORS' ACTIVITY REPORT**

The Board of Directors exercises at least the following powers (non-exhaustive list):

- It defines the general, financial and dividends policy of the company, as well as its values and strategy. In transposing the values and strategy into primary guidelines, the Board of Directors takes into account corporate social responsibility, gender diversity and diversity in general.
- It exercises the powers given to it by or pursuant to the Belgian Companies Code, by the Act of 29 April 1999 on the organisation of the electricity market and by the articles of association.
- It takes all action appropriate or necessary to carry out the corporate purpose, excluding powers reserved for the General Meeting by law or the articles of association.
- It ensures oversight. Within this context it provides, inter alia, general oversight of the Management Committee in accordance with legal restrictions concerning access to commercial data and other confidential information relating to grid users and the processing of

such data; as part of this oversight it also monitors the way in which the business of the company is carried out and developed in order to, among other things, assess whether the company is being properly managed. In addition, it monitors and evaluates the effectiveness of the advisory committees to the Board and the manner in which business is carried out.

The Boards of Directors of Elia System Operator and Elia Asset met 12 times in 2017.

Members who are unable to attend usually have a representative. In accordance with Article 19.4 of the Elia System Operator articles of association and Article 18.4 of the Elia Asset articles of association, members who are absent or unable to attend may grant a written proxy to another member of the Board to represent them at a given meeting of the Board of Directors and vote on their behalf at that meeting. However, no representative can represent more than two directors.

#### **EVALUATION**

In 2016, the Board of Directors of Elia System Operator and Elia Asset organised a procedure for evaluating its own functioning (including an evaluation of the overall contribution of directors), that of its committees and the interaction between the Board of Directors and the Management Committee. In 2016, the Board did not organise an individual evaluation in accordance with provision 4.13 of the Corporate Governance Code.

The evaluation procedure in 2016 was conducted in accordance with principle 4 of the Corporate Governance Code, which the company has adopted as its benchmark code.

A new evaluation will take place within the time frame stipulated by the Corporate Governance Charter.

## Auditors

The Ordinary General Meeting of Elia System Operator and Elia Asset held on 16 May 2017 reappointed Ernst & Young Réviseurs d'Entreprises SCCRL and KPMG Réviseurs d'Entreprises SCCRL as auditors of these companies for a period of three years. Their term of office will come to an end after the 2020 Ordinary General Meeting of Elia System Operator and Elia Asset relating to the financial year ending 31 December 2019.

Ernst & Young Réviseurs d'Entreprises SCCRL was represented for the exercise of this office by Marnix Van Dooren until 16 May 2017 and is represented as of this date by Patrick Rottiers.

KPMG Réviseurs d'Entreprises SCCRL was represented for the exercise of this office by Benoît Van Roost until 16 May 2017 and is represented by Alexis Palm as of this date.

## Significant events in 2017

### AMENDMENTS TO THE ARTICLES OF ASSOCIATION FOLLOWING IMPLEMENTATION OF THE CAPITAL INCREASE RESERVED FOR STAFF MEMBERS

The Extraordinary General Meeting of Elia System Operator of 17 May 2016 approved the proposed capital increase reserved for members of staff of the company and its Belgian subsidiaries.

This capital increase took place in two stages, in December 2016 and March 2017, for a maximum total of €6 million (maximum of €5,300,000 in 2016 and maximum of €700,000 in 2017) subject to the issuing of new Class B shares, with cancellation of the preferential subscription right of existing shareholders in favour of staff members of the company and its Belgian subsidiaries, if necessary below the accounting par value of the existing shares in the same class.

The Extraordinary General Meeting decided to set the issue price for the 2017 capital increase at a price equal to the average of the closing prices on the 30 calendar days prior to 31 January 2017, less 16.66%.

The total value of the 2017 capital increase (including share premium) was €391,087.26. 9,861 Class B shares in Elia System Operator were issued.

Following the 2017 capital increase, Articles 4.1 and 4.2 of the articles of association of Elia System Operator relating to the share capital and the number of shares were amended accordingly on 23 March 2017.

The latest version of Elia System Operator's articles of association is available in full on the company's website ([www.eliagroup.eu](http://www.eliagroup.eu), under 'Investor Relations' and [www.elia.be](http://www.elia.be), under 'Elia', 'Corporate Governance').

### CHANGE IN THE COMPOSITION OF THE BOARD OF DIRECTORS AND THE MANAGEMENT COMMITTEE

For the change in the composition of the Board of Directors and the Management Committee, reference is made to the 'Board of Directors' and 'Management Committee' sections of this corporate governance statement.

For the other significant events in 2017, see pages 12 to 17.

## Remuneration Committee

In addition to its usual support role to the Board of Directors, the Remuneration Committee is responsible, pursuant to Article 526quater of the Belgian Companies Code, the Act of 29 April 1999 on the organisation of the electricity market and the articles of association, for making recommendations to the Board of Directors regarding remuneration policy and the individual remuneration of members of the Management Committee and directors. The Remuneration Committee also draws up a remuneration report for presentation at the Ordinary General Meeting.

The Remuneration Committee of Elia System Operator met six times in 2017<sup>(1)</sup>. The Remuneration Committee of Elia Asset met five times in 2017.

The company evaluates its management staff on a yearly basis in accordance with its performance management policy. This policy also applies to members of the

Management Committee. Accordingly, the Remuneration Committee evaluates the members of the Management Committee on the basis of a series of collective and individual targets of a quantitative and qualitative nature and also taking into account feedback from internal and external stakeholders.

It should be noted that remuneration policy concerning the variable portion of the Management Committee's remuneration was adapted to take account of the implementation of multi-year tariffs. Consequently, since 2008 the salary scheme for members of the Management Committee has included, among other things, an annual variable remuneration and long-term profit-sharing spread out over the multi-year regulation period. The annual variable remuneration has two parts: the attainment of collective quantitative targets and individual performance, including progress on collective infrastructure projects, safety and AIT ('Average Interruption Time' – average time of interruption of electricity supply)<sup>(2)</sup>.

The Remuneration Committee also approved the proposed collective targets for the Management Committee for 2017. In addition, the Remuneration Committee approved the remuneration report, which is part of the annual report for 2017, and issued a favourable opinion on the capital increase reserved for personnel.

## Audit Committee

In addition to its usual support role to the Board of Directors, the Audit Committee is, pursuant to Article 526bis of the Belgian Companies Code, the Act of 29 April 1999 on the organisation of the electricity market and the articles of association, responsible in particular for:

- examining accounts and controlling budgets;
- monitoring financial reporting procedures;
- ensuring the effectiveness of the company's internal control and risk management systems;
- following up on internal audits and their effectiveness;

(1) Including one meeting held before a notary in order to formally record the capital increase reserved for staff members.

(2) Supply reliability indicator: number of minutes per consumer per year.

- following up on the statutory audit of annual accounts;
- evaluating and verifying the independence of auditors;
- making proposals to the Board of Directors on the appointment and re-election of auditors and on the terms of their appointment;
- investigating, where appropriate, any issues that resulted in the resignation of auditors and making proposals as to what actions, if any, should be taken in this respect;
- verifying the nature and extent of non-audit services provided by auditors;
- verifying the effectiveness of external audit procedures.

Pursuant to Article 96, §1, 9° of the Belgian Companies Code and the articles of association, this report must contain justification of the independence and accounting and auditing competence of at least one member of the Audit Committee. The internal rules of procedure of the Audit Committee require, in this respect, that all members of the Audit Committee have the sufficient experience and expertise required to exercise the role of the Audit Committee, particularly in terms of accounting, auditing and finance. On the basis of this rule, the professional experience of at least two members of the Audit Committee must be detailed in this report.

The experience of the Chairman of the Audit Committee (Jacques de Smet until 16 May 2017 and Michel Allé from that date), and Dominique Offergeld, member of the Audit Committee, is described in detail below.

**Jacques de Smet** (independent director and Chairman of the Audit Committee of Elia System Operator and Elia Asset until 16 May 2017) has an economics degree from the University of Brussels. He started his career as an auditor with Peat Marwick Mitchell & Co (now KPMG). He joined the Tractionel group (now Engie) in 1979, initially as assistant to the CEO of the holding company. He was subsequently assigned to the financial department of the company of the Frima Viking SA group, later becoming CFO of Chamibel SA. In 1987, he was a member of the Management Committee of the ven-

ture capital investment company Prominvest SA. From 1988 to 2002 he was Chief Financial Officer and a member of the Management Committee of D'leteren SA and the Boards of Directors of all subsidiaries of the group, including AVIS EUROPE PLC and BELRON. Between 2002 and 2005, he was Chief Financial Officer of the Ziegler group. In 2009, he was appointed as a member of the Board of Directors of SABCA S.A. He has also been a member of the Boards of Directors of UCO S.A. (1977-2001), LA LIEVE S.A. (1978-1996), LYS-LIEVE S.A. (1975-1995), BELGO-KATANGA S.A. (1996-2000), IBEL S.A. (1995-2000) and President of the Financial Executives Institute of Belgium (2002-2013). Since 1986, he has been Managing Director of GEFOR S.A. (a consultancy firm specialising in the area of corporate finance and, in particular, the negotiation of bank credit). He sits on the Boards of Directors of SABCA (as a permanent representative of GEFOR) and Wereldhave Belgium and is Chairman of the Audit Committees of these companies.

**Michel Allé** (independent director of Elia System Operator and Elia Asset since 17 May 2016 and Acting Chairman of the Audit Committee from 22 June 2017) has degrees in physics civil engineering and economics (both from the Université Libre de Bruxelles (ULB)). Alongside his academic career as a professor of economics and finance (Solvay Brussels School, ULB's École Polytechnique), he worked for many years as a Chief Financial Officer. In 1979, he began his career at the Belgian Prime Minister's Office, as an advisor in the Science Policy Office. He was appointed Director of the National Energy R&D Programme in 1982 and then Director in charge of Innovative Companies. In 1987, he joined the Cobepa group, where he held many positions including Vice President of Mosane from 1992 to 1995. From 1995 to 2000, he was a member of the Cobepa group's Executive Committee. He then served as Chief Financial Officer of BIAC between 2001 and 2005 and Chief Financial Officer of SNCB (Belgian Railways) between 2005 and 2015. He also has extensive experience as a director, including past and present roles at Telenet, Zetes, Eurvest, Mobistar and D'leteren. He has served on the Telenet Audit Committee and chaired the Zetes Audit Committee.

**Dominique Offergeld** (non-independent director of Elia System Operator and Elia Asset) has a degree in economics and social science (specialisation: public economics) from Université Notre-Dame de la Paix in Namur. She has taken various extra-academic programmes, including the General Management Program at Cedepe (INSEAD) in Fontainebleau (France). She started her career at Générale de Banque (now BNP Paribas Fortis) in the corporate finance department in 1988, and was subsequently appointed as specialist advisor to the vice-president and minister for economic affairs of the Walloon Region in 1999. In 2001, she became advisor to the Deputy Prime Minister and Minister for Foreign Affairs. Between 2004 and 2005, she was deputy director of the office of the minister for energy, subsequently becoming general advisor to the SNCB holding company in 2005. She was previously director of (among others) Publigaz and government commissioner at Fluxys. She was also Chairwoman of the Board of Directors and of the Audit Committee of SNCB. Between 2014 and 2016, she was Director of the Minister for Mobility's Strategy Unit, with responsibility for Belgocontrol and the SNCB. She has been CFO of ORES SCRL since August 2016, a position she also held between 2008 and 2014.

The Audit Committee may investigate any matter that falls within its remit. For this purpose, it is given the resources it needs to perform this task, has access to all information, with the exception of confidential commercial data concerning grid users, and can call on internal and external experts for advice.

The Audit Committee met six times in 2017.

The Committee examined the annual accounts for 2016, under both Belgian GAAP and IFRS. It also examined the half-yearly results as at 30 June 2017 and the 2017 quarterly results, in accordance with Belgian GAAP and IFRS rules.

The Committee took note of the internal audits carried out and the recommendations made.

The Committee follows an action plan for each audit carried out in order to improve the efficiency, traceability and awareness of the areas audited and thereby reduce the associated risks and provide assurance that the control environment and risk management are appropriate. The Committee followed the various action plans from a number of perspectives (timetable, results, priorities) on the basis, among other things, of an activity report from the internal audit department. The Audit Committee noted the strategic risks and the ad hoc risk analyses based on the environment in which the group operates. The Audit Committee also oversaw the monitoring of environmental issues.

## Corporate Governance Committee

In addition to its usual support role to the Board of Directors, the Corporate Governance Committee is, pursuant to the Act of 29 April 1999 on the organisation of the electricity market and the articles of association, responsible for:

- proposing candidates to the General Meeting to be appointed as independent directors;
- giving prior approval for the appointment and/or removal (where applicable) of Management Committee members;
- examining, at the request of any independent director, the Chairman of the Management Committee or any competent federal and/or regional regulatory body or bodies for the electricity market, all cases of conflicts of interests between the system operator, on the one hand, and a dominant shareholder, municipal shareholder or company associated with or linked to a dominant shareholder, on the other hand, and to report to the Board of Directors on the matter. This responsibility aims to strengthen the directors' independence above and beyond the procedure detailed in Article 524 of the Belgian Companies Code, which the company also applies;
- deciding on cases of incompatibility on the part of members of the Management Committee and personnel;
- ensuring the application within the company of provisions laid down by law, regulations, decrees and other instru-

ments relating to the operation of electricity systems, evaluating their effectiveness in view of the objectives for the independent and impartial operation of those systems, and ensuring compliance with Articles 4.4 and 13.1(2) and (3) of Elia System Operator's articles of association. A report on this subject is submitted every year to the Board of Directors and the federal and/or regional body or bodies responsible for regulating the electricity market;

- convening, at the request of at least one third of the members, meetings of the Board of Directors in accordance with the formalities for calling meetings as laid down in the articles of association;
- examining, after notification by a director, whether a director's membership of the supervisory board, the board of directors or bodies legally representing an undertaking which exercises control, directly or indirectly, over an electricity producer and/or supplier complies with Article 9.1b), c) and d) of Directive 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity, and reporting on this matter to the Board of Directors. As part of this examination, the Committee takes account of the role and influence that the director concerned has in the undertaking concerned and of the degree of control or influence that the undertaking concerned has over its subsidiary. The Committee also examines whether, in the exercising of the director's role within the company, there is the potential or motive for favouring certain generation or supply interests as regards access to and investment in the grid, to the detriment of other grid users;
- ensuring, prior to any appointment of a director, irrespective of whether such appointment concerns a new director or the re-election of an existing director, whether the candidate director takes account of the incompatibilities set forth in the company's articles of association. To this end, every candidate director is required to provide the Committee with an overview of (i) any offices he or she holds on the board of directors, the supervisory board or any other body of other legal entities other than the company and (ii) any other functions or activities, paid or unpaid, which he or

she carries out for an undertaking performing any of the following functions: the generation or supply of electricity.

The Committee met 10 times in 2017.

In line with its competences under the law and the articles of association and in compliance with confidentiality rules, the Committee deals in particular with the following matters: the prior approval for the appointment of new members of the Management Committee, the proposal of candidates for independent directorships, the application and the compliance with the requirements of laws, regulations and the articles of association concerning the independence of the company's independent directors, the analysis of compliance with requirements in the area of full ownership unbundling as provided for by law and the articles of association, and the preparation of the corporate governance statement.

## Management Committee

Pursuant to Article 9(9) of the Act of 29 April 1999 on the organisation of the electricity market and the articles of association, the Management Committee is responsible in particular for:

- the operational management of the electricity grids, including commercial, technical, financial, regulatory and personnel issues related to such operational management;
- day-to-day management of the system operator;
- the exercise of powers given to it under the articles of association;
- the exercise of powers delegated to it by the Board of Directors, in accordance with the general policy rules and principles and the resolutions adopted by the Board of Directors.

The Management Committee has all powers necessary, including the power of representation, and sufficient margin for manoeuvre to exercise the powers that have been delegated to it and to propose and implement a corporate strategy, without prejudice to the powers of the Board of Directors and the obligation on the part of the Board of Directors to observe the legal restrictions in terms of

access to commercial data and other confidential data relating to grid users and the processing of such data.

The Management Committee generally meets formally at least once a month. Its members also attend informal weekly meetings. Members who are unable to attend usually have a representative. A written proxy, conveyed by any means (of which the authenticity of its source can be reasonably determined), can be given to another member of the Management Committee, in accordance with the internal rules of procedure of the Management Committee. However, no representative may represent more than two members.

In 2017, the Management Committee met on 20 occasions for Elia System Operator and on 20 occasions for Elia Asset.

Each quarter, the Management Committee reports to the Board of Directors on the company's financial situation (in particular on the balance between the budget and the results stated). It also reports on transmission system management at each meeting of the Board of Directors. As part of its reporting on management of the transmission system in 2017, the Management Committee kept the Board informed of strategic issues,

developments in legislation applying to the company, the company's financial situation, the situation of its subsidiaries, the main decisions taken by regulators and administrations, as well as the monitoring and development of major investment projects.

Corporate social responsibility (CSR) at Elia System Operator and Elia Asset is the responsibility of the Chief Public Acceptance Officer.

## MANAGEMENT COMMITTEE



Chris Peeters



Markus Berger



Patrick De Leener



Frédéric Dunon



Pascale Fonck



Peter Michiels



Ilse Tant



Catherine Vandenborre

## CHANGES IN THE COMPOSITION OF THE MANAGEMENT COMMITTEE

Peter Michiels was appointed as a member of the Management Committee from 3 January 2017. Peter Michiels holds the position of Chief Human Resources & Internal Communication Officer.

In addition, Patrick De Leener was appointed as a member of the Management Committee from 1 February 2017, replacing Frank Vandenberghe. Patrick De Leener holds the position of Chief Customers, Market & System Officer.

In accordance with the Act of 3 September 2017 on the disclosure of non-financial information and diversity information by certain large companies and groups, the composition of the Management Committee is based on gender diversity and diversity in general, as well as on the complementarity of skills, experience and knowledge.

When searching for and appointing new members of the Management Committee, special attention is paid to diversity parameters in terms of age, gender and complementarity.

## CODE OF CONDUCT

Following the entry into force of European Regulation (EU) No. 596/2014 on market abuse, Elia amended its Code of Conduct that aims to prevent staff and those with leadership responsibilities in the Elia Group from potentially breaking any laws on the use of privileged information and market manipulation. The Code of Conduct lays down a series of regulations and communication obligations for transactions by those individuals in relation to their Elia System Operator securities, in accordance with the provisions of the Market Abuse Regulation and the Act of 2 August 2002 on monitoring of the financial sector and other financial services. This Code of Conduct is available on the company's website ([www.elia.be](http://www.elia.be), under 'Elia', 'Corporate Governance').

## CORPORATE GOVERNANCE CHARTER AND INTERNAL RULES OF PROCEDURE OF THE BOARD OF DIRECTORS, THE BOARD'S ADVISORY COMMITTEES AND THE MANAGEMENT COMMITTEE

The Corporate Governance Charter and the internal rules of procedure of the Board of Directors, the Board's advisory committees and the Management Committee can be found on the company's website ([www.elia.be](http://www.elia.be), under 'Elia', 'Corporate Governance').

## TRANSPARENCY RULES - NOTIFICATIONS

On 17 January 2017, Elia System Operator received notifications within the meaning of the Act of 2 May 2007 on the disclosure of major shareholdings in issuers whose shares are admitted to trading on a regulated market and laying down miscellaneous provisions, and within the meaning of the Royal Decree of 14 February 2008 on the disclosure of major shareholdings. More specifically, following the capital increase reserved for Elia staff members of 22 December 2016, on 17 January 2017 Publi-T notified Elia that its stake in Elia had fallen below the threshold of 45% of total Elia shares on 22 December 2016 and that its shareholding in Elia was now 44.97%. Société Fédérale de Participations et d'Investissement, with which Publi-T acts in concert, also notified Elia on 17 January 2017 that its shareholding in Elia had decreased to 2.02% on 22 December 2016. Their total stake in Elia was therefore 46.99% on 22 December 2016. The change in the percentages of their shareholdings is passive in nature and is a result of the capital increase reserved for personnel in late 2016; the number of shares held by Publi-T and Société Fédérale de Participations et d'Investissement did not change.

In accordance with Article 15 of the Act of 2 May 2007, on 4 April 2017 Elia System Operator gave notice of the realisation of the capital increase reserved for the personnel of Elia System Operator SA and its Belgian subsidiaries, which was formally recorded before a notary on 23 March 2017 and led to the issuing of 9,861 new shares in Elia System Operator. See also the press release of 4 April 2017, published on the company's website.

The total number of shares issued by Elia is 60,901,019.

For more information about the shareholder structure as at 31 December 2017, see the section 'Shareholder structure on the closing date'.

## DIVERSITY WITHIN THE MANAGEMENT COMMITTEE

Number of people on the Management Committee of Elia System Operator and Elia Asset as at 31 December 2017	Unit	2017
Men	Aged 30 - 50	1
	Aged over 50	4
Women	Aged 30 - 50	2
	Aged over 50	1

# Remuneration Report

## REMUNERATION OF THE MEMBERS OF THE BOARD OF DIRECTORS AND THE MANAGEMENT COMMITTEE

### Procedure approved in 2016 to define the remuneration policy and the remuneration of members of the board of directors and the management committee

In accordance with Articles 16.1 and 15.1 of the respective articles of association of Elia System Operator and Elia Asset, a draft remuneration policy for members of the Board of Directors and the Management Committee was drawn up in 2016 by the Remuneration Committee and approved by the Boards of Directors of Elia System Operator and Elia Asset.

The draft remuneration policy for directors was approved by the General Meeting of Shareholders of Elia System Operator and Elia Asset on 17 May 2016.

The Remuneration Committee also made recommendations regarding the remuneration policy and the remuneration of directors and Management Committee members.

The composition and activities of the Remuneration Committee are covered in greater detail on page 104 of the annual report.

### Remuneration of members of the board of directors

Following the decision adopted by the Ordinary General Meeting of Elia System Operator and Elia Asset on 17 May 2016, the rules on the remuneration of directors were amended. The new rules, effective from 1 January 2016, are described below.

The total cost of gross remuneration paid to the 14 directors in 2017 was €872,583.54 (€437,177.27 for Elia System Operator and €435,406.27 for Elia Asset).

The table below lists the individual gross sums paid to each director for Elia System Operator and Elia Asset combined.

These amounts were calculated on the basis of 12 meetings of the Board of Directors of Elia System Operator and 12 meetings of the Board of Directors of Elia Asset in 2017. In 2017, the Audit Committee met six times, the Corporate Governance Committee 10 times, the Remuneration Committee of Elia System Operator six times<sup>13</sup> and the Remuneration Committee of Elia Asset five times.

Directors' remuneration consists of a basic remuneration of €25,000 per annum (€12,500 for Elia System Operator and €12,500 for Elia Asset) and an attendance fee of €1,500 (€750 for Elia System Operator and €750 for Elia Asset) per Board meeting, starting with the first Board meeting attended by the director. The basic annual remuneration and the attendance fee are increased by 100% for the Chairman of the Board of Directors and by 30% for each Vice-Chairman of the Board of Directors.

For each company, additional basic remuneration for each member of an advisory committee to the Board of Directors (the Audit Committee, the Remuneration Committee and the Corporate Governance Committee) is set at €3,000 per annum per committee, and the attendance fee for each member of a committee is €750 per committee meeting (starting with the first committee meeting attended by the member). Both the basic remuneration and the attendance fee are increased by 30% for each committee chairman.

The basic annual remuneration and the attendance fees are indexed in January each year on the basis of the consumer price index for January 2016.

The basic annual remuneration and the attendance fees cover all costs, except (a) any costs incurred by a director resident

outside Belgium in connection with the exercise of his/her office (such as travel and accommodation costs) providing that the director in question was resident outside Belgium at the time of appointment or, if the director changed his/her place of residence after appointment, providing that the Remuneration Committee gave its approval; (b) any costs incurred by a director in the event that a meeting of the Board of Directors is held outside Belgium (e.g. in Germany); and (c) any costs incurred by a director travelling abroad in connection with the exercise of his/her office upon the request of the Chairman or a Vice-Chairman of the Board of Directors. All remuneration and costs are included in the company's operating costs.

(13) Including one meeting held before a notary in order to formally record the capital increase reserved for staff members.

DIRECTOR	REMUNERATION	BOARD OF DIRECTORS OF ELIA SYSTEM OPERATOR	BOARD OF DIRECTORS OF ELIA ASSET	AUDIT COMMITTEE OF ELIA SYSTEM OPERATOR	AUDIT COMMITTEE OF ELIA ASSET	GOVERNANCE COMMITTEE OF ELIA SYSTEM OPERATOR	GOVERNANCE COMMITTEE OF ELIA ASSET	REMUNERATION COMMITTEE OF ELIA SYSTEM OPERATOR	REMUNERATION COMMITTEE OF ELIA ASSET
Michel ALLÉ	€51,310.86	10/12	10/12	3/3 <sup>14</sup>	3/3 <sup>15</sup>	-	-	-	-
Jacques DE SMET <sup>16</sup>	€30,751.40	3/3	3/3	3/3	3/3	-	-	4/4	3/3
Luc DE TEMMERMAN <sup>17</sup>	€78,556.40	12/12	12/12	6/6	6/6	-	-	6/6	5/5
Frank DONCK <sup>18</sup>	€76,478.00	10/12	10/12	5/6	5/6	10/10	10/10	-	-
Cécile FLANDRE <sup>19</sup>	€37,982.00	8/12	8/12	-	-	-	-	-	-
Claude GRÉGOIRE <sup>20</sup>	€91,491.68	12/12	12/12	-	-	-	-	5/6	5/5
Bernard GUSTIN <sup>21</sup>	€29,000.30	8/9	8/9	-	-	-	-	-	-
Philip HEYLEN	€58,000.00	10/12	10/12	-	-	7/10	7/10	-	-
Luc HUJOEL <sup>22</sup>	€69,087.40	10/12	10/12	-	-	10/10	10/10	-	-
Roberte KESTEMAN <sup>23</sup>	€10,779.16	4/4	4/4	-	-	-	-	-	-
Miriam MAES <sup>24</sup>	€41,317.78	4/8	4/8	-	-	-	-	-	-
Jane MURPHY	€64,160.00	12/12	12/12	-	-	9/10	9/10	-	-
Dominique OFFERGELD	€54,920.00	11/12	11/12	4/6	4/6	-	-	-	-
Rudy PROVOOST <sup>25</sup>	€30,027.06	9/9	9/9	-	-	-	-	-	-
Saskia VAN UFFELEN <sup>26</sup>	€78,018.00	12/12	12/12	-	-	9/10	9/10	5/6	5/5
Geert VERSNICK	€63,774.48	12/12	12/12	6/6	6/6	-	-	-	-
Peter VANVELTHOVEN <sup>27</sup>	€6,929.02	1/1	1/1	-	-	-	-	-	-

(14) Michel Allé has been a member and Chairman of the Audit Committee of Elia System Operator since 22 June 2017.

(15) Michel Allé has been a member and Chairman of the Audit Committee of Elia Asset since 22 June 2017.

(16) Jacques de Smet's directorship expired on 16 May 2017.

(17) Luc De Temmerman's fees are paid to the company InDeBom Strategies Comm. V.

(18) Frank Donck's fees are paid to the company Ibervest NV.

(19) Cécile Flandre's fees are paid to the company Belfius Insurance SA.

(20) Claude Grégoire's fees are paid to the company Socofe SA.

(21) Bernard Gustin has been a director since 16 May 2017. Bernard Gustin's fees are paid to the company Bernard Gustin SPRL.

(22) Luc Hujuel's fees are paid to the company Interfin CVBA.

(23) Roberte Kesteman has been a director since 27 October 2017. Roberte Kesteman's fees are paid to the company Symvouli BVBA.

(24) Miriam Maes's directorship expired on 27 October 2017.

(25) Rudy Provoost has been a director since 16 May 2017.

(26) Saskia Van Uffelen's fees are paid to the company Quadrature SPRL.

(27) Peter Vanvelthoven resigned with effect from 19 March 2017.

All remuneration is paid on a pro rata basis according to the duration of the director's term of office.

An advance on annual remuneration is paid to the directors at the end of the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> quarter. A detailed account is prepared during the month of December for the current year.

Directors do not receive any other benefits in kind, stock options, special loans or advances. Neither Elia System Operator nor Elia Asset has issued credit to or on behalf of any member of the Board of Directors.

## Management committee remuneration policy

### ASPIRATIONS

Our remuneration system is designed to attract, retain and motivate the most talented individuals to achieve our short- and long-term goals within a consistent framework.

### THE PRINCIPLES GOVERNING REMUNERATION OF THE GROUP'S EXECUTIVES ARE:

- Focus on safety first and work in the interests of the company by targeting operational performance
- Design a salary scheme that encourages executives to live up to our core values of entrepreneurship, collaboration, accountability and agility
- Attract, retain and nurture the best talent to achieve our strategy and goals in the short- and long-term
- Ensure that our variable remuneration rewards both team success at company level and individual contributions
- Develop a job classification and staff remuneration system based on an objective and measurable methodology
- Position the remuneration system at the appropriate point of reference in the marketplace to attract the talent we need and to be competitive, using data from multiple providers (including Hay)
- Do not discriminate between employees on any grounds whatsoever through our remuneration system
- Design our benefit plans to promote retention and provide a secure environment for our employees and their families

The Remuneration Committee evaluates the members of the Management Committee once a year. Any change in the basic remuneration is linked to the position of each member of the Management Committee with respect to the general benchmark salary in the market and the assessment of the member's individual performance.

Since 2004, the Hay Group methodology has been used to define the weighting for each management position and to ensure that remuneration is in line with the going market rate.

The remuneration of members of the Management Committee consists of the following components:

- basic salary;
- short-term variable remuneration;
- long-term variable remuneration;
- pension;
- other benefits.

In accordance with Article 17.9 of the articles of association of Elia System Operator, an exemption from the provisions of Article 520ter(1) and (2) of the Belgian Companies Code is provided for members of the Management Committee.

As regards variable remuneration, the Remuneration Committee evaluates the members of the Management Committee at the end of each year based on a number of qualitative and quantitative targets. Since 2008, variable remuneration has comprised two components: a short-term one and a long-term one.

### BASIC REMUNERATION

All the members of the Management Committee of Elia System Operator and Elia Asset have employee status.

In 2017, the basic remuneration paid to the Chairman of the Management Committee was €409,647.13. The recurring remuneration paid to the other members of the Management Committee totalled €1,417,147.29 (€948,406.65 for management employed by Elia System Operator and €468,740.64 for management employed by Elia Asset).

Total basic remuneration of €1,826,794.42 was therefore paid to members of the Management Committee in 2017.

### SHORT-TERM VARIABLE REMUNERATION

The first component of variable remuneration is based on the attainment of a certain number of targets set by the Remuneration Committee at the start of the year, with a maximum of 25% of variable remuneration for the individual targets and 75% for the attainment of the Elia Group's collective targets ('short-term incentive plan').

In 2017, the short-term variable remuneration earned by the Chairman of the Management Committee was €259,997.44.

The variable remuneration earned by other members of the Management Committee in 2017 was €534,605.94 (€360,872.59 for management employed by Elia System Operator and €173,733.35 for management employed by Elia Asset).

A total of €794,603.37 in variable remuneration was therefore paid to members of the Management Committee in 2017.

### The collective targets for 2017 were:

- Net financial result after tax
- OPEX efficiency
- Safety
- Implementation and monitoring of collective projects and our company transformation
- AIT (grid reliability)

### TOTAL ANNUAL REMUNERATION

In 2017, the total remuneration paid to the Chairman of the Management Committee was €669,644.57.

The total annual remuneration of other members of the Management Committee was €1,951,753.23 (€1,309,279.24 for management employed by Elia System Operator and €642,473.99 for management employed by Elia Asset).

Total annual remuneration for all members of the Management Committee in 2017 was therefore €2,621,397.79.

### LONG-TERM VARIABLE REMUNERATION

The second component of variable remuneration is based on multi-annual criteria covering a period of four years ('long-term incentive plan'). The variable remuneration earned in 2017 can be estimated at €56,671.96 (maximum amount in the event of full attainment of the multi-annual criteria for the tariff period concerned) for the Chairman of the Management Committee for services rendered in 2017 and €363,328.50 for the other members of the Management Committee (€245,649.94 for management employed by Elia System Operator and €117,678.56 for management employed by Elia Asset).

These amounts are reviewed at the end of each year based on the achievement of the multi-annual criteria. The first part of the long-term variable remuneration for the 2016-2019 tariff period will be paid in 2018 and the balance in 2020. No other variable remuneration was paid in 2017. Remuneration is definitively acquired at the moment of payment.

#### CLAWBACK

Bonuses paid for the prior period may be clawed back in case of proven fraud or significant misstatements in financial reporting.

#### CONTRIBUTIONS TO THE SUPPLEMENTARY PENSION SCHEME

Since 2007, all pension plans for Management Committee members have been defined contribution plans, where the amount paid, excluding tax, is calculated on the basis of annual remuneration. In 2017, Elia System Operator paid a total of €106,236.88 for the Chairman of the Management Committee.

For the other members of the Management Committee, Elia paid a total of €317,684.72 (€203,078.31 for management employed by Elia System Operator and €114,606.41 for management employed by Elia Asset).

#### OTHER BENEFITS

Other benefits awarded to members of the Management Committee, such as guaranteed income in the event of long-term illness or an accident, health-care and hospitalisation insurance, invalidity insurance, life insurance, tariff benefits, other allowances, assistance with public transport costs, provision of a company car, employer-borne costs and other minor benefits are in line with the regulations applying to all company executives.

The cost of these other benefits for 2017 was valued at €40,701.54 for the Chairman of the Management Committee and at €209,718.96 for the other members of the Management Committee (€135,217.08 for management employed by Elia System Operator and €74,501.88 for management employed by Elia Asset).

There were no stock options awarded in Elia for the Management Committee in 2017.

#### Elia System Operator shares held by members of the Management Committee

The members of the Management Committee held the following number of shares as at 31 December 2017:

MEMBERS OF THE MANAGEMENT COMMITTEE <sup>28</sup>	AS AT 31.12.2017	AS AT 31.12.2016
Chris PEETERS <i>Chief Executive Officer - Chairman of the Executive Committee</i>	1,844	1,805
Markus BERGER <i>Chief Infrastructure Officer</i>	9,156	9,156
Patrick DE LEENER <sup>29</sup> <i>Chief Customers, Market &amp; System Officer</i>	3,125	-
Frédéric DUNON <i>Chief Assets Officer</i>	2,852	2,833
Pascale FONCK <i>Chief Officer External Relations</i>	661	661
Peter MICHIELS <sup>30</sup> <i>Chief Human Resources &amp; Internal Communication Officer</i>	0	-
Ilse TANT <i>Chief Public Acceptance Officer</i>	2,460	2,460
Catherine VANDENBORRE <i>Chief Financial Officer</i>	1,389	1,355

No stock options were awarded at Elia System Operator for the members of the Management Committee in 2017. Members of the Management Committee may purchase shares via existing capital increases reserved for members of personnel or on the stock exchange.

(28) Positions held on 31/12/2017.

(29) Patrick De Leener was appointed Chief Customers, Market & System Officer from 1 February 2017.

(30) Peter Michiels was appointed Chief Human Resources & Internal Communication Officer from 3 January 2017.

**OTHER INFORMATION TO BE COMMUNICATED PURSUANT TO ARTICLE 96 OF THE BELGIAN COMPANIES CODE AND ARTICLE 34 OF THE ROYAL DECREE OF 14 NOVEMBER 2007 ON THE OBLIGATIONS OF ISSUERS OF FINANCIAL INSTRUMENTS ADMITTED TO TRADING ON A REGULATED MARKET**

This section contains the information required to be disclosed under the aforementioned legislation and not included in other parts of the annual report.

**Information regarding special control rights of certain holders of securities**

In accordance with Article 4.3 of the articles of association of Elia System Operator and Elia Asset, all shares in these two companies have the same rights, irrespective of the class to which they belong, unless otherwise stated in the articles of association.

In this context, the articles of association state that specific rights are associated with Class A and Class C shares regarding (i) the appointment of members of the Board of Directors (Article 13.5.2 of the articles of association of Elia System Operator and Article 12.5.2 of the articles of association of Elia Asset) and (ii) the approval of decisions by the General Meeting (Articles 28.2.1 and 28.2.2 of the articles of association of Elia System Operator and Article 27.2 of the articles of association of Elia Asset).

**Information regarding statutory limitations or limitations under the articles of association on the exercising of voting rights**

In accordance with Article 4.3(3) of the articles of association of Elia System Operator and Elia Asset, the voting rights associated with shares held directly or indirectly by companies active in the generation and/or supply of electricity and/or natural gas are suspended.

**Information regarding the rules on amending the articles of association**

In the event of the articles of association of Elia System Operator and Elia Asset being amended, Article 29 of the articles of association of Elia System Operator and Article 28 of the articles of association of Elia Asset are applicable.

**Information regarding statutory limitations or limitations under the articles of association on transfers of securities**

Transfers of securities within Elia System Operator are governed by Article 9 of the articles of association of Elia System Operator.

**SHAREHOLDER STRUCTURE ON THE CLOSING DATE**

	SHARES	% SHARES	% VOTING RIGHTS
Publi-T (Class B and C shares)	27,383,507 <sup>31</sup>	44.96	44.96
Publipart (Class A shares)	1,526,756	2.51	2.51
Belfius Insurance (Société Fédérale de Participations et d'Investissement) (Class B shares)	1,134,760 <sup>32</sup>	1.86	1.86
Katoen Natie Group (Class B shares)	4,231,148 <sup>32</sup>	6.95	6.95
Interfin (Class B shares)	2,598,143	4.27	4.27
Other Free float (Class B shares)	24,026,705	39.45	39.45
Total	60,901,019	100	100

(31) Based on the Publi-T - Société Fédérale de Participations et d'Investissement declaration of transparency of 17 January 2017. For more information on declarations of transparency, see 'Transparency rules - Notifications' above.

(32) Based on the number of shares participating in the Ordinary General Meeting of Elia System Operator and Elia Asset on 16 May 2017.

# Risks and uncertainties facing the company

## 1. Regulatory and income risks

### INTERNATIONAL

The two transmission system operators in the Elia Group strive to proactively anticipate European legislation, new directives and regulations being prepared at EU level or awaiting transposition into Belgian and German law in order to minimise uncertainties. Elia and 50Hertz are paying particularly close attention to ongoing discussions at European level – formalised by measures including the ‘winter package’ – that could have a significant influence on the duties and responsibilities of transmission system operators in future.

Both Elia and 50 Hertz have received certification as ownership unbundled transmission system operators. They are thus considered to be fully independent of electricity and gas producers and suppliers. They must constantly stay in line with the obligations arising from this certification. In addition, both Elia and 50Hertz continue to actively participate in projects designed to arrive to the Single European Energy Market, as envisaged by the European Commission.

This authorisation is limited in time (20 years), but can be revoked earlier if Elia or 50Hertz do not have, inter alia, the human, technical and/or financial resources to guarantee the continuous and reliable operation of the grid in accordance with the applicable legislation, as well as the unbundling obligations as described in Article 9 of the EU Electricity Directive.

Such a revocation would have an adverse material impact on Elia and/or 50Hertz.

Elia and 50Hertz are also founding members of the European Network of Transmission System Operators for Electricity (ENTSO-E), which was set up in December 2008 and brings together 43 transmission system operators from

36 countries, including the EU Member States. Amongst other things, ENTSO-E performs the role of the European Network of Transmission System Operators provided for in the third package.

### NATIONAL

The Belgian legal framework was established when the first EU Directive on the internal electricity market was transposed by the Electricity Act of 29 April 1999. The amendment of 8 January 2012 adapted the Electricity Act to comply with the third package of European directives.

In accordance with Article 258 of the Treaty on the Functioning of the European Union, the European Commission monitors the transposition of European directives into national legislation. In this connection, it sent a reasoned opinion to Belgium on 25 February 2016 in which it found – if the press release is to be believed – that Belgium had not correctly transposed certain rules on inter-connections, the powers of the regulator, and consumers. The Belgian authorities are talking to the Commission about the measures that have been taken or should be taken to remedy the situation.

The company's net profit is largely determined by a fair return mechanism and by a tariff incentive mechanism. For the period 2016-2019, various incentives distributed over four years were introduced.

Elia's financial result is influenced annually by changes to Belgian linear bonds (10-year OLOs) and by a special mechanism that took effect in 2016. This mechanism includes an incentive linked to the progress of construction work for major projects mainly linked to inter-connection capabilities, and a corrective term which reflects the gap between the real value of the OLO during the year and a benchmark value. Elia's financial result is also influenced by its ability to realise and/or exceed the factors for improving efficiency, by the results achieved by various incentives established by the regulation; and by the analyses of the various budget items implemented ex post by the federal regulator.

On 3 December 2015, the tariffs and mechanisms determining Elia's profitability as Belgium's transmission system operator were approved by CREG for

a new four-year tariff period, effective 1 January 2016.

Elia's turnover also depends on the energy transported via its grid, and therefore on the level of business activity of its customers and the society it serves at large, including the rapid increase in decentralised electricity generation being directly injected to the distribution networks. The actual level of residential and household electricity consumption may result in differences between the electricity volumes actually transmitted and those estimates built into the 2016-2019 tariffs as approved by the regulator. Any deficit and/or extra costs incurred as a result, such as additional financing requirements, must be offset by the tariffs for the following regulatory periods, under the prevailing regulations. The impact on the electricity consumption and injection of Elia's various customer segments and the uncertainty surrounding the outlook for levels of business activity amongst industrial clients pose a risk to Elia's cash flow.

The Electricity Act recently made the transmission system operator responsible for developing a transmission grid in the marine areas over which Belgium can exercise its jurisdiction. Discussions are currently underway with CREG concerning a specific regulatory framework for this grid. This specific extension of the current regulatory framework must, in particular, take account of the risks associated with such an activity, including regulatory, contractual and technical risks. The significant increase in energy expected from the new offshore wind farms will also be accompanied by a considerable rise in the levy to cover the purchase costs of new green certificates. Greater attention will be paid to managing the cash flow resulting from this situation.

Elia's income is influenced by the dividends received from companies in which it has shareholdings, in particular those of 50Hertz, via Eurogrid International.

The tariffs charged by 50Hertz are subject to regulation by the German federal regulatory agency, Bundesnetzagentur (BNetzA). Decisions made and actions taken by the BNetzA under the current regulatory framework may have a substantial impact on 50Hertz.

Furthermore, the German regulatory framework governing the activities of 50Hertz is subject to extensive European, national and regional legislation and regulation. While 50Hertz tries to anticipate European legislation, new directives and regulations in preparation at European level or existing regulations and directives awaiting transposition into national law may always cause uncertainties.

Legislation and directives regarding renewable energy sources may also have a great impact on 50Hertz's liquidity. Changes in the legislation may lead to significant variations in the current regulatory and/or liquidity risk.

### **DIVISION OF POWERS**

The regulatory and legal framework entails risks with regard to the division of powers between Belgium's federal and regional entities. For instance, contradictions between the various regulations, including the grid codes, could hinder the exercise of the company's activities. The further development of and changes to these regulations may also impact the company's liability in the event of a power outage on the grid or – in the context of a reform of the State – the division of powers between federal and regional authorities, potentially including the power to approve transmission tariffs.

As regards tariff levies, Wallonia's regulations were amended in 2017 and now lay out the principles for a new mechanism for freezing green certificates. Essentially, the mechanism provides that the Walloon Region will buy a set volume of green certificates from Elia each year, based on a proposal from GRTL and an opinion from CWaPE, in the aim of ensuring that the financial balance of the levy can be respected without the levy itself being increased. The Walloon Region will then hold onto the certificates until at least 2022 and will, if possible, gradually resell them on the market. After a nine-year 'freeze', any remaining certificates that could not be resold on the market will be resold to GRTL under a new Public Service Obligation placed on GRTL and covered by the levy. After the first freeze operation in September 2017, the regulatory receivable created by the levy was resorbed in full and should not, in principle, reappear in the first few months of 2018. It is also worth noting that the Walloon Government, which has been in office since summer 2017, has expressed its intention to carry out an in-depth review of the regional subsidy scheme for new renewable generation and, by extension, the future operation of the market for green certificates. Vigilant oversight of the change in the green certificates market therefore remains applicable. To a lesser extent, the ongoing saturation of the Flemish market for cogeneration certificates has led to the number of sales to Elia at the guaranteed minimum price remaining high, but nonetheless in line with forecasts.

## **2. Operational risks**

### **ENERGY BALANCE**

Every year, Elia and 50Hertz Transmission seek to contract, at the lowest possible cost, the reserves needed to ensure continual balance between production and consumption in their respective zones. To that end, they analyse, both at national and European level, how the growing proportion of intermittent renewable energy generation units can be safely integrated without compromising the energy balance. The growth across Europe in the number of cogeneration and renewable energy units connected to distribution systems and the connection of large offshore wind farms also create new challenges for operational grid management and require the further development of their infrastructure.

A new and important development since 2014 has been the negative trend in Belgium's national electricity production, as a result of closures and mothballing of production units, resulting in an overall decrease in the production capacity available to Belgian consumers and a growing dependency on electricity imports from foreign markets. A consequence of these supply conditions has been the creation of strategic electricity reserves for the winter period. These reserves consist of earmarked and reserved electricity generation capacity sitting outside the electricity market, to be called upon by the TSO in the event of electricity shortages. The many events that occurred in recent years regarding Belgian nuclear generating facilities illustrate the uncertainties impacting supply conditions. The actual availability and location of nuclear generation also interact with maintenance and/or investment programmes on the 400 kV networks, as well as the conditions governing access to resources capable of providing the auxiliary services needed for system operation.

It cannot be ruled out that other electricity production units may be closed or mothballed in future, which will keep the supply situation under pressure. In a similar vein, uncertainty regarding the dwindling availability of France's nuclear generation facilities may lead to a decrease in the quantities of energy imported from France. The need to continue resorting to strategic reserves and/or other mechanisms therefore remains a major concern for future years.

In addition, changing trends in offtake and injection and the enhancement of interconnection capacity between EU Member States are dependent on securing permits and approvals from local, regional, national and international authorities. The need to obtain such approvals and permits within certain timeframes represents a critical challenge to timely implementation. Moreover, these approvals and permits can be contested in the relevant courts.

Finally, while volumes of decentralised intermittent electricity generation are rising and while centralised generation capacity continues to decrease, Elia is also facing an ageing asset base. All three factors complicate the task of maintaining balance on the network.

### **POWER OUTAGES**

The reliability of the transmission systems operated by Elia and 50Hertz is among the best in Europe. Nonetheless, unforeseen events, such as unfavourable weather conditions, may occur to a degree which interrupts the smooth operation of one or more infrastructure components. In most cases, these incidents have no impact on consumers' power supply because the meshed structure of the grids operated by Elia and 50Hertz means that consumers can be reached via a number of different connections. However, in extreme cases an incident in the electricity system may lead to a local or widespread outage (known as a black-out). Such outages may be caused by natural phenomena, unforeseen incidents or operational problems, either in Belgium or abroad. The Elia Group regularly holds crisis management drills so that it is ready to deal with the most unexpected and extreme situations. In the event of an error attributable to Elia, the general terms and conditions of its contracts limit the liability of Elia and 50Hertz to a reasonable level, while its insurance policy is designed to limit some of the financial repercussions of these risks.

### **RISKS ASSOCIATED WITH ELECTRONIC, IT AND TELECOMMUNICATION EQUIPMENT**

The incorporation and embedding of electronic, IT and telecommunication technologies in electricity transmission systems for the purposes of operational management, communication and surveillance (such as smart grids) modifies the nature of the electricity systems and infrastructure used by TSOs such as Elia and 50Hertz.

Failures in the telecommunications network or IT systems used to operate the electricity system may harm the latter's performance. Elia takes appropriate measures to back up the IT network and associated systems to the maximum extent allowed by technical and financial considerations. It has drawn up and regularly tests recovery plans for the most critical IT systems. However, component failures in the telecommunication network and IT systems are impossible to rule out. Where systems do fail, Elia will strive to minimise the impact on customers.

### **ENVIRONMENTAL RISK**

Elia's results may be affected by outgoings needed to keep up with environmental legislation, including costs associated with implementing preventive or corrective measures or settling third-party claims. The company's environmental policy is developed and monitored in such a way as to manage these risks. Where Elia or 50Hertz might in any way be liable for decontamination, the appropriate provisions are set aside.

### **PERMITTING RISK**

Both Elia and 50Hertz have a duty to build an electricity grid consistent with the energy needs of their respective client bases and with the move by the energy industry into decentralised electricity generation, which necessitates a reinforced electrical grid.

Consequently, electrical installations need to be upgraded or built new, which means obtaining building permits. Occasionally, obtaining permits takes place after lengthy dialogue with local populations and authorities, which may delay the building of the infrastructure.

### **RISKS ASSOCIATED WITH THE SUPPLIERS OF INFRASTRUCTURE WORK**

In 2017, like in 2016, Elia's infrastructure objectives were exposed to a greater risk of capacity problems affecting several key suppliers. This situation has arisen because demand is increasing steadily on the European market, while supply has remained relatively stable. To limit this risk, Elia will conduct regular forward-looking market capacity analyses.

The difficult economic situation on the European market (see also the 'Macroeconomic risks' section) may also jeopardise suppliers' financial health, preventing them from fulfilling their obligations. Infrastructure construction may be delayed as a result.

### **RISK OF LEGAL DISPUTES**

Although the company operates in such a way as to minimise the risk of legal disputes, it may nonetheless become involved in such disputes. Where necessary, the appropriate provisions are laid aside for this.

### **SAFETY AND WELFARE**

The Elia Group operates facilities where accidents or external attacks may cause bodily harm to persons. Persons working in or near electricity transmission facilities may be exposed, in the event of an accident, error or negligence, to the risk of electrocution. The safety and welfare of individuals (both Elia personnel and third parties) is a daily priority for the Elia Group's management, supervisory staff and personnel. Elia has in place a health and safety policy, undertakes safety analyses and promotes a safety culture.

### **RISKS ASSOCIATED WITH INEFFICIENT INTERNAL CONTROL MECHANISMS**

All internal processes can have an impact on the company's results in some way. The multi-year tariff mechanism increases the need for year-on-year increases in the company's overall efficiency. To this end, the efficiency of internal processes is monitored regularly, using performance indicators and/or audits, to ensure they are kept under proper control. This is overseen by the Audit Committee, which controls and monitors the work of the Internal Audit & Enterprise Risk Management Department.

### 3. Financial risks

The Group is exposed to various financial risks in the exercise of its activities: market risk (namely interest rate risk, inflation risk, tax risk and limited exchange risk), liquidity risk and credit risk. The risks the company faces are identified and analysed in order to establish appropriate limits and controls and monitor risks and compliance with such limits. To this end, the Group has defined responsibilities and procedures specifically for the financial instruments to be used and the operating limits for managing them. These procedures and related systems are revised on a regular basis to reflect any changes in market conditions and the activities of the Group. The financial impact of these risks is limited, as Elia and 50Hertz operate under the Belgian or German regulatory framework. See the 'Regulatory framework' section for further details.

To finance their investments and achieve their short- and long-term strategic goals, Elia and 50Hertz turn to the capital markets, which are heavily influenced by macroeconomic trends. In 2018, these will mainly be shaped by a potential tightening of monetary policy in both the US and the eurozone and by a possible escalation of current geopolitical tensions. There is also continued uncertainty about the outcome of Brexit. All of these macroeconomic factors are reflected at market level by major volatility, which could have a negative impact on the growth of Elia and 50Hertz and on the pursuit of their objectives. However, both Elia and Eurogrid GmbH (50Hertz's parent company) have credit facilities in place to mitigate the risk of short-term financing difficulties.

Elia and Eurogrid GmbH are rated by S&P and Moody's respectively. Specific measures in connection with these evaluations are not foreseeable and could have an impact on financing. With the advent of Belgian laws and regulations governing decentralised or renewable energy generation, notably via photovoltaic solar panels and wind turbines, the Federal and Regional governments authorised the issuance of so-called 'green certificates', which are used as a financial support mechanism for renewable energy. Elia's obligation to buy these certificates at a guaranteed minimum price poses a cash flow risk, as 'green certificates' are effectively used as 'call' options and their execution is sometimes uncertain. Consequently, Elia is subject to unforeseeable influxes of large numbers of 'green certificates', which it is obliged to purchase, representing a risk to Elia's cash flow. In so far as there are regulations requiring the cancellation of certain certificates, the compensation for costs incurred by Elia requires the application of an appropriate levy. However, Elia has the option of asking CREG to adapt the tariffs so as to fill any gaps between expenses due to public service obligations and the cash flow generated by the periodically approved levies meant to cover such expenses. Elia has established regulatory and cash planning mechanisms allowing it to partially reduce the cash impact that this risk may pose.

Similarly, 50Hertz is exposed to a cash flow risk as it is obliged to buy the electricity generated by renewable sources for a fixed price, but to sell it at variable prices dictated by the market.

### 4. Contextual factors

#### MACROECONOMIC RISKS

The European economy has performed much better than expected this year, despite the continuing level of uncertainty and volatility. This performance was mainly due to increased private consumption, greater investment and falling unemployment.

The main risks are related to external factors, due to heightened geopolitical tensions, the possible tightening of financial conditions worldwide, and the upsurge in protectionist policies. In the European Union specifically, downward risks are linked to the outcome of the Brexit negotiations, the stronger euro, and higher interest rates in the long term.

#### HUMAN RESOURCES RISK

Elia pursues an active branding and recruitment policy to maintain an appropriate level of expertise and know-how in a tight labour market. This is an ongoing risk, bearing in mind the highly specialised and complex nature of its business.

#### IMAGE RISK

Generally speaking, circumstances may arise that have a negative impact on the company's image. Elia has an internal control mechanism to guarantee the confidentiality of data. Despite this, external parties may pass on information in their possession that could have an impact on the company's share price.

#### MISCELLANEOUS

Elia realises that there might be other risks of which the company is not yet aware. Some risks may seem limited today but could increase in the future. The subdivisions used give no indication of the potential consequences of the listed risks.

# Features of the internal control and risk management systems

The reference framework for internal control and risk management, established by the Management Committee and approved by the Elia Board of Directors, is based on the COSO II framework. The framework has five closely linked basic components, providing an integrated procedure for internal control and risk management systems: control environment, risk management, control activities, information and communication, and monitoring. The use and inclusion of these concepts in Elia's various procedures and activities enables the company to control its activities, improve the effectiveness of its operations, optimally deploy its resources, and ultimately achieve its objectives. The implementation of COSO II at Elia is described below.

## 1. Control environment

### ORGANISATION OF INTERNAL CONTROL

Pursuant to the Elia articles of association, the Board of Directors has established various committees to help it fulfil its duties: the Management Committee, the Audit Committee, the Remuneration Committee and the Corporate Governance Committee. The Board has charged the Audit Committee with the task of monitoring: (i) the financial reporting procedure; (ii) the effectiveness of internal control and corporate risk management systems; (iii) the internal audit and its effectiveness; (iv) the statutory audit of annual and consolidated accounts, including the follow-up of any issues raised or recommendations made by external auditors; (v) the independence of external auditors, (vi) examining accounts and controlling budgets.

The Audit Committee generally meets quarterly to discuss the above points.

The Finance Department helps the Management Committee by providing, in a timely manner, correct and reliable financial information to aid not only decision-making with a view to monitoring the profitability of activities, but also effective management of corporate financial services. External financial reporting – one of Elia's duties – includes (i) statutory financial and tax reporting; (ii) consolidated financial reporting; (iii) specific reporting obligations applicable to public companies; (iv) reporting obligations under the regulatory framework. The structured approach developed by Elia helps to ensure that financial data is both exhaustive and precise, taking into account the deadlines for activity reviews and the actions of key players so as to ensure adequate control and accounting.

### INTEGRITY AND ETHICS

Elia's integrity and ethics are a crucial aspect of its internal control environment. The Management Committee and management regularly communicate about these principles in order to clarify the mutual rights and obligations of the company and its employees. These rules are disseminated to all new employees, and compliance with them is formally included in employment contracts. The Code of Conduct also helps to prevent employees from breaching any Belgian legislation on the use of privileged information or market manipulation and suspicious activities. Management consistently ensures that employees comply with internal values and procedures and – where applicable – take any actions deemed necessary, as laid down in the company regulations and employment contracts.

The Ethical Code defines what Elia regards as correct ethical conduct and sets out the policy and a number of principles on the avoidance of conflicts of interests. Acting honestly and independently with respect to all stakeholders is a key guiding principle for all of our employees. Elia's Ethical Code expressly states that the Group prohibits bribery in any form, misuse of prior knowledge and market manipulation. This is confirmed by the Elia Code of Conduct. Elia and its employees do not use gifts or entertainment to gain competitive advantage. Facilitation payments are not permitted by Elia. Disguising gifts or entertainment

as charitable donations is also a violation of the Ethical Code. Moreover, the Ethical Code prohibits all forms of racism and discrimination, promotes equal opportunities for all employees, and ensures the protection and confidential use of IT systems. All parties involved in procurement must abide by Elia's Purchasing Code of Ethics and all associated regulations. Elia's Purchasing Code of Ethics is published internally and externally and is based on four pillars: confidentiality, non-discriminatory treatment of suppliers, transparency, and avoidance of conflicts of interest. The management of the employees involved in the procurement and payment processes regularly provides opportunities for training and awareness-raising on these topics.

By virtue of its legal status as a power transmission system operator, Elia is subject to a large number of statutory and regulatory rules setting out three fundamental principles: non-discriminatory conduct, confidential processing of information, and transparency towards all electricity market players as regards non-confidential market information. With a view to meeting these specific obligations, Elia has drawn up an Engagement Programme, which has been approved by the Corporate Governance Committee. The Compliance Officer reports annually to the relevant regulatory bodies in this regard.

Any violations of these codes can be reported to the Compliance Officer, who handles them objectively and confidentially. The Compliance Officer declares that no such violations were reported by internal employees or external stakeholders in 2017.

Internal Audit's annual programme includes a number of actions and verification audits designed to act as specific safeguards against fraud. Any findings are systematically reported to the Audit Committee. In 2017, no relevant findings relating to fraud were reported in the specific audit of employee expense claims, nor in the other audits making up the annual audit plan.

## ROLES AND RESPONSIBILITIES

Elia's internal control system relies on clearly defined roles and responsibilities at all levels of the organisation. The roles and responsibilities of the various committees established within Elia are primarily identified in the legal framework applicable to Elia, the articles of association and the Corporate Governance Charter.

Under the supervision of the Chief Financial Officer, the Accounting Department is responsible for statutory financial and tax reporting and the consolidation of the Elia Group's various subsidiaries. The Controlling Department monitors analytical accounting and reporting and assumes responsibility for all financial reporting in a regulatory context. The Investor Relations Department is responsible for specific reporting applicable to companies listed on the stock exchange.

As regards the financial reporting process, the tasks and responsibilities of all employees in the Accounting Department have been clearly defined with a view to producing financial results that accurately and honestly reflect Elia's financial transactions. A detailed framework of tasks and responsibilities has been drawn up to identify the main control duties and the frequency with which tasks and control duties are performed.

An IFRS Accounting Manual is used by all entities within the scope of consolidation as a reference for accounting principles and procedures, thus ensuring consistency, comparability and accurate accounting and reporting within the Group.

The Finance Department has the appropriate means (including IT tools) to perform its tasks; all entities within the scope of consolidation use the same ERP software, which has a range of integrated controls and supports task separation as appropriate. Elia also clarifies the roles and responsibilities of all its employees by providing a description of each job in keeping with the Business Process Excellence methodology.

## COMPETENCIES

With a view to ensuring its various activities are performed reliably and effectively, Elia clearly spells out the vital importance of its employees' competencies and expertise in its recruitment, training and retention procedures. The Human Resources Department has drawn up the appropriate policies and defined all jobs in order to identify the relevant roles and responsibilities as well as the qualifications needed to fulfil them.

Elia has drawn up a policy for the management of generic and specific competencies in line with the company's values, and promotes training so as to enable all its employees to effectively perform the tasks allocated to them. Requirements with regard to competency levels are continually analysed by means of formal and informal self-assessments at various stages of an employee's career.

Training programmes on financial reporting are offered to all employees involved directly or indirectly with that task. The training emphasises the existing regulatory framework, accounting obligations and actual activities, with a high level of understanding enabling participants to address the appropriate issues.

## 2. Risk management

Risk management is another internal control system that is crucial in helping Elia to achieve its strategic objectives as defined in its mission. The Board of Directors and the Risk Manager jointly and regularly identify, analyse and assess key strategic and tactical risks. The risks are assessed qualitatively and/or quantitatively depending on their nature and potential effect. The Risk Manager then makes recommendations on how best to manage each risk considering the close interaction of Elia's entire risk universe. Based on this assessment, preventive, remedial and/or corrective actions are implemented, including the strengthening of existing internal control activities where applicable.

As part of its responsibilities, Elia's management establishes an effective internal control system to ensure, among other objectives, accurate financial reporting. It emphasises the importance of

risk management in financial reporting by taking into account, with the Audit Committee, a whole range of associated activities and risks. It ensures that risks are truly reflected in financial results and reports. In addition, Risk Management goes beyond those risks known to Elia and tries to anticipate the nature and characteristics of emerging risks, which may impact Elia's objectives.

Financial risk assessments primarily involve the identification of:

1. significant financial reporting data and its purpose;
2. major risks involved in the attainment of objectives;
3. risk control mechanisms, where possible.

Financial reporting objectives include (i) ensuring financial statements comply with widely accepted accounting principles; (ii) ensuring that the information presented in financial results is both transparent and accurate; (iii) using accounting principles appropriate to the sector and the company's transactions; (iv) ensuring the accuracy and reliability of financial results.

The activities undertaken by Elia, as an electricity transmission system operator in relation to its physical installations, contribute significantly to its financial results. Therefore, appropriate procedures and control systems have been established to ensure an exhaustive and realistic inventory of physical installations. Risk management is a company-wide activity, actively supported by the delegation of relevant responsibilities to all employees as part of their specific activities, as defined in the Policy.

## CONTINUOUS ASSESSMENT

Employing a simultaneously top-down and bottom-up approach enables Elia to identify and, where possible, anticipate forthcoming events and react to any incidents occurring inside or outside the organisation which might affect the attainment of objectives.

## TOP-DOWN APPROACH BASED ON STRATEGIC RISKS

Elia's strategic risk assessments are reviewed on a quarterly basis in the Audit Committee. Action plans or specific, theme-based risk assessments are carried out whenever there is a perception of potential threats or opportunities.

## BOTTOM-UP APPROACH WITH REGARD TO BUSINESS

With a view to identifying new risks or evaluating changes in existing risks, the Risk Manager and management remain in contact and look out for any changes that may call for the relevant risk assessment and associated action plans to be amended. Various criteria are used to determine the need to re-evaluate financial reporting procedures and associated risks. Emphasis is put on risks associated with changes in the financial and regulatory context, industrial practices, accounting standards and corporate developments such as mergers and acquisitions.

Operational management assesses the relevant risks and puts forward action plans. Any significant changes to assessment rules must be approved by the Board of Directors. Risk Management is instrumental for Elia to maintain its value for stakeholders and the community, works with all departments with a view to optimising Elia's ability to achieve its strategic objectives, and advises the company regarding the nature and potential effects of future risks.

## 3. Control activities

### MAIN CONTROL ACTIVITIES

Elia has established internal control mechanisms at its various structural levels so as to ensure compliance with standards and internal procedures geared to the proper management of identified risks. These include:

- (i) clear task separation as part of procedures, preventing the same person from initiating, authorising and recording a transaction – policies have been drawn up regarding access to information systems and the delegation of powers;
- (ii) integrated audit approach as part of internal procedures so as to link end results with the transactions supporting them;
- (iii) data security and integrity through the appropriate allocation of rights;
- (iv) appropriate documentation of procedures through the use of the Business Process Excellence Intranet, which centralises policies and procedures.

Departmental managers are responsible for establishing activities to control the risks inherent to their department.

## FINANCIAL REPORTING PROCEDURE

For all significant financial reporting risks, Elia sets out appropriate control mechanisms to minimise the probability of error. Roles and responsibilities have been defined in connection with the closing procedure for financial results. Measures have been established for the continuous follow-up of each stage, with a detailed agenda of all activities undertaken by Group subsidiaries; control activities are performed to ensure quality and compliance with internal and external requirements and recommendations. During the financial closing period, a specific test is performed to ensure control over significantly unusual transactions, accounting checks and adjustments at the end of the relevant financial period, company transactions and critical estimates. The combination of all these controls ensures the reliability of financial results. Regular internal and external audits also contribute to financial reporting quality.

In identifying those risks that may affect the achievement of financial reporting objectives, the management takes into account the possibility of misreporting associated with fraud and takes appropriate action where internal control needs to be strengthened. Internal Audit performs specific audits based on the risk assessment for potential fraud, with a view to avoiding and preventing any instances of fraud.

## 4. Information and communication

Elia communicates relevant information to its employees to enable them to fulfil their responsibilities and achieve their objectives. Financial information is needed for budgeting, forecasts and ensuring compliance with the regulatory framework. Operational information is also vital for the production of various reports, essential for the well-functioning of the company. As such, Elia records recent and historical data needed for corporate risk assessments. Multiple communication channels are used: manuals, memos, emails, bulletin boards and intranet applications. Financial results are reported internally and validated at different levels. The management responsible for financial reporting regularly meets other internal departments (operational and control departments) to identify financial reporting data. It validates and documents the critical assumptions underpinning booked reserves and the company's accounts.

At Group level, consolidated results are broken down into segments and validated by means of a comparison with historical figures and a comparative analysis between forecasts and actual data. This financial information is reported monthly to the Management Committee and is discussed quarterly with the Audit Committee. The Chairman of the Audit Committee then reports to the Board of Directors.

## 5. Monitoring

Elia continually re-evaluates the adequacy of its risk management approach. Monitoring procedures include a combination of monitoring activities carried out as part of normal business operations, in addition to specific ad hoc assessments on selected topics. Monitoring activities include (i) monthly reporting of strategic indicators to the Management Committee and the management; (ii) follow-up on key operational indicators at departmental level; (iii) a monthly financial report including an assessment of variations as compared with the budget, comparisons with preceding periods and events liable to affect cost controlling. Consideration is also given to third-party feedback from a range of sources, such as (i) stock market indices and reports by ratings agencies; (ii) share value; (iii) reports by federal and regional regulators on compliance with the legal and regulatory framework; (iv) reports by security and insurance companies. Comparing information from external sources with internally generated data and ensuing analyses allows Elia to keep on making improvements.

Internal Audit also plays a key role in monitoring activities by conducting independent reviews of key financial and operational procedures in view of the various regulations applicable to Elia. The findings of those reviews are reported to the Audit Committee to help it monitor internal control and risk management systems and corporate financial reporting procedures.

The Group's legal entities are also subject to external audits, which generally entail an evaluation of internal control and remarks on (annual and quarterly) statutory and consolidated financial results. External auditors make recommendations for improving internal control systems. In entities that have an Audit Committee, the recommendations, action plans and their implementation are reported annually to that Committee, which in turn reports to the Board of Directors on the independence of the auditor or statutory audit firm and drafts a motion for a resolution on the appointment of external auditors.

# The Elia share in 2017

Despite dropping out the BEL20 Index, the Elia share hit a new record high in 2017. It ended the year at a price of €49.90, some 3.6% lower than in 2016.

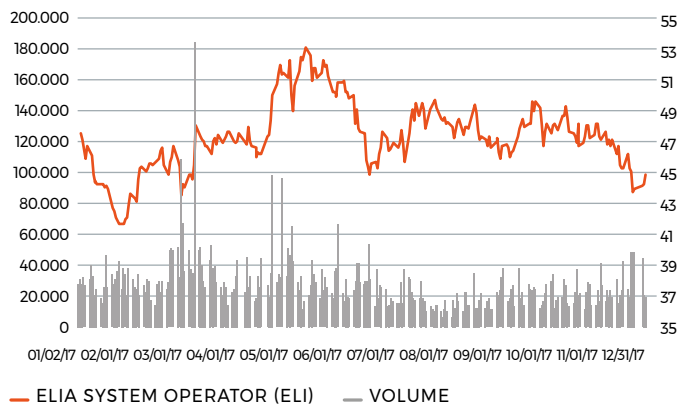


**CATHERINE VANDENBORRE,**  
CHIEF FINANCE OFFICER AT ELIA

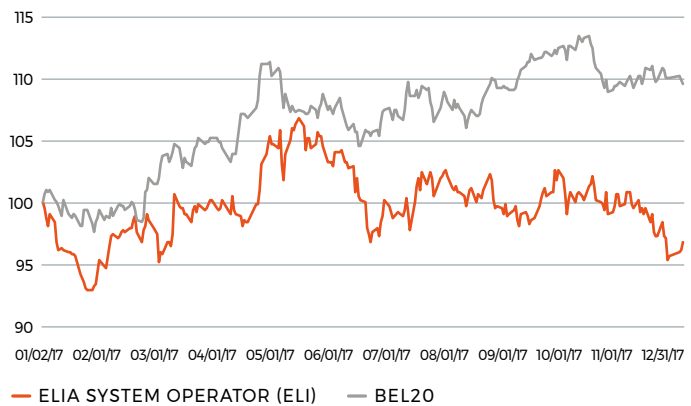
"DRIVEN BY IMPORTANT PROGRESS IN DELIVERING THE TRANSMISSION INFRASTRUCTURE OF THE FUTURE, IN 2017 ELIA'S GROUP HAS REGISTERED AN INCREASE IN NET PROFIT BOTH IN BELGIUM AS IN GERMANY."

## Elia on the stock exchange

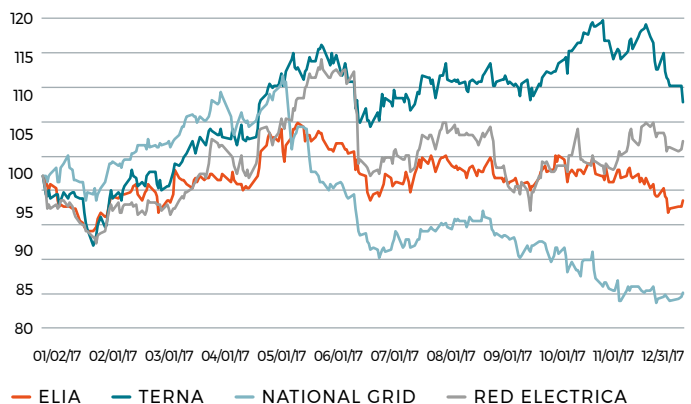
EVOLUTION IN THE ELIA SHARE AND TRADED VOLUMES



EVOLUTION OF THE ELIA SHARE AGAINST THE BEL20 INDEX



EVOLUTION OF THE ELIA SHARE AGAINST ITS EUROPEAN COUNTERPARTS



## 50 %

CONTRIBUTION  
OF GERMANY TO IFRS  
NORMALIZED RESULTS

## € 1.62

GROSS DIVIDEND PER SHARE

The Elia share's closing price at the end of 2017 was €47.90, down 3.59% from €49.685 at the end of 2016.

The lowest price in 2017 was €46.00 on 27 January, while the highest price was €52.85 on 26 May.

The liquidity of the share fell by 42.9% (from 49,197 shares per day on average in 2016 to 28,106 in 2017).

With 60,901,019 shares outstanding, the company's market capitalisation stood at €2,917,158,810 at the end of December. In 2017, 7,167,757 Elia shares were traded on the Euronext Brussels market.

In March 2017, Elia dropped out of the BEL20 index and joined the BEL MID index.

## 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 22 February 2018, the Elia Board of Directors decided to propose a nominal dividend of €98.66 million, or €1.62 per share (gross) to the general meeting of shareholders of 15 May 2018, in accordance with the dividend policy and subject to approval of the profit appropriation by the annual general meeting of shareholders.

This gives a net dividend of €1.134 per share.

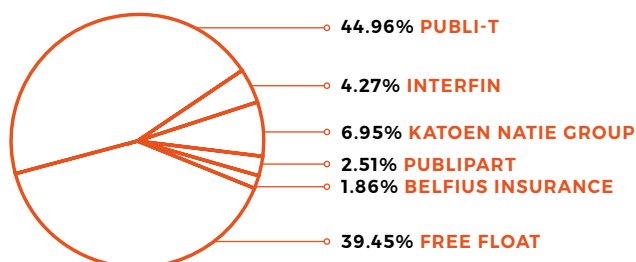
The following paying agents will pay out dividends to shareholders: BNP Paribas Fortis, ING Belgium, KBC and Belfius. Dividend payouts for shares held in a stock account will be settled automatically by the bank or stockbroker. Elia will pay out dividends on registered shares directly to shareholders.

## Dividend policy

Elia is obliged by its articles of association to pay out at least 85% of profits earned in Belgium, after retaining 5% for the legal reserve, unless otherwise decided by the general meeting of shareholders.

The proposed dividend represents a payout ratio of 45.6% based on normalised net IFRS result.

### SHAREHOLDER STRUCTURE



€ 1.134  
NET DIVIDEND 2017

### FINANCIAL CALENDAR

23 February 2018	Full year results 2017
Early April 2018	Publication of 2017 Annual Report
15 May 2018	2018 General Meeting
16 May 2018	Interim statement Q1 2018
Early June 2018	Payment of dividend for 2017
27 July 2018	Publication of 2018 half-yearly results
30 November 2018	Interim statement Q3 2018

### INVESTORS

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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.elia.be](http://www.elia.be).

# Management discussion and analysis of the 2017 results

- The Elia Group realised grid investments of €486 million in Belgium and €461 million in Germany to secure further the uninterrupted supply of electricity and to accommodate increasing renewable energy flows.
- Normalised net profit<sup>1</sup> up 28.9% to €216.6 million (Eurogrid up 58.2%, Elia up 8.8%), driven by containment of operating costs in particular in Germany and, in Belgium, full realisation of the strategic investment programme.
- A dividend of € 1.62 will be proposed at the General Assembly of 15 May 2018.
- Elia and 50Hertz continue to provide very high system reliability (99.999%), benefiting 30 million end-users in Belgium and Germany.

ELIA GROUP (IN MILLION EUR)	2016	2017
Total revenues	868.1	887.5
EBITDA	425.0	475.5
EBIT	295.0	344.6
Non-recurring items	12.0	0.1
Normalised EBIT	283.0	344.5
Net financial costs	(82.9)	(76.5)
<b>Net profit</b>	<b>179.8</b>	<b>229.1</b>
Non-recurring items	11.8	12.5
<b>Normalised net profit</b>	<b>168.0</b>	<b>216.6</b>
Normalised earnings per share (EUR)	2.76	3.56
Net financial debt	2,557.3	2,689.1
CAPEX <sup>2</sup>	1,177.5	946.2

EBIT (Earnings Before Interest and Taxes) = Results from operating activities + Share of profit of equity-accounted investees (net of income tax)

EBITDA (Earnings Before Interest and Taxes, Depreciations and Amortisations) = EBIT + depreciation/amortisation + changes in provisions

Normalised EBIT = EBIT - non-recurring items (see note 1 on the below of the page for the definition and page 127 for the reconciliation table)

1. The term "normalised" refers to performance measures (EBIT, Net Profit, EPS) 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.

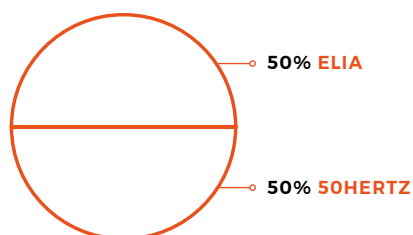
2. CAPEX amount include 100% of the investment realised in Germany.

## Results

The Elia Group's normalised net profit increased by 28.9% to €216.6 million, the combined result of an increase in net profit in both Belgium (up 8.8%) and Germany (up 58.2%).

In **Belgium**, solid results were achieved, with a normalised net profit of €108.6 million, driven by the realisation of strategic investments. In more detail: the regulated net profit increased by €7.5 million thanks to the full realisation of the mark-up investments since the start of the tariff period in 2016 (up €9.5 million) and the increase in the yearly average OLO compared to 2016 (up €5.0 million). This was partially offset by lower contributions from incentives (down €5.2 million) and a regulatory settlement from prior year (down €1.7 million). Furthermore, the increasing investment programme also resulted in a significant increase in the customer contributions received (up €4.5 million), which was offset by a negative contribution from the movement in the pension provision (down €2.7 million) and a lower result recognised on associates (down €2.5 million). Finally, the nor-

## NORMALISED NET PROFIT



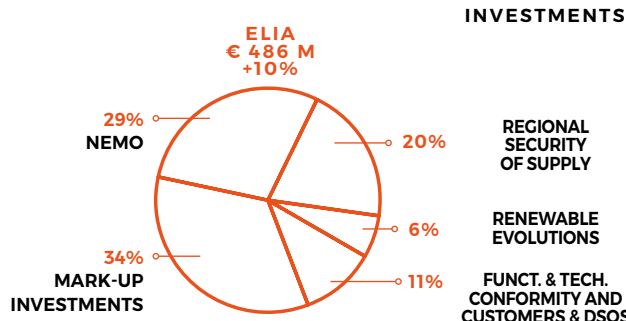
malised net profit benefited from limited damage to electrical installations (up €1.0 million).

In **Germany**, the normalised net profit increased considerably on the back of a strong operational performance. After peaking in the maintenance activity cycle in 2016, due in part to substantial damage to electrical installations, and thanks to the containment of operating costs, following the launch of an efficiency programme, operational costs declined significantly in 2017 (up €72.4 million). Furthermore, there was increased investment cost coverage as a result of both onshore and offshore investment activities (up €38.7 million). These effects were partly offset by higher depreciations (down €11.5 million) following commissionings that occurred during 2017. Together with higher taxes, this all resulted in a normalised net profit of €180.1 million for the German activities.

Taking into account the non-recurring items, which were slightly higher than in 2016, the **reported Elia Group net profit** increased by 27.4% to €229.1 million.

## Capital expenditures

By expanding international connections and integrating ever-increasing amounts of renewable energy generation, the Elia Group promotes both the integration of the European energy market and the decarbonisation of our society. In 2017, progress was made on a number of strategic investment projects.



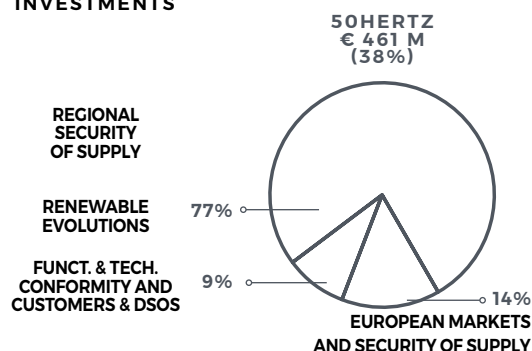
In **Belgium**, the **Stevin project** was officially inaugurated in November. Stevin will carry energy inland from the future offshore wind farms and from 2019 will enable the exchange of energy with the United Kingdom via the subsea interconnector Nemo Link.

**Nemo Link**, a joint venture between Elia and the British system operator National Grid, started laying the first 59 km of sub-sea cable in mid-2017. Since then, electrical works have started in Richborough (UK) and Bruges (BE) for the converter stations. Nemo Link commissioning is scheduled for Q1 2019.

Elia also obtained some important permits in 2017. Work can continue in 2018 on the second phase of the **Brabo project** to upgrade the grid around the Port of Antwerp, and on construction of **ALEGrO**, the first interconnector with Germany. The 90-km underground HVDC connection (of which 49 km is in Belgium) is being built in partnership with the German system operator Amprion.

Another important milestone was the approval of the bill for the **Modular Offshore Grid** in the federal parliament cancelling the option for offshore wind farm developers to connect directly to the shore. As a result of this law, any current concession holder for an offshore wind farm without a direct connection permit will have no choice but to connect to the Modular Offshore Grid. Located around 40 km off the coast, this offshore switch yard is important for the further development of an offshore grid in the Belgian

## INVESTMENTS



North Sea. It will bundle together the cables from the new offshore wind farms and connect them to the mainland.

In **Germany**, the full commissioning of the 200-km **South-West Coupling** Line between Saxony-Anhalt and Bavaria was a major highlight, marking the culmination of more than 10 years of project development. The 380-kV line is intended to ensure a reliable power supply for Bavaria following Germany's nuclear power phase-out. The new line between the north-east of Germany and Bavaria decreases congestion on the grid and generates important savings in redispatch measures, to the benefit of end consumers.

50Hertz also made major progress on the offshore projects **Ostwind 1** and **Combined Grid Solution**. In the 90-km offshore grid connection project Ostwind 1, the laying of the first and second cable system was completed. This means that the Wikinger wind farm can be connected to the grid, according to the agreed schedule. Combined Grid Solution is a joint project with the Danish system operator Energinet and will be the world's first interconnector between two offshore wind farms: the Kriegers Flack (DK) and Baltic 2 (DE) projects, which are located barely 30 km apart. Commissioning is scheduled to take place from late 2018.

50Hertz also commissioned a number of **transformer substations** in 2017, at Wolmirstedt, Heinersdorf and Altentreptow, as well as successfully running a trial operation for phase-shifting transformers in Röhrsdorf on the border with the Czech Republic.

## Net debt & credit metrics

(IN € MILLION)	2016	2017
Net debt	2,557.3	2,689.1
Leverage (D/D+EQ)	0.52x	0.52x
Net debt / EBITDA	6.0	5.7
EBITDA / Gross interest	4.7	5.8
Average cost of debt	3.06%	2.92%
% fixed of gross debt	89.0%	82.51%

The **net financial debt** increased slightly to €2,689.1 million (up 5.2%). Elia's sizeable CAPEX programme, 10% bigger than in 2016, was financed mainly by cash flows generated from operating activities (€370.2 million), the proceeds from the sale of 2.8 million green certificates to the Walloon Region leading to a cash inflow of €176.2 million and profit reservation from prior years. In addition, Elia Transmission issued a €250 million Eurobond in late March 2017.

The average cost of debt has further decreased as a result of a repayment of a €500 million bond in April 2016.

## Elia Transmission in Belgium

(IN € MILLION)	2016	2017
Total revenues	868.1	887.5
EBIT	219.6	236.5
Normalised EBIT	214.7	236.5
Net finance costs	(82.9)	(76.5)
Net profit	104.5	121.0
Normalised net profit	99.8	108.6
Total assets	5,463.6	5,765.1
Total equity	1,999.1	2,075.0
Net financial debt	2,557.3	2,689.1
Free cash flow	98.8	(32.8)

**Elia Transmission's revenue** increased by 2.2% compared with the same period the previous year, to €887.5 million. The increase in revenues is a result of a higher allowed regulated net profit, higher depreciations and higher taxes that are passed through into revenues. These increases were partly offset by lower costs, mainly for ancillary services and financing, which are all passed through into revenues to the benefit of consumers, and the lower revenues generated by Elia Grid International (EGI).

The **reported EBITDA** (up 5.1%) and **EBIT** (up 7.7%) were mainly impacted by increased regulated net profit, higher depreciations, lower financing costs to be passed on in the tariffs, partly offset by the lower contribution from EGI and the lower result of equity-accounted investments. As no non-recurring items were recognised in EBIT compared to 2016, the **normalised EBIT** increased more sharply by 10.2%.

In addition to this net **finance costs** (down 7.7%) fell by €6.4 million compared with 2016, mainly due to the repayment of a €500 million bond in April 2016. Also, with the settlement of the fiscal claim in 2016 and the cash inflow of €176.2 million following the purchase of 2.8 million green certificates by the Walloon Region in September 2017, the financing was limited to the issuance of a €250 million Eurobond. Owing to strong investor interest and low market interest rates,

the Eurobond had a coupon of 1.375%. The lower lending costs are entirely to the benefit of consumers, in accordance with the regulatory framework.

This resulted in an increased **reported net profit** of €121.0 million (up 15.8%), excluding the non-recurring items a **normalised net profit** of €108.6 million (up 8.8%).

**Total assets** increased by 5.5% to €5,765.1 million, mainly as a result of the investment programme. The **equity** increased mainly as a result of the reservation of the 2017 profit and payment of dividends for 2016. Elia Transmissions ended the year with negative free cash flow of €32.8 million.

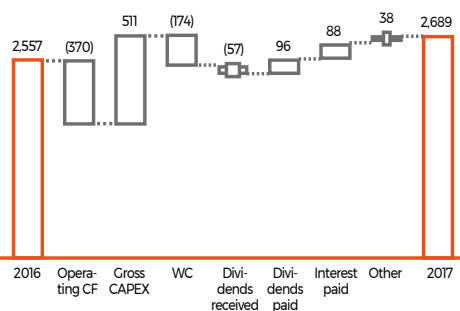
## 50Hertz Transmission in Germany

(IN € MILLION)	2016	2017
Total revenues	1,291.2	1,330.2
EBIT	237.2	321.7
Normalised EBIT	220.5	321.5
Net finance costs	(55.4)	(54.4)
Net profit	125.6	180.2
Normalised net profit	113.8	180.1
Total assets	5,663.6	6,196.0
Total equity	1,296.4	1,385.4
Net financial debt	1,623.5	1,435.6
Free cash flow	(593.3)	283.8

**50Hertz Transmission's revenue** increased by 3.0% compared with 2016. This was the result of increasing revenues following the increased onshore and offshore investments, as well as higher other revenues.

The **EBITDA** increased to €471.8 million (up 25.4%) mainly as a result of both the onshore and offshore investment activities (up €38.7 million) and lower operational expenditures (up €72.4 million). The material costs dropped significantly mainly due to lower maintenance costs, after reaching the peak in the maintenance activity cycle in 2016. Furthermore, with the substantial investment programme and lower maintenance activities, a higher portion of personnel cost could be allocated to

### 2017 NET DEBT EVOLUTION



new investments, leading to higher own work capitalised revenues compared to 2016. **Normalised EBIT** (up 45.8%) was further impacted by the increased depreciations as a result of the commissioning of the Southwest Coupling Line and North Ring during 2017. Taking into account the non-recurring energy bonus realised in 2017 (€4.8 million), which decreased

compared to 2016 (€7.6 million), and the non-recurring regulatory settlements (-€4.6 million), the **reported EBIT** came in at €321.7 million.

**Total assets** increased by 9.4% to €6,196.0 million, mainly due to a favourable development of the EEG cash and the investments made.

50Hertz ended the year with a positive **free cash flow** of €283.8 million linked to the positive EEG cash flows and the remuneration of the 2015 energy costs, recovered in 2017. Consequently, the **net financial debt** decreased to €1,435.6 million compared to the end of 2016. The net debt includes an EEG cash position of €775.7 million.

## Non-recurring items - reconciliation table

(IN € MILLION) - PERIOD ENDED 31 DECEMBER 2017	ELIA TRANSMISSION	50HERTZ TRANSMISSION 100%	CONSOLIDATION ENTRIES	ELIA GROUP
<b>EBIT - Non-recurring items</b>				
Regulatory settlements prior year	0.0	(4.6)	4.6	0.0
Equity consolidation 50Hertz (60% net profit)	0.0	0.0	0.1	0.1
Energy bonuses	0.0	4.8	(4.8)	0.0
<b>Total EBIT non-recurring items</b>	<b>0.0</b>	<b>0.2</b>	<b>(0.1)</b>	<b>0.1</b>
Impact tax reform on deferred tax	12.4	0.0	0.0	12.4
Tax impact	0.0	(0.1)	0.1	0.0
<b>Net profit - non recurring items</b>	<b>12.4</b>	<b>0.1</b>	<b>(0.1)</b>	<b>12.5</b>

(IN € MILLION) - PERIOD ENDED 31 DECEMBER 2016	ELIA TRANSMISSION	50HERTZ TRANSMISSION 100%	CONSOLIDATION ENTRIES	ELIA GROUP
<b>EBIT - Non-recurring items</b>				
Regulatory settlements prior year	8.1	9.1	(9.1)	8.1
Reversal IFRS adjustment prior year not covered via tariffs	(3.1)	0.0	0.0	(3.1)
Equity consolidation 50Hertz (60% net profit)	0.0	0.0	7.1	7.1
Energy bonuses	0.0	7.6	(7.6)	0.0
<b>Total EBIT non-recurring items</b>	<b>4.9</b>	<b>16.7</b>	<b>(9.6)</b>	<b>12.0</b>
Impôt lié	(0.2)	(4.9)	4.9	(0.2)
<b>Net profit - non recurring items</b>	<b>4.7</b>	<b>11.8</b>	<b>(4.7)</b>	<b>11.8</b>

Following the approval of the legislation implementing the corporate income tax reform in late December 2017, Elia Transmission re-assessed its deferred tax assets and liabilities according to the new future tax rates that apply to the period when the asset will be realised or the liability will be settled, leading to a non-recurring result of €12.4 million for the period.

At 50Hertz Transmission these items are mainly linked to the energy bonus related to the management of energy cost compliant to the Korridor model and a regulatory settlement mainly to the treatment of building cost subsidies.

# Consolidated financial statements

## Consolidated statement of profit or loss

(IN € MILLION) - YEAR ENDED 31 DECEMBER	NOTES	2017	2016
<b>Continuing operations</b>			
Revenue	(6.1)	828.5	800.1
Raw materials, consumables and goods for resale	(6.3)	(9.6)	(18.8)
Other income	(6.2)	59.0	68.0
Services and other goods	(6.3)	(344.4)	(336.6)
Personnel expenses	(6.3)	(147.2)	(143.9)
Depreciation, amortisation and impairment	(6.3)	(131.2)	(124.8)
Changes in provisions	(6.3)	0.4	(5.3)
Other expenses	(6.3)	(19.6)	(22.1)
<b>Results from operating activities</b>		<b>235.9</b>	<b>216.6</b>
Share of profit of equity-accounted investees (net of tax)	(5.1- 5.2)	108.7	78.4
<b>EBIT*</b>		<b>344.6</b>	<b>295.0</b>
<b>Net finance costs</b>	(6.4)	<b>(76.5)</b>	<b>(82.8)</b>
Finance income		5.5	7.0
Finance costs		(81.9)	(89.9)
<b>Profit before income tax</b>		<b>268.2</b>	<b>212.2</b>
Income tax expense	(6.5)	(39.1)	(32.0)
<b>Profit from continuing operations</b>		<b>229.1</b>	<b>180.2</b>
<b>Profit for the period</b>		<b>229.1</b>	<b>180.2</b>
<b>Profit attributable to:</b>			
Owners of the company		229.1	179.9
Non-controlling interest		0.0	0.3
<b>Profit for the period</b>		<b>229.1</b>	<b>180.2</b>
<b>Earnings per share (EUR)</b>			
Basic earnings per share	(6.6)	3.76	2.95
Diluted earnings per share	(6.6)	3.76	2.95

\* EBIT (Earnings Before Interest and Taxes) = Results from operating activities and share of profit of equity-accounted investees, net of income tax.  
The accompanying notes form an integral part of these consolidated financial statements.

## Consolidated statement of profit or loss and comprehensive income

(IN € MILLION) - YEAR ENDED 31 DECEMBER	NOTES	2017	2016
<b>Profit for the period</b>		<b>229.1</b>	<b>180.2</b>
<b>Other comprehensive income (OCI)</b>			
<b>Items that may be reclassified subsequently to profit or loss:</b>			
Effective portion of changes in fair value of cash flow hedges	(6.7)	9.4	8.7
Related tax		(3.2)	(2.9)
<b>Items that will not be reclassified to profit or loss:</b>			
Remeasurements of post-employment benefit obligations	(7.12)	(131.2)	(124.8)
Equity-accounted investees - share of OCI		1.1	(0.6)
Related tax	(7.12)	2.3	(0.4)
<b>Other comprehensive income for the period, net of tax</b>		<b>(4.1)</b>	<b>6.0</b>
<b>Total comprehensive income for the period</b>		<b>225.0</b>	<b>186.2</b>
<b>Total comprehensive income attributable to:</b>			
Owners of the company		225.0	185.9
Non-controlling interest		0.0	0.3
<b>Total comprehensive income for the period</b>		<b>225.0</b>	<b>186.2</b>

The accompanying notes form an integral part of these consolidated financial statements.

## Consolidated statement of financial position

(IN € MILLION)	NOTES	31 DECEMBER 2017	31 DECEMBER 2016
<b>ASSETS</b>			
<b>NON-CURRENT ASSETS</b>		<b>6,093.3</b>	<b>5,653.9</b>
Property, plant and equipment	(7.1)	3,202.4	2,956.5
Intangible assets and goodwill	(7.2)	1,738.6	1,735.8
Trade and other receivables	(7.4)	147.8	63.0
Equity-accounted investees	(5.1+5.2)	942.7	832.4
Other financial assets (including derivatives)	(7.3)	60.8	65.4
Deferred tax assets	(7.5)	1.0	0.8
<b>CURRENT ASSETS</b>		<b>503.2</b>	<b>587.7</b>
Inventories	(7.6)	13.6	22.6
Trade and other receivables	(7.7)	281.1	379.6
Current tax assets	(7.8)	3.8	2.8
Cash and cash equivalents	(7.9)	195.2	176.6
Deferred charges and accrued revenues	(7.7)	9.5	6.1
<b>Total assets</b>		<b>6,596.5</b>	<b>6,241.6</b>
<b>EQUITY AND LIABILITIES</b>			
<b>EQUITY</b>		<b>2,641.8</b>	<b>2,512.6</b>
Equity attributable to owners of the company	(7.10)	2,640.7	2,511.4
Share capital		1,517.6	1,517.2
Share premium		11.9	11.8
Reserves		173.0	173.0
Hedging reserve		0.0	(6.2)
Retained earnings		938.2	815.6
Non-controlling interest		1.1	1.2
<b>NON-CURRENT LIABILITIES</b>		<b>2,984.5</b>	<b>2,728.0</b>
Loans and borrowings	(7.11)	2,834.7	2,586.4
Employee benefits	(7.12)	84.3	75.1
Derivatives	(8.2)	0.0	9.4
Provisions	(7.13)	20.8	23.3
Deferred tax liabilities	(7.5)	40.9	28.7
Other liabilities	(7.14)	3.8	5.1
<b>CURRENT LIABILITIES</b>		<b>970.2</b>	<b>1,001.0</b>
Loans and borrowings	(7.11)	49.5	147.5
Provisions	(7.13)	4.5	2.4
Trade and other payables	(7.15)	378.6	390.8
Current tax liabilities		2.9	0.5
Accruals and deferred income	(7.16)	534.7	459.8
<b>Total equity and liabilities</b>		<b>6,596.5</b>	<b>6,241.6</b>

The accompanying notes form an integral part of these consolidated financial statements.

## Consolidated statement of changes in equity

(IN € MILLION)	NOTES	SHARE CAPITAL	SHARE PREMIUM	HEDGING RESERVE	FOREIGN CURRENCY TRANSLA- TION	RESERVES	RETAINED EARNINGS	TOTAL	NON- CON- TROLLING INTERESTS	TOTAL EQUITY
Balance at 1 January 2016		1,512.8	10.0	(11.9)	0.1	138.8	763.8	2,413.6	0.8	2,414.4
Profit for the period							179.8	179.8	0.3	180.2
Other comprehensive income net of tax	(6.7)			5.8			0.2	6.0		6.0
<b>Total comprehensive income for the period</b>				<b>5.8</b>			<b>180.0</b>	<b>185.8</b>	<b>0.3</b>	<b>186.2</b>
<b>Transactions with owners, recorded directly in equity</b>										
<b>Contributions by and distributions to owners</b>										
Shares issued	(7.10)	3.5	1.8					5.3		5.3
Share-based payment	(6.3)	0.9						0.9		0.9
Transfer to legal reserve	(7.10)					34.3	(34.3)			
Dividends	(7.10)						(94.1)	(94.1)		(94.1)
<b>Total contributions and distributions</b>		<b>4.4</b>	<b>1.8</b>			<b>34.3</b>	<b>(128.4)</b>	<b>(88.0)</b>		<b>(88.0)</b>
<b>Total transactions with owners</b>		<b>4.4</b>	<b>1.8</b>			<b>34.3</b>	<b>(128.4)</b>	<b>(88.0)</b>		<b>(88.0)</b>
<b>Balance at 31 December 2016</b>		<b>1,517.2</b>	<b>11.8</b>	<b>(6.1)</b>	<b>0.0</b>	<b>173.0</b>	<b>815.5</b>	<b>2,511.4</b>	<b>1.2</b>	<b>2,512.6</b>
Balance at 1 January 2017		1,517.2	11.8	(6.1)	0.0	173.0	815.5	2,511.4	1.2	2,512.6
Profit for the period	(6.7)						229.1	229.1	0.0	229.1
Other comprehensive income net of tax	(6.7)			6.2			(10.3)	(4.1)		(4.1)
<b>Total comprehensive income for the period</b>				<b>6.2</b>			<b>218.8</b>	<b>225.0</b>	<b>0.0</b>	<b>225.0</b>
<b>Transactions with owners, recorded directly in equity</b>										
<b>Contributions by and distributions to owners</b>										
Shares issued	(7.10)	0.2	0.1					0.3		0.3
Share-based payment	(6.3)	0.1						0.1		0.1
Transfer to legal reserve	(7.10)									
Dividends	(7.10)						(96.2)	(96.2)		(96.2)
<b>Total contributions and distributions</b>		<b>0.3</b>	<b>0.1</b>				<b>(96.2)</b>	<b>(95.8)</b>		<b>(95.8)</b>
<b>Total transactions with owners</b>		<b>0.3</b>	<b>0.1</b>				<b>(96.2)</b>	<b>(95.8)</b>		<b>(95.8)</b>
<b>Balance at 31 December 2017</b>		<b>1,517.6</b>	<b>11.9</b>	<b>0.0</b>	<b>0.0</b>	<b>173.0</b>	<b>938.2</b>	<b>2,640.7</b>	<b>1.1</b>	<b>2,641.8</b>

The accompanying notes form an integral part of these consolidated financial statements.

## Consolidated statement of cash flows

(IN € MILLION) - YEAR ENDED 31 DECEMBER	NOTES	2017	2016
<b>Cash flows from operating activities</b>			
<b>Profit for the period</b>		<b>229.1</b>	<b>179.9</b>
Adjustments for:			
Net finance costs	(6.4)	76.5	82.9
Other non-cash items		0.1	1.0
Current income tax expense	(6.5)	29.2	12.5
Profit or loss of equity accounted investees, net of tax	(5.1 - 5.2)	(108.7)	(78.5)
Depreciation of PP&E and amortisation of intangible assets	(7.1 - 7.2)	131.4	124.4
Gain on sale of property, plant and equipment and intangible assets	(7.1 - 7.2)	6.5	8.8
Impairment losses of current assets	(6.3)	0.0	0.6
Change in provisions	(6.3)	(5.3)	(1.2)
Change in fair value of derivatives	(8.2)	1.1	1.0
Change in deferred taxes	(7.5)	9.9	19.4
<b>Cash flow from operating activities</b>		<b>369.8</b>	<b>350.9</b>
Change in inventories	(7.6)	9.3	1.3
Change in trade and other receivables	(7.7)	98.2	(61.4)
Change in other current assets	(7.7)	4.8	3.9
Change in trade and other payables	(7.15)	(12.3)	80.5
Change in other current liabilities	(7.14 - 7.16)	74.9	91.2
<b>Changes in working capital</b>		<b>174.8</b>	<b>115.5</b>
Interest paid	(6.4)	(88.4)	(115.6)
Interest received	(6.4)	1.7	56.5
Income tax paid	(6.5)	(27.6)	80.3
<b>Net cash from operating activities</b>		<b>430.3</b>	<b>487.6</b>
<b>Cash flows from investing activities</b>			
Acquisition intangible assets	(7.2)	(10.6)	(9.6)
Acquisition of property, plant and equipment	(7.1)	(369.1)	(388.6)
Acquisition of equity-accounted investees	(5.1)	(57.2)	(25.8)
Proceeds from sale of property, plant and equipment		1.5	3.2
Proceeds from sales of investments	(7.3 - 8.1)	0.0	6.3
Proceeds from capital decrease from equity-accounted investees	(5.1)	0.1	7.2
Dividend received from equity-accounted investees	(5.1 - 5.2)	56.8	57.3
Loans to joint ventures	(7.4)	(84.6)	(38.7)
<b>Net cash used in investing activities</b>		<b>(463.1)</b>	<b>(388.7)</b>
<b>Cash flow from financing activities</b>			
Proceeds from issue share capital	(7.10)	0.4	5.3
Expenses related to issue share capital		0.0	(0.1)
Dividends paid (-)	(7.10)	(96.2)	(94.2)
Repayment of borrowings (-)	(6.4)	(100.0)	(540.0)
Proceeds from withdrawal borrowings (+)	(7.11)	247.2	80.0
Non-controlling interests		0.0	0.3
<b>Net cash flow from (used in) financing activities</b>		<b>51.4</b>	<b>(548.7)</b>
<b>Net increase (decrease) in cash and cash equivalents</b>		<b>18.6</b>	<b>(449.8)</b>
Cash and cash equivalents at 1 January		176.6	626.4
Cash and cash equivalents at 31 December		195.2	176.6
<b>Net variations in cash and cash equivalents</b>		<b>18.6</b>	<b>(449.8)</b>

The accompanying notes form an integral part of these consolidated financial statements.