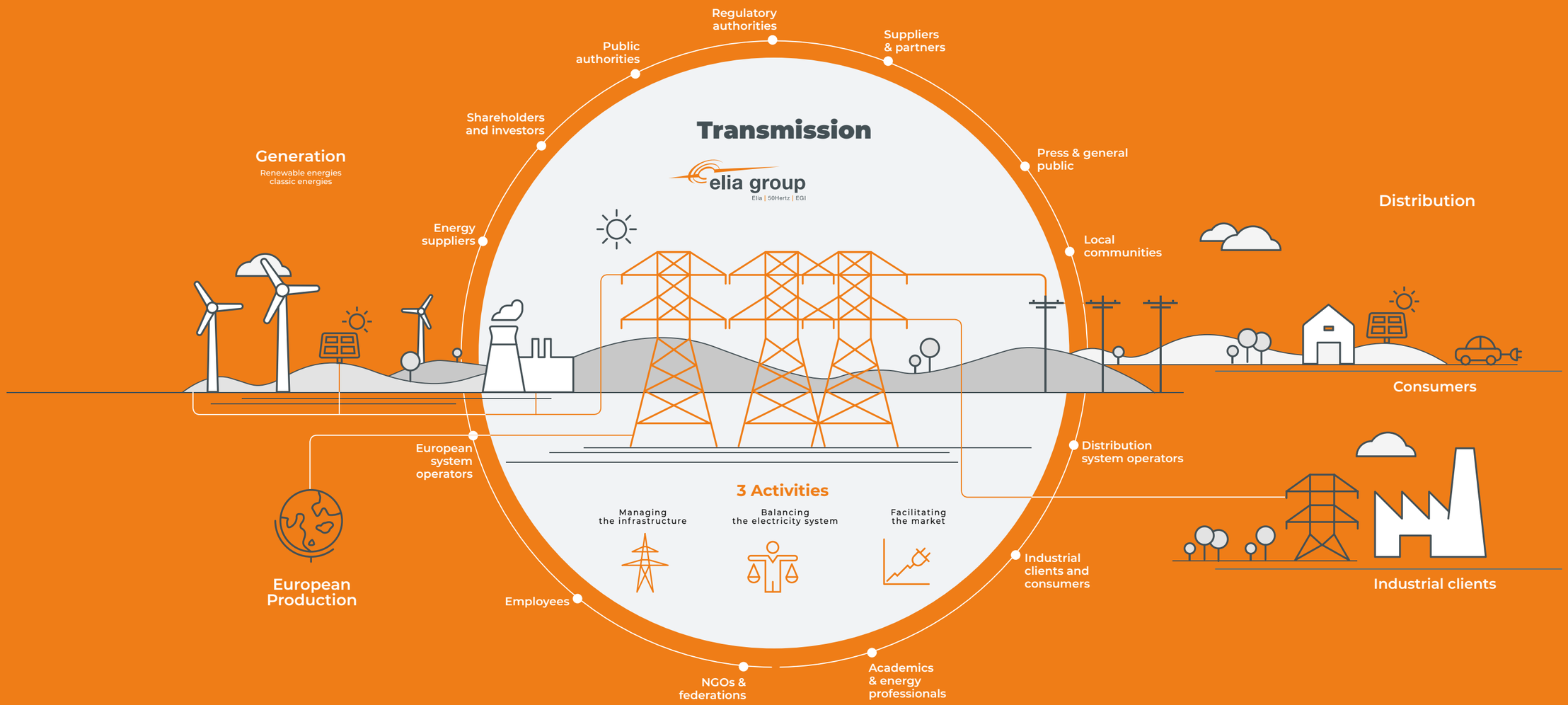
elia group
Elia | 50Hertz | EGI

Accelerating to a net-zero society

Activity Report 2020

We connect generation & distribution



Contents

Accelerating to a net-zero society

The situation is becoming increasingly clear. Urgent measures are needed to keep climate change under control. As system operators in Belgium and Germany, our mission is to realise the climate ambitions of the European Green Deal. We are therefore accelerating our investment programme. We are preparing our on- and offshore grid infrastructure for the integration of large volumes of renewable generation in order to electrify our society in a sustainable way. We are increasingly doing this in cooperation with other sectors and other countries. To maintain a reliable electricity system in this rapidly changing context, we are investing heavily in digitalisation. In addition to our social commitments, we are also improving our own internal activities and embedding sustainable practices into our strategy. In this way, we are actively working to accelerate the net-zero society.

Post-COVID recovery policy brings new opportunities

No event in recent history has impacted our society as much as the coronavirus pandemic. And yet, despite the events of 2020, optimism reigns at Elia Group. The European Commission's recovery plans confirm the ambitions of the European Green Deal and focus on greening and digitalisation, two of Elia Group's strategic priorities. Accelerating the energy transition means new opportunities.

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

Anyone looking back at 2020 would be hard-pressed to avoid talking about the coronavirus crisis. How did the Group deal with it?

Chris Peeters: Keeping the lights on is embedded in our corporate culture. We immediately went into crisis mode. Even before the first measures were announced, we had already set up our Corona Task Force. The way our people coped with the restrictions was very impressive. Within 24 hours, all of our office-based teams were working remotely. All project sites were shut down as a precaution, but within a week they were gradually reopened, with more complex projects involving multiple contractors being opened after a thorough analysis.

Bernard Gustin: By the end of the year, hardly any of our main projects were experiencing delays. Some shifts were made, but the end result was in line with what we had budgeted and planned for. Unlike other sectors, we have been less impacted financially. Not only did our staff deal very flexibly with the crisis, they also showed a lot of heart. In Belgium we ran a very successful solidarity campaign on behalf of various anti-poverty funds operated by the King Baudouin Foundation. The Board of Directors fully supported this spontaneous initiative.

How can Elia Group contribute to the post-COVID economic recovery?

Chris Peeters: The recovery policy promoted by the European Union is based in part on the European Green Deal. Given that our mission is to work in the interest of society, we have been focusing on our strengths. We have been supporting policymakers with our knowledge and expertise so they can make decisions for a strong recovery policy within a framework that stretches far beyond the bounds of Elia Group. We have been examining four key areas: energy efficiency, the accelerated digitalisation of the energy system, electric mobility and the decarbonisation of our industry. In the areas of energy efficiency and electrification, it's possible to take very big steps forward right away. We also have several post-COVID candidates within our own portfolio. With regard to building infrastructure and digitalisation, there are various things we can quickly promote and enhance.

Bernard Gustin: Unlike in the post-war period, our infrastructure is still intact today. To get the economy back on track, we need to find projects that did not exist before or that are being accelerated. The European Green Deal and the energy transition are particularly important in this regard. At the start of the COVID-19 crisis, no one expected that the accelerated greening of society would feature so prominently in the recovery plans. Elia Group has an important role to play here.

Everything points to the increasing acceleration of the energy transition. What does this mean for Elia Group?

Bernard Gustin: Many companies are finding that their post-COVID strategy is no longer relevant. We can take great comfort in the fact that we chose the right direction a few years ago. Our business model is not up for debate today. Our strategy anticipates social trends such as decentralisation, greening, European integration and digitalisation. The same underlying forces are reflected in the post-COVID recovery plans.

Chris Peeters: This means we are able to even anticipate the required acceleration. This will bring new opportunities and strengthen the Group's growth and development. For example, our study on electric mobility came at just the right time. Today in Germany, we are talking to players in the automotive industry about accelerated implementation. We are also speeding our activities up with regard to market forces and market operation.

> **By operating in different markets, we can learn from each other and set up innovation projects together that ensure we always stay one step ahead.**
>
> Chris Peeters

As we follow the path towards a climate-neutral society, it is clear that our seas will become the power plants of the future. How is Elia Group preparing for this?

Bernard Gustin: 50Hertz achieved a major world first with the Combined Grid Solution project in the Baltic Sea. The interconnector between Germany and Denmark also incorporates a wind farm. This hybrid technology increases the efficiency of the transmission cables and will be very important for unlocking offshore wind power generated further out at sea.

Chris Peeters: Countries such as Belgium and Germany will experience a shortage in terms of their own renewable production and will have to source it from outside their national borders. Today we are looking into which infrastructure elements we will need in the long term and how we can anticipate the changes to come in order to have everything ready on time. We don't want to be a bottleneck. But we have not forgotten about the importance of solar energy either. Additional steps need to be taken in digitalisation in order to optimally integrate solar energy into our grid, but the infrastructure has already been greatly expanded. For wind energy, the situation is different.

Extensive electrification is required in order to decarbonise our energy-intensive industries. The Elia Group study on electric mobility has shown how convergence with the mobility sector can lead to a rapid reduction in CO_2 emissions. Do you foresee any other beneficial collaborations?

Chris Peeters: A number of tech companies have contacted us of their own accord. But we're also seeing companies in the steel and chemical industries that want to make their production processes greener. They are asking for our help because they realise that they will have to electrify part of their processes. Ultimately, this will ensure that they have a different relationship with our grid. These companies have a lot of flexibility that can be used to accommodate the variability of renewable energy. On the retail side, we have smart buildings and everything they entail. That too is coming. We've entered into a number of partnerships with companies that are focused specifically on this sector.

New sectors, new stakeholders. What can we learn from them?

Chris Peeters: In working together, we see overlapping problems. The transport sector now better understands that there are grid restrictions when it comes to charging vehicles, but smart charging can be beneficial for both parties. There are also barriers we must overcome on our side. A single unified invoice that bills the right user requires complex integration with our grid. How can we identify who is charging what, when and at what point on the network?

Bernard Gustin: This once again shows that grid operators like Elia and 50Hertz lie right at the centre of the energy system. And that entails new challenges. We need to profile ourselves differently and make sure our services evolve. New business models are emerging on the fringes of ours and they are growing in importance.

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> **We are indeed witnessing more European integration and coordination, and that feels very natural to us.**
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> Bernard Gustin

> **Our industry needs to accelerate. We are working simultaneously on many fronts, each of which has its own stakeholders going at their own pace. In my view, the big challenge for 2021 is convincing everyone of the need to pick up the pace.**
>
> Chris Peeters

What will the energy transition look like after 2030?

Bernard Gustin: In terms of our business, 2030 is just around the corner. The ultimate goal is a climate-neutral European society by 2050. We're still right at the starting point so we've definitely got quite a way to go until we reach end of our story.

Chris Peeters: In the longer term, how do we get enough carbon-free energy to the consumer? We should already be working on that today. We're thinking about the infrastructure, systems and mechanisms needed to seamlessly achieve a climate-neutral society by 2050. In Europe, some countries will experience renewable energy shortages, while others will experience surpluses. Collaborative arrangements can be set up to deal with this. In addition, the EU Hydrogen Strategy must also be considered. Europe as a whole is going to experience an energy shortage, which means some green gas will probably come from outside Europe's borders. And it's also important to prepare for high-stress periods. During long periods with little renewable production, we must have sufficient backup resources.

Energy policy is increasingly being defined at European level. Is this an advantage for the Group, given that it's active in multiple countries?

Bernard Gustin: We are indeed witnessing more European integration and coordination, and that feels very natural to us. We're already an international Group, whereas many other system operators remain quite national in their outlook. In terms of size, we're in the top 5 TSOs in Europe, but in terms of influence, we're in the top 3.

Chris Peeters: There is also the importance of scale to consider. By operating in different markets, we can learn from each other and set up innovation projects together that ensure we always stay one step ahead. 50Hertz's Combined Grid Solution project in the Baltic Sea is the world's first hybrid interconnector. This technology will also be very important for future projects in the North Sea – but it also works the other way around. As part of the Belgian-German ALEGrO project, Elia integrated a direct current (DC) interconnector into a meshed alternating current (AC) grid for the first time. The same feature will also be included in Germany's north-south corridors, such as in 50Hertz's SuedOstLink project.

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>
> Bernard Gustin

Bernard Gustin: In addition to our technical expertise, we are also known as good partners. That's not always the case with everyone. Just because you're a great national champion, it does not mean you're great at European level. Sometimes you make the right deal, but the integration process is a disaster. Collaboration between Elia and 50Hertz just works and that is widely recognised. In order to become an even stronger multinational group, we've adapted our company structure to remove all obstacles to further growth.

What are your priorities for 2021?

Bernard Gustin: We must ensure our business continues to operate normally against the highly unusual backdrop of the COVID-19 crisis, which is going to drag on for a while. In addition, with our Act Now programme, we are aiming for even more ambitious sustainability goals. It's also important to strike the right balance between executing our ambitious strategy while at the same time being flexible, so as not to miss any opportunities that arise in the rapidly changing context.

Chris Peeters: Our industry needs to accelerate. This is one area where it's important for all stakeholders to have the same level of maturity. We are working simultaneously on many fronts, each of which has its own stakeholders going at their own pace. It's important to have governments, regulators, distribution system operators and the commercial sector on board so that steps are taken in the short term to deliver infrastructure on time, integrate renewable energy and electric cars, support industrial decarbonisation and so on. In my view, the big challenge for 2021 is convincing everyone of the need to pick up the pace.

Lastly, whom would you like to thank?

Chris Peeters: As a crucial sector, we've been able to fulfil our mission to work in the interest of society. Our people have always had confidence in the processes we've established for this purpose. That's why I would like to express my sincere thanks to our employees and our subcontractors.

Bernard Gustin: I couldn't agree more. Our employees are working efficiently under varying circumstances, whether at home, in the field or in our control centres. I'm very proud of their amazing adaptability.

Elia Group at a glance

Regulated Activities

elia

- is the Belgian transmission system operator for high-voltage electricity (30 to 400 kV)
- has a legal monopoly as Belgium's TSO and operates 8,781 km of high-voltage lines
- is responsible for developing, building and operating a robust electricity transmission system, with infrastructure onshore and offshore
- is responsible for developing services and mechanisms with a view to developing the electricity market at national and European levels

Nemo Link®

- is a joint venture between Elia and National Grid
- marks a crucial step forward in the integration of the electricity grid between continental Europe and the UK
- has been in operation since 30 January 2019, under its own regulatory framework (cap & floor)

50hertz

- is one of Germany's four TSOs and is responsible for ensuring a secure supply of electricity for 18 million people in northern and eastern Germany
- has a grid that covers an area greater than 109,360 km² and runs a length of around 10,380 km
- is responsible for developing, building and operating the 150 to 380 kV transmission grid, with infrastructure both onshore and offshore
- is a leader in the secure integration of renewable energies, with over 62% renewables successfully incorporated within its 50Hertz grid

Non-Regulated Activities

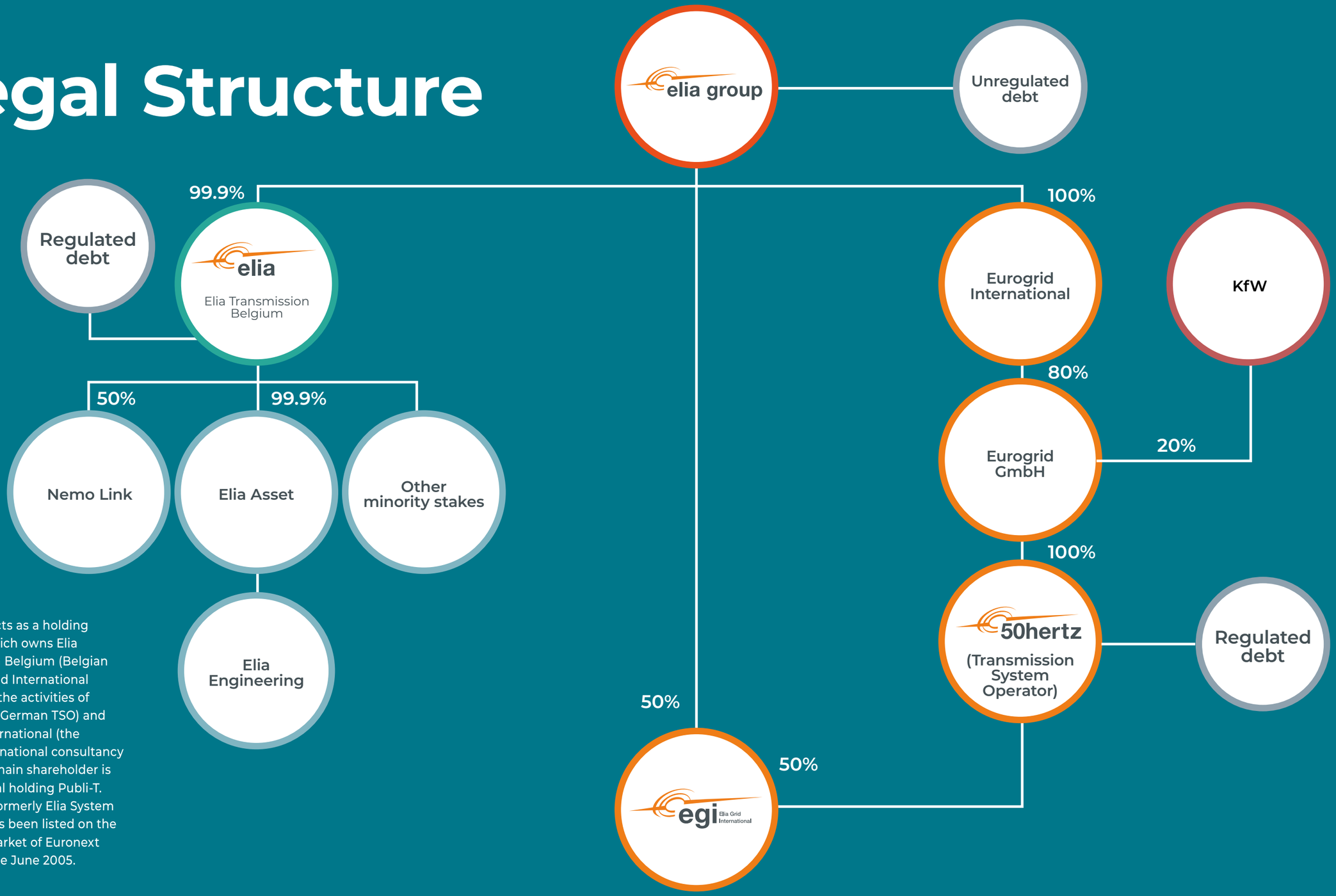
egi

- offers support and consultancy services to government bodies, utilities and other key players around the world seeking support for the design and implementation of future projects in the power sector
- provides advisory services in asset management, system operations, grid development and RES integration

re.alto

- is Elia Group's very own corporate start-up to accelerate digitalisation of the energy sector
- is the first European marketplace to allow the exchange of energy data, digital products and services via standardised energy APIs
- makes energy data easy to access and integrate, enabling the industry to take a giant digital step forward towards more widespread adoption of Energy-as-a-Service business models, ultimately driving forward a low-carbon energy future

Legal Structure



Elia Group acts as a holding company which owns Elia Transmission Belgium (Belgian TSO), Eurogrid International (comprising the activities of 50Hertz, the German TSO) and Elia Grid International (the Group's international consultancy branch). Its main shareholder is the municipal holding Publi-T. Elia Group (formerly Elia System Operator) has been listed on the regulated market of Euronext Brussels since June 2005.

Corporate bodies

GRI 102-18

Elia Group

Elia Group Management Board





1 **Chris Peeters**
Elia Group CEO

2 **Stefan Kapferer**
50Hertz CEO

3 **Catherine Vandenborre**
Chief Financial Officer

4 **Peter Michiels**
Chief Alignment Officer

5 **Michael von Roeder**
Chief Digital Officer

50Hertz in Germany

Executive Committee





1 **Stefan Kapferer**
50Hertz CEO

2 **Dr. Frank Golletz**
Chief Technical Officer

3 **Dr. Dirk Biermann**
Chief Markets & System Operation Officer

4 **Marco Nix**
Chief Financial Officer

5 **Sylvia Borcherding**
Chief Human Resources Officer

Elia in Belgium

Executive Committee








1 **Chris Peeters**
Chief Executive Officer and Chairman

2 **Catherine Vandenborre**
Chief Financial Officer

3 **Marcus Berger**
Chief Infrastructure Officer

4 **Patrick De Leener**
Chief Customers, Market and System Officer

5 **Frédéric Dunon**
Chief Asset Officer

6 **Pascale Fonck**
Chief External Relations Officer

7 **Peter Michiels**
Chief Human Resources and Internal Communication Officer

8 **Ilse Tant**
Chief Community Relations Officer

*In February 2021, Patrick De Leener and Frédéric Dunon swapped positions to make optimal use of the experience and skills of both managers.

Four major trends that will shape the future of the energy sector

Transmission system operators (TSOs) Elia and 50Hertz are leading the way in the energy transition by developing and implementing innovative technologies to build the infrastructure of the future. Responding to social and political demands for the decarbonisation of the energy sector, we are harnessing innovation to deliver on our mission of providing reliable, sustainable and affordable energy to all of our end consumers.
The energy landscape is undergoing a fundamental transformation. Increasing reliance on renewable energy sources, decentralised production and growing electrification are the way of the future, but they raise significant challenges for the energy system and its stakeholders. As a result, transmission and distribution system operators will need greater flexibility and innovative solutions to keep the system in balance and ensure a reliable, affordable and sustainable energy supply.

Decarbonisation of the energy sector

The decarbonisation of the energy sector and increasing reliance on renewables constitute an irreversible paradigm shift for the European energy system. Recognition of the need to combat climate change has not only gained social momentum, but has also prompted governments to set ambitious targets. The European Green Deal recently raised the 2030 emission reduction target to 55% (compared with 1990) and aims for climate neutrality by 2050. The trend towards an increasing share of renewables – solar, wind and green generation facilities such as offshore wind farms – is also driven by the rapid development and declining costs of renewable technologies themselves.

The old energy paradigm of centralised energy generation is soon to be a thing of the past. As the share of renewables accelerates, the distribution of energy over the electricity grid will have to change entirely in order to manage the myriad new sources of decentralised energy generation. The grid infrastructure will need to adapt accordingly.

Decentralisation and new market players

The trend towards decarbonisation will entail a proliferation of new, decentralised market players powered by technological innovations. This will lead to the increasing fragmentation of the energy sector into dispersed, smaller and local generation sources (such as electric vehicles, battery storage and heat pumps). Managing the operations of a complicated system of energy production will require increased flexibility on the part of TSOs. Operating a grid with thousands if not millions of decentralised resources will demand new strategies to integrate them into a reliable and efficient system. Greater flexibility and increasing digitalisation will be needed on behalf of service providers to keep the system balanced, as the role of conventional power plants and centralised distribution diminishes.

Digital transformation

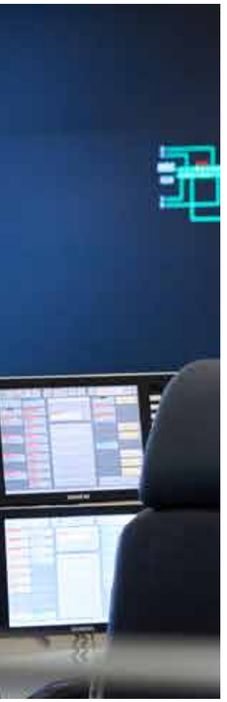
The energy transition and the digitalisation of the sector are well underway and are set to accelerate in the years ahead. We expect to see massive amounts of renewables coming online at all levels of the grid, along with increasing electrification, fragmented production and more international cooperation. Tackling this increasing complexity will require technological innovations to maintain a reliable and affordable energy supply.

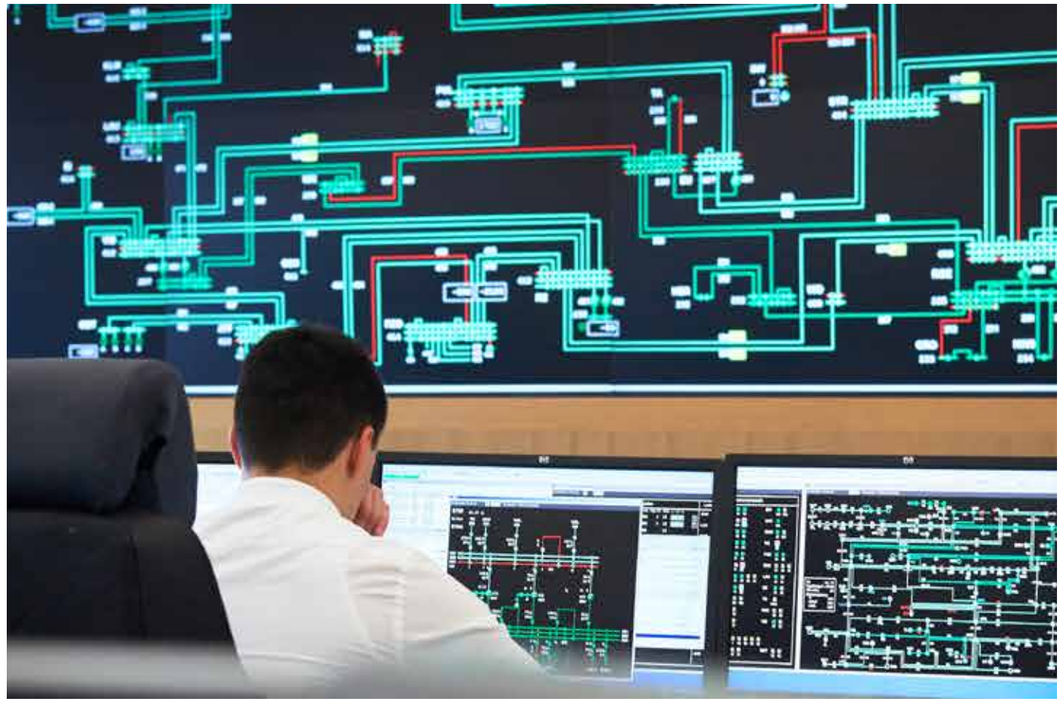
Elia Group believes a new way of managing the future power system is required in order to maximise the benefits of the energy transition. This will be enabled by digitalisation, which will connect all electrical devices and players across the system. The emergence of new digital technologies such as artificial intelligence (AI), blockchain, cloud computing and the Internet of Things will enhance our capabilities for gathering, transferring, processing and visualising data, and will increasingly automate the management of the power system. Indeed, we believe that successful innovation should encompass our sector's entire value chain: from asset management to system operation and market facilitation.

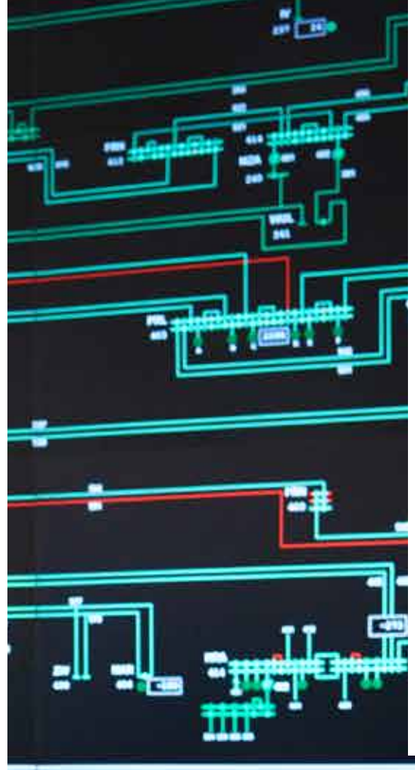
Supranational coordination

While the first two trends will yield a wealth of opportunities, they also introduce significant challenges. The growing share of renewables and increasingly decentralised energy generation from multiple market players are making the power system increasingly variable and complex. Across Europe, we are already seeing grid infrastructure lag behind rapidly evolving renewable generation. This is causing congestion problems and considerable 'redispatching' costs in some European countries, whose power markets are interconnected and integrated. Responding to these challenges often requires a supranational response to ensure the efficient and affordable flow of green energy from production to consumption centres.

Our Story







Elia Group connects

Electricity is at the heart of what we do. As one of Europe's top f ive transmission system operators (TSO), we ensure that over 30 million end users have access to reliable and increasingly renewable electricity. We operate 19,276 km of high-voltage connections while balancing generation and consumption.

What We Do

Developing infrastructure

Keeping energy and consumers connected requires long-term investment in an efficient, safe and reliable grid infrastructure. Ensuring we are able to meet not only today's needs, but the needs of future generations as well, means developing and integrating renewable resources, such as offshore high-voltage grids. Upgrading existing structures, such as interconnectors, means energy reaches the market more quickly and efficiently.

Connecting markets

We strive for a connected and efficient grid, reflected in an integrated European market. Elia Group cooperates objectively and transparently with all market players. We employ the latest technological advances and create new ones where we see opportunities to optimise the transmission and distribution of energy while managing consumption demands.

Operating systems

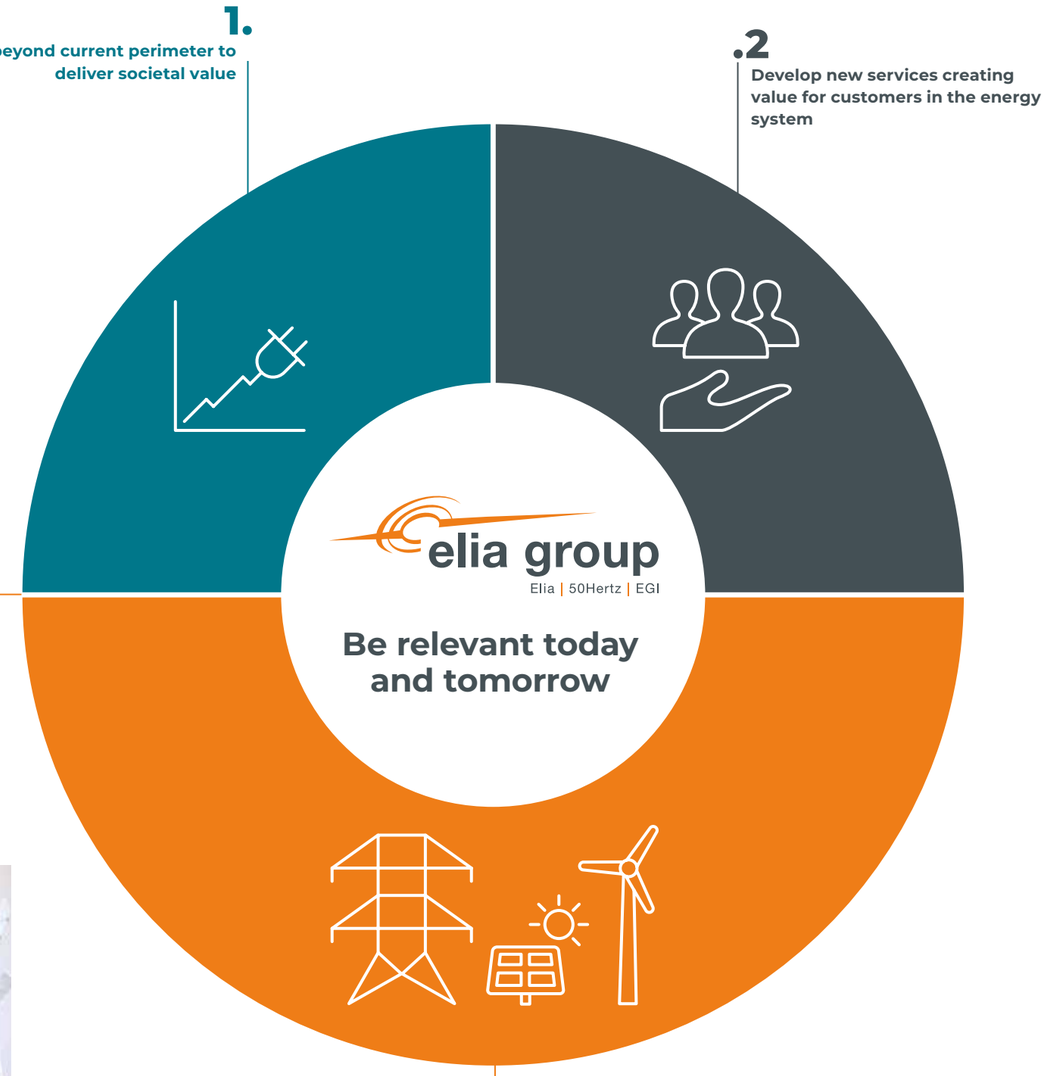
Balancing and coordinating an international, multi-sourced and connected grid with rapidly changing technologies and increasing demand is critical. To do this, Elia Group deploys and develops state-of-the-art processes and tools to monitor the grid in real time, all the time.

50Hertz Partnership

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

Our strategy

Elia Group is well on the way to becoming a leading European TSO, working towards a successful energy transition for a sustainable world. However, as the energy landscape changes at an ever-faster pace, new and bigger challenges emerge. For Elia Group, this means that in order to remain relevant tomorrow, we have to continue improving our core activities today, delivering reliable services at an affordable price and at an accelerating pace in order to fulfil our societal mission. To that end, Elia Group will continue to build upon its three pillars of growth.



Our three strategic pillars

1.

Grow beyond current perimeter to deliver societal value

Against a backdrop of increasing European integration, we are actively shaping growth opportunities that will leverage our expertise and developing the new skills required to ensure a successful energy transition.

2.

Develop new services creating value for customers in the energy system

We are providing the European market with digital tools to accelerate innovation in the energy sector, create energy services and initiate sector convergence by lowering barriers in our industry.

3.

Deliver the infrastructure of the future & develop and operate a sustainable power system

We are building the infrastructure of the future in Belgium and Germany and transforming our core business in order to become a digital transmission system operator. This is enabling the energy transition in our home markets.

Act Now

ACT NOW FOR A SUSTAINABLE WORLD

For a sustainable future

Elia Group as an enabler of the energy transition

Climate change is one of the main challenges of the 21st century. Decarbonising the energy system is a must to keep the global average temperature increase well below 2°. The electricity sector carries a lot of decarbonisation potential. Electricity as an energy carrier is today already the most cost-efficient solution in most sectors. Further electrification based on RES integration is hence the most efficient way to realise the energy transition.

As Elia Group, we are at the centre of the electricity system. We are thus well-placed to identify the levers necessary for the realisation of the decarbonisation of the power system. *By doing so, we believe that we, together with all other actors involved in the energy transition, will provide society with value-for-money power to fuel business and live.*"

We believe that, given our unique position and role as facilitator of the electricity market, we should deliver an effective contribution to the decarbonisation of the electricity sector. We are achieving this through developing activities that today are within the realms of possibility and that will make a difference in the successful and efficient realisation of the energy transition.

This ambition is already embedded in our strategy, which focuses on the delivery of CAPEX projects and offshore growth to integrate renewables, on digitalisation and market incentives to support access to flexibility, and in collaboration with several actors to push electrification and facilitate access to renewable energy. Moreover, relevant actions undertaken in that regard will support and contribute to the decarbonisation of our own activities and operations at Elia Group.

> **With our new 50Hertz strategy #from60to-100by2032 and the Elia Group Sustainability Initiative Act Now, we are making a significant contribution to achieving European, national and regional sustainability goals. The fact that investors trust us with regard to our activities, projects and plans under the current regulatory framework in Germany is reflected in the successful placement of our first Green Bond in May 2020.**

Marco Nix,
Chief Financial Officer at 50Hertz

> **It is our belief that through constant innovation and delivering the infrastructure of the future, we will be able to maximise the impact of the energy transition on the reliability and sustainability of the power system. Through the set-up of the Act Now programme, we will ensure that we are setting the right priorities in our strategy and our internal processes, linking back to sustainability goals, and that we are reinforcing a sustainability mindset inside our companies.**

Ilse Tant,
Chief Community Relations Officer a Elia

Integration of the Sustainable Development Goals (SDG)

As early as 2018, we started integrating the Sustainable Development Goals (SDG) into our strategy.

As a company providing a service for society, we are keenly aware of our social responsibilities and strive to build a more sustainable world through our approach, decisions, and actions. This includes all of our internal processes like maintenance, engineering, grid development and the purchase of assets. We want to embed CO_2 reduction and sustainable decision-making in our DNA. We will increase our focus on the environmental impact of our activities, even though this will mean adding an additional layer of complexity to our decision-making processes and approach. Since good decision-making in a complex environment requires considering issues from multiple perspectives, increasing diversity across the company will enable us to cope with this complexity. Attracting talent and motivating and enabling people to contribute their best to our common targets are key to our success and to achieving sustainable performance. Our employees, suppliers and other stakeholders are valuable assets; we work hard to safeguard their health and safety and protect them from discrimination.

Our culture fosters sustainable behaviour, which in turn supports our long-term strategy and ensures that the interests of society are met. Naturally, we fulfill all relevant laws, regulations, and necessary controls.

In order to meet our strategic ambitions, we will set up concrete and measureable actions to ensure that a sustainable approach is embedded across Elia Group's activities. We will continuously reassess our daily activities so that sustainability becomes a compass for our organisation, as we aim to build a more sustainable world.

Elia Group's lighthouse ambitions

With our Elia Group sustainability initiative Act Now in 2020, we defined concrete measurable targets related to how we will embed sustainability in our business processes along our value chain in the coming years. We will focus specifically on five fields of action – our so-called lighthouse ambitions:

You can read the full overview of our sustainability policy in the Elia Group Sustainability Report 2020.

"At both Elia and 50Hertz, the interest and motivation of our colleagues for this group programme are strong. The journey to become a sustainable company started and the challenge is great and exciting. Thanks to the Act Now programme, sustainability will be part of the DNA of our company."

Igor Lefebvre,
Head Environment & CSR at Elia

- 40 years young
- started at Elia in 2017
- lives and works in Belgium

Concrete examples

- SF_6, a gas used to insulate electric lines, is very harmful to the environment. We are going to monitor leaks more strictly. In the future, we will also build stations where SF6 is no longer needed.
- We encourage our employees to opt for sustainable mobility solutions: public transport and/or cycling. We are also going to green our own fleet. Old diesel cars will be replaced by electric vehicles.
- The hardware of our installations (pylons, cables, etc.) currently consists largely of non-recycled materials. We expect our major suppliers to offer sustainable alternatives within 10 or 15 years. Their R&D departments are working hard on this.
- We have 800 substations in Belgium that we have to heat and light. The energy we use for this will be green.

2020 in numbers

Operational

30mio

end Users (Elia Group)

19,276 km

of high voltage lines and cables (Elia Group)

99.99%

reliability of the grid (Elia)

Environmental

1,142 km

inspections were carried out on construction sites (Elia Group)

62%

percentage of renewable energy integration (50Hertz)

411.74km

of birdmarkers installed as of 31/12/2019 (Elia Group)

Financial

€9.7billion

regulatory asset base (Elia group)

€308.1mio

Adjusted Net Profit (Elia Group)

€1.71

gross dividend per share (Elia Group)

Social

291

new hires (Elia Group)

2,723

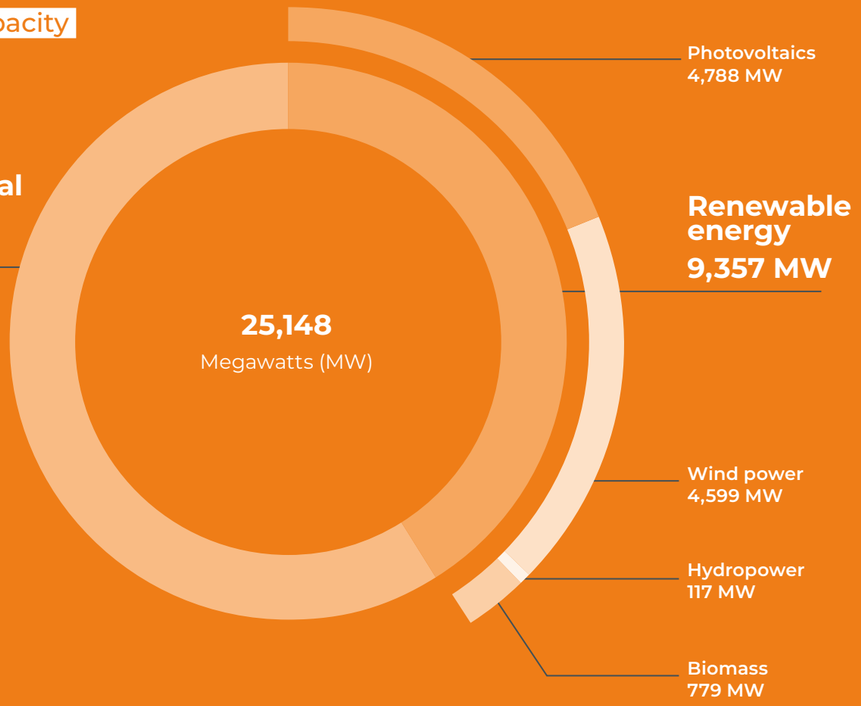
employees (Elia Group)

24

nationalities (Elia Group)

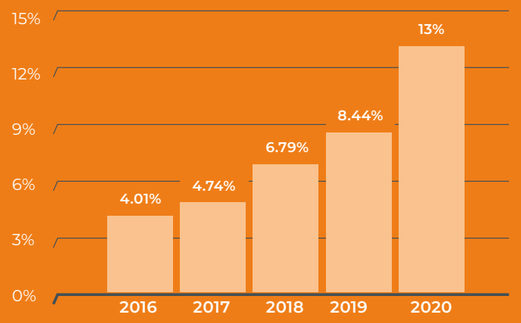
Elia

Installed capacity



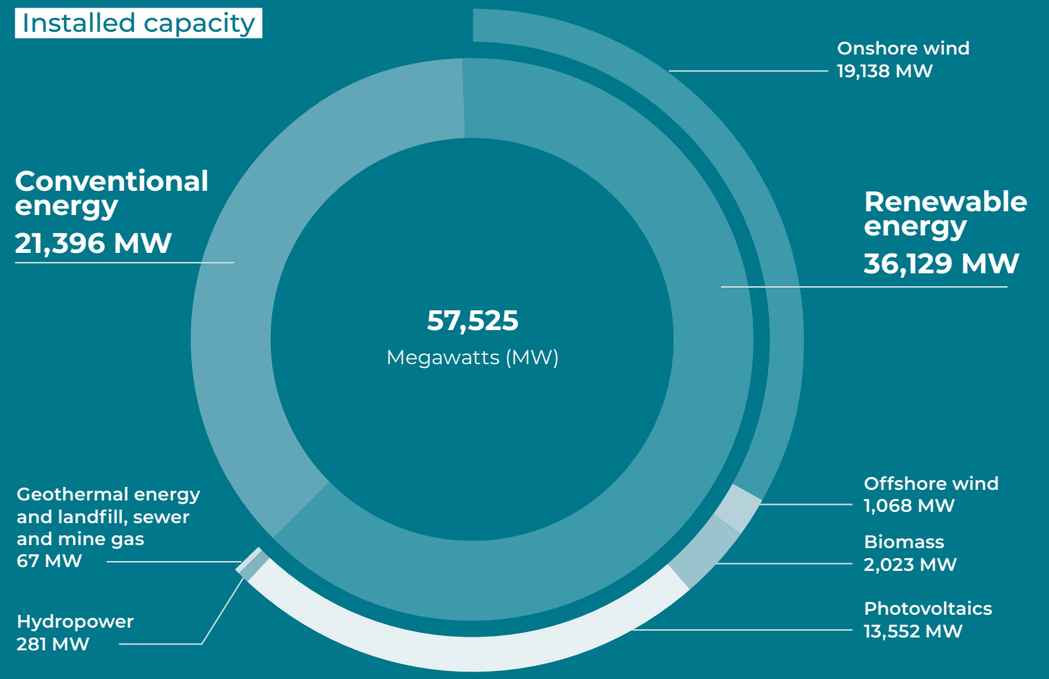
Evolution

Development of the RE share in electric supply in Elia grid area



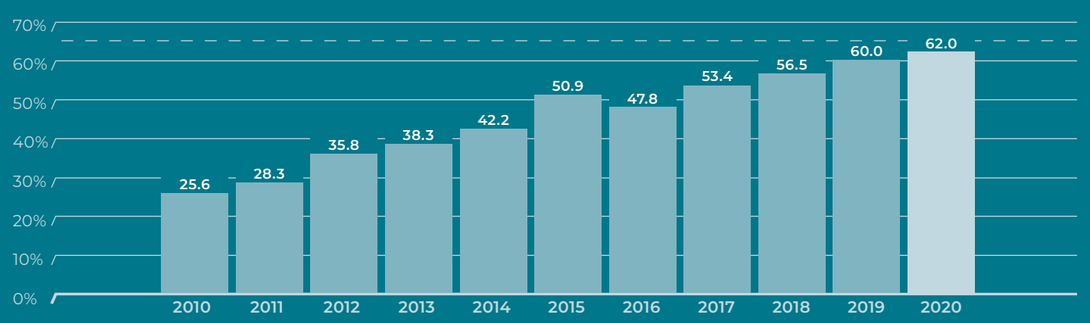
50Hertz

Installed capacity



Evolution

Development of the RE share in electricity supply in 50Hertz grid area



2020 Highlights

2020 was a year of unprecedented challenges. As a provider of crucial services, Elia Group was faced with the difficult task of protecting our staff whilst ensuring business continuity, so that our 30 million end users had ongoing access to a reliable energy supply throughout the pandemic. Despite these challenges, Elia Group employees worked hard to protect and maintain the grid network and successfully deliver a number of ambitious projects. This year's Annual Report therefore reflects their hard work: it focuses on the Group's project highlights and features some of the members of staff who went the extra mile to make them possible – all in the interest of society.

COVID-19

Elia Group's digitalisation strategy and newly established COVID-19 Task Force played key roles throughout 2020, allowing us to ensure business continuity whilst also keeping our staff protected throughout the pandemic. We were safely able to maintain security of supply and engage with our stakeholders, from supporting non-profits to guaranteeing attendance to key meetings and events through virtual means (read more on page 26).

Combined Grid Solution

In October, 50Hertz and Danish system operator Energinet inaugurated the world's first hybrid offshore interconnector, which connects German and Danish wind farms and allows the transmission and trade of energy between both countries. The project has been paving the way for future joint offshore grid projects (read more on page 30).

E-mobility vision paper

Published in November, Elia Group's e-mobility vision paper outlines how better alignment between the power and mobility sectors can deliver important societal benefits. The paper identifies enablers for making both sectors more sustainable whilst enhancing consumers' driving experience, so encouraging the widespread adoption of electric vehicles and ultimately contributing to the decarbonisation of society (read more on page 44).

ALEGrO commissioned

10 years of joint work undertaken by TSOs Elia (Belgium) and Amprion (Germany) culminated in the completion of the ALEGrO interconnector. ALEGrO enhances the security of electricity supply to Belgium and Germany, and better facilitates the integration of renewables into the grid; it will therefore act as key feature of the integrated European electricity system (read more on page 38).

From 60 to 100 by 2032

In July, 50Hertz announced an ambitious new goal for 2032: ensuring that 100% of the electricity carried across its grid is generated by renewables. 50Hertz will continue to work closely with a range of stakeholders, some of whom are already making huge efforts to decarbonize their processes, to explore additional ways of facilitating the transition to a sustainable future (read more on page 50).

The Nest

Elia Group launched the Nest, its digital incubator, in September. It acts as a laboratory, enabling the rapid development, prototyping and testing of ideas related to digital technology – which is key to driving the energy transition. The Nest strengthens Elia Group's commitment to innovation, complementing initiatives such as its *Innovation Week and Open Innovation Challenge*, which are held annually (read more on page 60).

First €750 million Green Bond successfully placed

In May, Eurogrid GmbH – 50Hertz's parent company – issued the first Green Bond in the company's history, securing €750 million which will help finance the grid connections for two offshore wind farms in the Baltic Sea. The bond demonstrates the high degree of confidence the financial markets have in Elia Group's sustainability strategy and investment plans. (read more on page 56).

Elia Group launches re.alto

re.alto, Elia Group's own start-up, was launched in Belgium in September. re.alto is the first European digital marketplace to be built specifically for the exchange of energy data and services. Real-time data can be bought and sold by stakeholders across the value chain, encouraging energy savings, sustainable adjustments and cost-effective measures – ultimately supporting decarbonisation (read more on page 66).

Brabo II enters service

Brabo II, the second of three Brabo sub-projects, has now been completed. The sub-project strengthened the grid infrastructure around the Port of Antwerp, so enabling the importing of more electricity from the Netherlands and responding to growing electricity consumption in the area. Whilst Brabo I and II have now been completed, Brabo III is due for completion in 2024 (read more on page 70).

#COVID-19

The coronavirus pandemic has presented society with profound changes and new challenges. For Elia Group, this means producing in-depth analyses, adapting pandemic plans and acting prudently. Since the Belgian and German authorities consider our activities to be crucial, we prioritised the continuation of our activities in order to ensure business continuity. To supervise this process, an internal task force was set up across multiple departments. Maintaining security of supply and protecting the health and safety of our employees and contractors are our main priorities.

Guarantee of stability in uncertain times

Some 24 hours after the announcement of the first lockdown measures in Belgium (March 2020), 95% of employees were already working from home and all project sites had been shut down. After a short interruption of just a few days, Elia Group gradually resumed on-site project work by implementing modified working methods in close collaboration with our contractors. By the end of the year, the situation across our project sites had all but returned to normal. Project sites in Germany were less impacted by the COVID-19 measures, one of the exceptions being the commissioning of the Combined Grid Solution project, the hybrid interconnector between Germany and Denmark. That project had to cope with travel restrictions imposed on the Danish team members.

Our digitalisation strategy, which had already been consistently pursued before the pandemic, facilitated the rapid transition of the company's employees to working from a home office. With respect to health protection and occupational safety, additional special hygiene measures and occupational safety regulations were introduced on top of existing measures related to the pandemic. Social aspects were also taken into account and employees were offered help for coping with everyday life in this new situation.

"Thanks to the COVID-19 Task Force set up early on, we were able to respond appropriately and flexibly to the new challenges. Within a short period of time, our colleagues on the task force developed a broad set of measures for all sites in coordination with management and communicated recommended actions to all employees. The Task Force continuously adjusted plans in line with changing conditions. Despite the unprecedented situation, we were therefore able to meet our goals on time."

Jeroen François, Head of Task Force Elia

- 42 years young
- started at Elia in 2011
- lives & works in Belgium
- always in for snowboarding, travel & adventure

"In all our considerations and actions, the health of our employees while maintaining operational capability was our top priority. Thus, after the first lockdown ended in 2020, we had to quickly ensure that the necessary measures were implemented in all places: workplaces, construction sites, employee canteens, meeting rooms, lifts and other public areas. Unfortunately, this will remain necessary for some time."

Jochen Müller, Head of Task Force at 50Hertz

- 55 years young
- lives and works in Germany
- started at 50Hertz in 1992
- loves riding his motorbike

Want to know more about the impact of corona on our business? Our colleagues Barbara, Bart and Walter of the taskforce team tell you about their experiences in this video. To watch the video click on this link or simply scan the QR code with the camera your smartphone to start the video.
▸ http://bit.ly/Corona-Taskforce-AR2020

Did you know?

Support for anti-poverty funds

In May, the members of Elia's Management Board unanimously decided to contribute their entire salary for that month to the King Baudouin Foundation in support of its COVID-19 fund for combatting poverty. The Board of Directors and company staff voluntarily followed suit, with a total of €255,000 donated. Back in April, Elia Group contributed the budget set aside for the organisation of its Annual General Meeting to three King Baudouin Foundation solidarity funds, and even topped up the amount to a total of €100,000.

Commitment to social causes

Every year, 50Hertz contributes to social causes in its grid area through donations and sponsorships. We support numerous initiatives, associations and organisations, including the Rennsteig autumn run in the Thuringian Forest, the Baltic Sea relay marathon in Dierhagen, and a large number of local non-profit institutions. Long-standing sponsorship partners continued to receive support during the coronavirus period. In addition to its existing commitments, 50Hertz decided at the end of the year to increasingly support non-profit associations in its grid area via donations instead of Christmas presents for business contacts.

Elia named Top Employer again

Elia was named one of the best employers in Belgium for the third year in a row. The Top Employer label is awarded to companies committed to providing an excellent working environment for their employees. A total of 72 Belgian companies received the distinction this year. Over the past year, Elia has focused strongly on improving the digitalisation of the HR management process and developing its corporate culture. As well as being wonderful recognition for all its hard work, the accolade will also make the company more attractive to new talent.

Top Employer is an important label that we at Elia are very proud of. In this video, our colleague Dorien explains more about the importance of this award. To watch the video click on this link or simply scan the QR code with the camera your smartphone to start the video.
▸ http://bit.ly/TopEmployer-AR2020

Electricity consumption below average

The gradual restriction on activities to prevent the spread of coronavirus had a noticeable impact on electricity consumption in Belgium. Total consumption in 2020 was 7% below the average for the previous five years. As electricity generation was sufficient, but demand was down significantly, the average price of electricity also dropped below normal at times. In Germany, many sectors stayed up and running to a broad extent. The coronavirus measures therefore had a slightly less noticeable impact on the electricity system : electricity consumption dropped by 4% compared with 2019.

We stay connected

Merci² event

On Friday 11 December 2020, more than 700 Elia colleagues took part in Merci², a digital event to thank our employees for the incredible work they have done during this very special year. The event, which included testimonials from colleagues, messages from management and interactive moments, ended with a highlight: the results from Elia employees taking part in the Fit4Charity challenge! Thanks to all the kilometres they travelled on foot or by bike, we raised €12,500 for two cancer support associations: Kom op Tegen Kanker and Télévie.

First virtual Elia Group Management Days 2020

The Elia Group Management Board (EGMB) - formerly the Elia Group Committee (EGC) - invited the Group's German and Belgian senior managers and local functions to discuss the further development of the Group's strategy. During the livestream, the 80 participants were able to engage with EGMB by asking questions and chatting live. The speakers and moderators were in a production studio and the participants were livestreamed using their computers' cameras and sound systems when asking a question, just like reporters in a news broadcast.

Onboarding during the pandemic

In April 2020 alone, 50Hertz welcomed 35 new employees and provided digital onboarding from home. Introductory events and introductions to the various departments took place digitally without any problems. Likewise, digital informal appointments for open discussions within teams also offered colleages new opportunities to get to know each other.

Our colleague Marie-Laure started at Elia the day the schools went into lockdown in Belgium. Marlon, Burak and Fred tell you all about how they got to know the company from home and share their experiences as new Elia Group employees in this video ▸ http://bit.ly/OnboardingCorona

To watch the video click on this link or simply scan the QR code with the camera your smartphone to start the video.

Digital public participation

The early involvement of all stakeholders in the planning and implementation of grid expansion projects was particularly important for 50Hertz, including during lockdown. That's why we increasingly implemented digital formats for informal public participation at the beginning of the year. The information provided on project websites for individual grid expansion projects was expanded and made more user-friendly, and greater use was made of films, visualisations, maps and texts. In addition, telephone consultation hours previously announced in the local press created an additional space for direct exchange with mayors, residents, property owners, interested citizens and representatives of associations. This facility was actively used. Other formats, such as planning forums and expert workshops, were held virtually. The response was positive throughout.

Combined Grid Solution

The Kriegers Flak - Combined Grid Solution (CGS) connects the Danish region of Sjælland with Mecklenburg-Vorpommern in Germany. Built as an interconnector, the line is an innovation in the energy transition since it is the first hybrid offshore interconnector which not only connects wind farms in two countries, but which can also be used to transmit and trade energy in both directions. No comparable project has yet been accomplished anywhere in the world.

A world premiere connects Europe

In October 2020, 50Hertz and Danish grid operator Energinet inaugurated the world's first hybrid offshore interconnector, integrating both German and Danish offshore wind farms. This allows CGS to transmit offshore wind power to Denmark and Germany. The line can also be used as an interconnector for cross-border power trading.

50Hertz welcomes the European Commission's decision to grant an exemption for the Combined Grid Solution project's interconnection capacity. Under current legislation, 70% of interconnection capacity must be put on the market for electricity trading. In a hybrid solution, the wind farms would be disadvantaged. The exemption stipulates that, after deducting forecasted wind production, the remaining capacity must be made available to the market.

This makes CGS a technical and market innovation that serves as a model for future offshore power grids. The grid connections operated by 50Hertz for the Baltic 1 and Baltic 2 wind farms (Germany) and the grid connection to the Kriegers Flak wind farm (Energinet/Denmark), which is currently under construction, are partly shared with CGS. Two 25 km submarine cables with a capacity of approximately 200 MW each running between the Baltic 2 and Kriegers Flak substations link the two grid connection systems.

Up to 400 MW of additional capacity in each direction is now available for power transmission between eastern Denmark and the German bidding zone. The interconnector enables the most favourable types of generation in both countries to meet electricity demand. For the first time, an interconnector is transmitting offshore wind power and providing transmission capacity for cross-border power trading in a joint technical facility. This is an important prerequisite for the future expansion of offshore wind energy use in both the North Sea and Baltic Sea, but can also serve as a model for other projects worldwide.

To watch the video explaining the Combined Grid Solution project, click on this link:

► http://bit.ly/CGS-inauguration

Simply scan the QR code with the camera your smartphone to start the video.

Borderless power flow

Since the transmission grids of eastern Denmark and Germany do not operate synchronously, adjustments are required at the transition points. A double converter (back-to-back converter) at the Bentwisch substation near Rostock makes this possible. Two converters are connected directly one after the other. One converter converts the three-phase current (AC) from the Nordic interconnected system into direct current (DC). Another converter then converts this direct current directly back into three-phase current, which now matches the continental European synchronous area. As a result, electricity can flow smoothly in both directions.

The brain in Neuenhagen - a digital control unit

CGS consists of both hardware and software components. The 'brain' of the hybrid interconnector is the Master Controller for Interconnector Operation (MIO). Installed at 50Hertz's Control Centre, this digital control unit reconciles the requirements of the electricity market and electricity generation, which depends on Baltic Sea wind conditions. The most important task of MIO is to enable the optimal and efficient use of the interconnector while avoiding overloading. To that end, it does not control the market-based exchange of electricity between Denmark and Germany solely based on forecasts. It must also maintain voltage and balance in real time in the event of physical deviations by relying on the double converter in Bentwisch. The back-to-back converter in Bentwisch also plays an important role in terms of grid stability by safely integrating a growing volume of offshore electricity into the system. In addition to active power, 'reactive power' is also needed in order to maintain voltage when transmitting electricity over lines in alternating current. Until now, reactive power has mainly been provided by conventional power plants. The double converter can provide part of the necessary reactive power compensation for the northeastern part of the 50Hertz grid area.

"What we've done together here is absolutely pioneering work. For me personally, CGS is the project of my life so far."

Elke Kwapis, Head of Line Projects at 50Hertz

- started at Elia 2015
- lives and works in Germany

"Our cooperative relationship with our Danish partners has been a great success. The Baltic Sea offers additional attractive opportunities to leverage this experience and further connect offshore wind across several countries efficiently and flexibly. With CGS we demonstrated that we have mastered the technology and the necessary project knowledge."

Henrich Quick, Head of Offshore at 50Hertz

- 49 years young
- lives and works in Berlin
- started working at 50Hertz in 2014
- loves swimming and some reading about astrophysics

"With MIO, we are making optimum use of the interconnector and managing the market-based exchange of electricity between Germany and Denmark. For us, MIO is a blueprint for future innovative system management methods."

Anne Katrin Marten, Head of Operational Planning Department 50Hertz

- 34 years young
- lives and works in Germany
- started working at 50Hertz in 2016
- is an early bird and loves discovering the world

"CGS is very important for Denmark. It is one of the keys to a 100% green society. For me, our collaborative partnership has been the best. Germans and Danes are neighbours. We're different, but we accept each other's differences."

Per Obbekaer, Project Manager at Energinet

"Combined Grid Solution is not just a milestone for the green transition in Germany and Denmark. It is also an innovative solution, which I am sure will be a cornerstone in the planning of future energy islands and the massive expansion of offshore wind, which is so important in ensuring European climate neutrality."

Thomas Egebo, CEO of Energinet

"Being part of the CGS project team was a unique challenge and a once-in-a-lifetime experience. I would love to be involved in future projects of this kind."

Sebastian Wagner, Offshore Project Manager at 50Hertz

- 49 years young
- lives and works in Germany
- started working at 50Hertz in 2008
- enjoys swimming, skiing and biking

Key facts

CGS connects Germany and Denmark via two offshore wind farm grid connections.

400MW
starts at the 50Hertz substation

The interconnector, which has a transmission capacity of up to 400 MW, starts at the 50Hertz Bentwisch substation near Rostock and ends at Denmark's Bjaeverskov substation in the Sjælland region.

235km
combined length

The line sections have a total combined length of around 235 kilometres.

CGS is a joint project by Energinet and 50Hertz. It is co-financed by the European Commission as a project of common interest (PCI).

2016/2017

Construction started in late 2016/early 2017.

The German and Scandinavian power grids do not operate synchronously, but are now connected through a double converter at the Bentwisch substation near Rostock.

The converter hall in Bentwisch is half the size of a soccer field and just under 15 metres high.

The interconnector is controlled by the Master Controller Interconnector Operator (MIO), installed at the 50Hertz Control Centre in Neuenhagen near Berlin.

Dan Jørgensen, Minister for Climate, Energy and Utilities, stated that CGS is a testbed for the seamless integration of multiple wind farms and shows how we can use renewables across countries.

Inauguration of the Combined Grid Solution

On 20 October 2020, 50Hertz (Germany) and Energinet (Denmark) inaugurated the Combined Grid Solution (CGS), the world's first offshore hybrid interconnector. Due to COVID-19, the inauguration was held as a digital/hybrid event and took place in Berlin in the presence of German Federal Minister of Economic Affairs and Energy, Peter Altmaier.

Peter Altmaier, Federal Minister for Economic Affairs and Energy, said that the Combined Grid Solution is a European flagship project for cross-border cooperation in the field of offshore wind energy, which can play an important role in the future on the path towards a climate-neutral Europe.

EU Commissioner Kadri Simson explained that the EU is a world leader in offshore wind generation. To maintain and expand this position, we need pioneering projects like the Combined Grid Solution.

Did you know?

The offshore success story continues...

In late 2020, the transmission system operators active in the Baltic Sea region collaborated to establish an offshore grid in the Baltic Sea. The memorandum of understanding (MoU) for the Baltic Offshore Grid Initiative was signed not only by 50Hertz but also by Fingrid (Finland), Svenska Kraftnät (Sweden), Energinet (Denmark), Elering (Estonia), AST (Latvia) and Litgrid AB (Lithuania). Norway's Statnett will also participate as an observer. As part of the joint venture, common planning principles for the Baltic Sea offshore energy grid will be developed and should be included in ENTSO-E's ten-year development plan. Joint studies are being planned to support the stakeholders' vision of the Baltic Sea offshore grid contributing to CO_2 reduction and the development of an environmentally friendly energy system of the future.

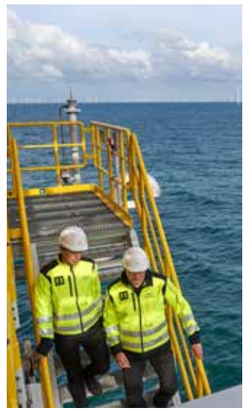
Back in October 2020, the EU Baltic Sea states signed the Baltic Sea Offshore Wind Declaration, a joint declaration of intent on offshore wind energy in the Baltic Sea. The cooperation envisaged by these countries includes jointly planned areas for wind energy use in order to further maximise the potential of offshore wind energy.

Ostwind 2 (50Hertz's grid connection project) will connect two new offshore wind farms in the Baltic Sea to 50Hertz's transmission grid on the German mainland by the end of 2023. Once completed, the wind farms will have a total capacity of 725 MW, which means they will supply 750,000 homes with renewable energy. To transmit the electricity to the mainland, two offshore substations will be built, three sea/shore cable systems will be laid and the Lubmin onshore substation will be expanded. The first cables were installed in the fourth quarter of 2020.

Nautilus, another possible interconnection project

With respect to the European electricity market, new interconnections are needed to promote the energy transition and address associated challenges. To this end, the need to strengthen the north-south axis and build east-west links has been clearly identified in Europe. After Nemo Link, the Nautilus project could be another opportunity to link Belgium and the UK.

The European Commission has highlighted the project's importance within the European context, calling Nautilus a project of common interest (PCI). However, its timetable, location, route and capacity are still subject to further studies. Elia and National Grid Interconnector Holdings Limited (NGIHL) are conducting a bilateral feasibility study before confirming whether or not this interconnector will be built.



MOG II, extending the modular offshore grid to connect new offshore generation units to the mainland

The MOG II project aims to develop and build new offshore grid infrastructure to link new wind farms in the Belgian part of the North Sea to the mainland grid. This is in line with Belgium's energy strategy and the Belgian government's commitment, in the Marine Spatial Plan for 2020-2026, to identifying new zones for the generation and transmission of electricity. MOG II will provide an efficient, reliable means of connecting new offshore generation facilities to the mainland and will thus make a substantial contribution to facilitating RES integration in Belgium. MOG II will also help Belgium meet its climate targets.

Bornholm Energy Island

In line with their joint letter of intent, 50Hertz and Danish system operator Energinet intend to cooperate on the Bornholm Energy Island project, which will connect a planned offshore hub on Bornholm Island in the Baltic Sea with, initially, 2000 MW of wind capacity for both countries. The project is a continuation of the successful cooperative venture between the two system operators on the Kontek interconnector and Kriegers Flak - Combined Grid Solution (CGS) projects.

Also Elia and Energinet have signed a letter of intent. They will set up a working group to examine the feasibility of a subsea cable between Belgium and Denmark that would link the high-voltage grids of both countries over a distance of more than 600 km.

On the Danish side, the interconnector would connect to a new 'energy island' to be built 80 km off the Danish coast and to which a large 10 GW wind farm will eventually be connected. This would give Belgium direct access to the renewable bulk generation we need in order to decarbonise our energy-intensive industry and achieve the European climate targets.

ALEGrO commissioned

ALEGrO is a key link in the construction of an integrated European electricity system. The interconnector will have a transmission capacity of 1,000 MW, equivalent to the amount consumed by a city of one million inhabitants. The connection delivers multiple benefits: it enhances security of supply for both countries, facilitates the energy transition by allowing better integration of renewable energies, contributes to price convergence and makes the connected regions more economically attractive.

The first interconnector between Belgium and Germany

ALEGrO connects the grids operated by transmission system operators Elia (Belgium) and Amprion (Germany). Despite the COVID-19 pandemic, the original schedule was maintained. The project was completed on time thanks to the remarkable work carried out by both system operators working in close collaboration with the Belgian and German authorities and local and regional administrations. As a result, ALEGrO began commercial operation in late 2020. After nearly 10 years of solid collaboration, it is time to look back on this unique and historic milestone together with the project team.

“The construction works started in 2018, in the middle of winter, with snow, cold weather and a lot of rain. In the beginning, we faced teething problems which needed to be resolved. We adapted the procedures and methods so the remainder of the works could run smoothly. Looking back, I realise it was a unique and historic project. We’re talking about 90 km of cable and two converter stations. That is a lot to build in such a short time. The teams should be proud of what they achieved. For me personally, the moment we finished digging the tunnel and arrived at the other end after a year and a half was incredible.”

Els Celens
Project Leader, ALEGrO

- Enjoys playing the piano when not occupied with the kids

“The biggest challenge was to bring the different power transformers to the site. They were picked up in Nuremberg, transported by boat and delivered to the nearby port. A special convoy was needed to bring them to the site. The most memorable moment for me was when the converter station in Lixhe was first switched on. It took hundreds of thousands of work hours by different teams and dozens of different companies who all worked together. ALEGrO was definitely the project of a lifetime. It will contribute great value to society and will support the integration of renewable energy.”

Jérôme Mathot
Project Leader for Lixhe Converter Station (Elia)

- 33 years young
- lives and works in Belgium
- started working at Elia in 2011
- devoted father and keen sportsman

“The collaboration between Elia and Amprion was very good. We complemented each other and were able to share tasks and consult one another. It was a relief that everything worked well during commissioning, without anything blowing up or tripping. We all felt a certain sense of pride that we were able to successfully connect the plant to the grid with the help of all of the project partners.”

Maximilian Stumpe
Assistant Project Manager for the Control & Protection Converter (Amprion)

You can also watch our colleagues tell you about their experiences on video. To watch the video click on this link or simply scan the QR code with the camera your smartphone to start the video.
► http://bit.ly/ALEGrO-commissioned

Introducing the Evolved Flow Based methodology

The ALEGrO interconnector is located in the centre of the meshed alternating current (AC) grid. This makes operating it quite challenging and requires close coordination between neighbouring system operators in order to avoid overloads. Thanks to the newly developed Evolved Flow Based method, congestion is taken into account. This is an important development for enabling a higher degree of grid optimisation and a stepping stone in the implementation of Elia's flex-in-market design for preparing the EU energy system to face the challenges of 2030.

Recent years have seen the construction of several HVDC interconnectors, including Nemo Link, the first interconnector between Belgium and the United Kingdom. These interconnectors were built at the edges of the European AC system to allow for greater electricity exchange between asynchronous areas. As a result, the impact on the rest of the grid is quite low, enabling relatively simple integration. As ALEGrO is at the heart of the meshed grid, it required a more complex approach. In order to give the market maximum flexibility when using the ALEGrO interconnector, we had to devise a methodology that would:

1. take into account congestion on the meshed AC grid. This means that ALEGrO will not cause overloads in the grids operated by connecting and neighbouring TSOs. By doing so, we are ensuring secure grid operation.
2. create maximum social welfare. ALEGrO strongly impacts the meshed AC grid, but this can be used to its advantage. The controllable direct current (DC) link can steer flows over AC lines in the right direction, allowing more exchanges and greater welfare.
3. optimise the interconnector directly in the market coupling algorithms. We allow the markets to determine ALEGrO's optimal set-point by providing full flexibility. This will in turn enable the greater integration of renewable energy.

The Evolved Flow Based approach enables optimal use of the ALEGrO interconnector on the day-ahead market. It not only optimises exchanges in Belgium and Germany, but in the entire Central West European (CWE) region. Furthermore, the DC interconnector -as a fully controllable device- is able to influence congestions in the European meshed AC grid. This marks the first ever implementation of the Evolved Flow Based methodology. It will serve as the basis for the further integration of new DC interconnectors into the European grid.

"The success of the energy transition depends very much on the rapid expansion of networks. The new electricity connection between Belgium and Germany is not only important for our two countries, but also for electricity trading and system security across Europe as a whole. Therefore, today is also a good day for the internal energy market."

Angela Merkel,
German Chancellor

Key facts

ALEGrO is the first electricity interconnector between Belgium and Germany.

10years

Nearly 10 years of solid collaboration and ongoing dialogue between Elia and the local and regional authorities made it possible to complete the project.

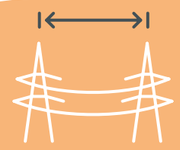
90km

90 km of HVDC power lines connect the Lixhe (Belgium) and Oberzier (Germany) converter stations.

Ø 12cm

The underground connection between the converter stations comprises two cables, which measure 12 cm in diameter.

Actual works began in January 2019 and ended in October 2020.



1000MW

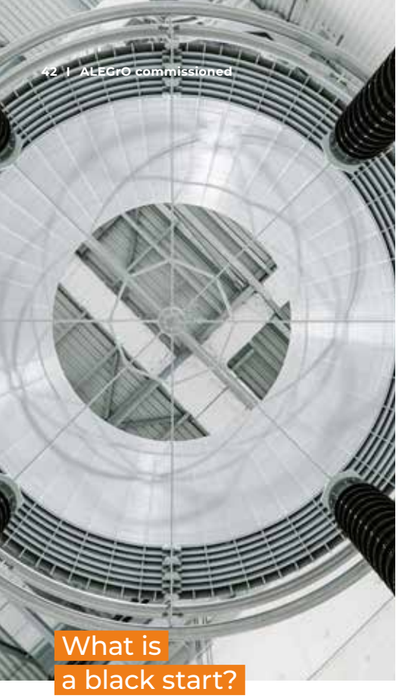
The ALEGrO interconnector will make it possible for the two countries to exchange 1,000 MW (1 GW) of additional electricity, approximately equivalent to the electricity consumption of a city with a population of one million.

The interconnector is operated by transmission system operators Elia (Belgium) and Amprion (Germany).

Technically speaking, ALEGrO is also a first for the Walloon Region of Belgium, marking the first time an interconnector using HVDC technology and a converter station have been built in Wallonia.

" ALEGrO is an important facilitator for sustainable energy. Germany and Belgium made the same strategic choices for energy production: away from nuclear, and in full support of climate-neutral energy sources. ALEGrO firmly links these two strategies. It will allow for a better distribution of wind energy during on- and off-peak moments."

Alexander De Croo,
Belgian Prime Minister



What is a black start?

Our teams achieved a world first when they carried out a 'black start' via ALEGrO. Should Belgium ever be hit by a blackout, the interconnector can be used to re-feed the Belgian grid from Germany. This also works in the opposite direction. In bringing this project to a successful conclusion, our teams once again demonstrated their technical leadership.

DC vs AC

Some 90 km of HVDC power lines connect the Lixhe (Belgium) and Oberzier (Germany) converter stations. These two stations will convert the direct current (DC) used for the interconnector line into alternating current (AC), which is used across 98% of the Belgian grid. Direct current enables the transmission of large volumes of electricity in either direction over long distances. Moreover, reactive power, which helps to secure stable voltage levels, can be managed perfectly, meaning you choose the direction and manage energy flows between both countries. Power capacity between the two countries can also be adjusted between 0 and 1000 MW.

Did you know?

WALL-E newest maintenance team member

Did you know that Elia is running an innovation initiative that explores the use of robots to assist inspection and maintenance activities in extreme or hazardous locations? Several in-field tests and demonstrations have been organised in recent months to verify the feasibility and usefulness of this approach. The results are promising, especially on the ALEGrO site. Since the aim is to keep the installation in operation continuously, and in view of the high-risk environment, the technicians only have access for maintenance once a year. The robot, on the other hand, has the advantage of being able to access the installation at any time and could help to detect water leaks which, although minor, might trip the entire installation.

Inauguration of the ALEGrO interconnector

Energy Minister Tinne Van der Straeten stated that the ALEGrO project is an important step in developing a common future for our countries.

North Rhine-Westphalia Minister-President Armin Laschet said that through this connection, we are strengthening our cooperation within the European internal electricity market and we can support each other in restructuring the energy system with a view to furthering the energy transition.

On Monday 9 November 2020, system operators Elia and Amprion inaugurated the first electricity interconnector between Belgium and Germany. The livestreamed event took place in the City Hall of Aachen and was attended, either in person or digitally, by German Chancellor Angela Merkel, Belgian Prime Minister Alexander De Croo, North Rhine-Westphalia Minister-President Armin Laschet and Belgian Energy Minister Tinne Van der Straeten.

E-mobility vision paper

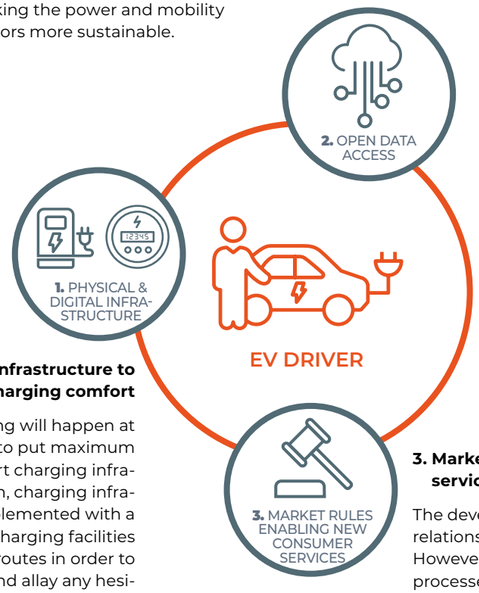
In our role as a transmission system operator, Elia Group publishes forward-looking studies to keep our finger on the pulse of the market. In 2020, Elia Group published a vision paper on e-mobility that identifies three enablers for the adoption of electric vehicles as soon and as widely as possible to achieve a sector transformation with the fastest and greatest CO_2 impact in the coming decade.

The e-mobility vision paper is available online. Simply click the link to read the paper.
▸ http://bit.ly/EliaGroup_Studies

Accelerating to net-zero: redefining energy and mobility

In its vision paper, published in November 2020, Elia Group describes how better alignment between the power and mobility sectors can deliver societal benefits and push electric mobility towards widespread adoption. With transport currently accounting for a quarter of Europe's CO_2 emissions and electric vehicle (EV) technology close to maturity, the mobility sector can make a major difference in a short time. However, successful convergence between the power and mobility sectors can only be achieved if current barriers are removed and additional value streams are unlocked and developed.

Elia Group has identified three enablers that can give consumers a superior driving experience while making the power and mobility sectors more sustainable.



1. Physical & digital infrastructure to improve charging comfort

More than 80% of charging will happen at home or work. We need to put maximum effort into providing smart charging infrastructure. In the short term, charging infrastructure needs to be supplemented with a (limited) number of fast charging facilities along major transport routes in order to overcome range anxiety and allay any hesitation about switching to EVs. Complement this with the gradual development of charging options for people in urban areas and big cities, and charging infrastructure as a barrier to EV uptake will soon disappear.

2. Open data access to open up unlimited possibilities for consumer services

To enable new EV services, the grid needs to understand EVs and vice versa. This requires efficient data exchange and communication between all players in the e-mobility value chain and consumers. Providing data and agreeing to a service should become as easy as paying with your mobile banking app. The development of digital identities for consumers (citizens) by a trusted government agency is the necessary basis for consumers to share their data easily, securely and openly for everyone who provides services designed to enhance the EV driver experience.

3. Market rules enabling new consumer services to exploit EV flexibility

The development of EVs will lead to a change in the relationship between consumers and electricity. However, the regulatory framework as well as the processes and tools available in the power sector are not really adapted to current consumer needs. Therefore, new approaches to market organisation need to be designed where consumers, either alone or via an intermediate service provider, can optimise their electricity consumption by following certain (price) signals, and benefit accordingly.

"Smart charging delivers multiple benefits to EV drivers. Our studies show that the annual cost of electricity for charging is reduced by €30-€55, or a 15%-30% reduction, for a typical EV driver. Next to that, the electricity used for charging is generated by technologies emitting less CO_2 compared to uncoordinated charging, resulting in an additional CO_2 reduction of 10%."

Carsten Bakker, Market Analyst at Elia

- 27 years young
- lives and works in Brussels
- started at Elia in 2019
- loves traveling and triathlons

"By 2030, EVs will no longer be merely a means of getting from A to B, but will contribute greater value and become a crucial part of consumers' daily lives, integrating with other devices and services at home or at work. Just like the smartphone is no longer merely a tool for making phone calls, but is also a way to order food, pay bills, book flights and more."

Josephine Delmote, Strategy Analyst at Elia

- 28 years young
- started at Elia in 2017
- lives and works in Belgium
- foodie and runner

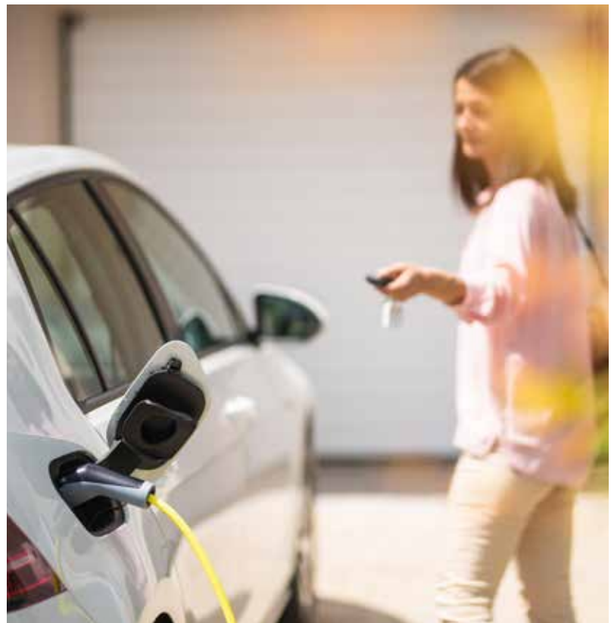
"To decarbonise our society, we need to sustainably redesign both the energy system and mobility. In our study, we have analysed the common interfaces between the energy and mobility sectors and identified key starting points for a successful ramp-up of e-mobility. With this, we aim to make an important contribution to successful sector convergence, ensure secure systems and the grid integration of electric vehicles."

Richard Ihlenburg, Project Manager Group Strategy at 50Hertz

- 32 years young
- lives and works in Berlin
- started at 50Hertz in 2015

"Electric vehicles are a key asset for managing grids with a high share of wind and solar. We need to unlock their enormous flexibility potential. To do so, both the hardware and software of our electricity grids need to be adapted to make the most of these 'batteries on wheels', enabling smart charging and vehicle-to-grid solutions."

Julia Poliscanova, Senior Director, Vehicles and E-mobility of Transport & Environment



Elia Group Stakeholders Day 2020

Did you miss out on the livestream? You can watch the recording online. To watch the video click on this link or simply scan the QR code with the camera your smartphone to start the video.

▸ http://bit.ly/SHD2020-Event

Elia Group presented its vision paper titled 'Accelerating to net-zero': redefining energy and after mobility during its annual Stakeholders Day on 20 November. The presentation of the Elia Group study focused on the key enablers for breaking down barriers to electric mobility uptake and for unlocking additional value streams for consumers through energy services. The presentation was followed by an industry and policy debate with representatives from the energy and mobility community. 50Hertz also presented is strategic objective on going from 60 to 100% consumption coverage by variable renewables by 2032.

The event was quite a technical feat seeing as it was livestreamed simultaneously from studios in Brussels and Berlin. An additional challenge was posed by the keynote speakers, some of whom were present in the studios, while others were recorded live via their webcams.

Did you know?

50Hertz and Stromnetz Berlin launch project to integrate electric vehicles

By 2030, the German government would like to see seven to ten million electric vehicles on German roads. They can make an important contribution to balancing fluctuations in power generation from wind and solar energy, thereby stabilising the electrical system. To be able to use these and other 'flexible consumers' to accelerate the energy transition, digital metering systems – so-called smart meter gateways (SMGW) – and control equipment are needed. Together with Elli and Bosch.IO - subsidiaries of Volkswagen AG and Robert Bosch GmbH - distribution system operator Stromnetz Berlin and 50Hertz are investigating and testing, as part of an 18-month cooperative project, what kind of data exchange is needed between market players and how balancing power can be provided by a network of electric cars.

For the joint project, VW subsidiary Elli will, among other things, create the conditions for bundling the storage capacity of electric cars so that they can participate in the balancing power markets via aggregators. In the long term, it is also conceivable that the electricity stored in car batteries could potentially be fed back into the public electricity grid if there is temporarily insufficient electricity from renewable energies to meet demand. Bosch subsidiary Bosch.IO, which specialises in IoT and digital projects, is contributing its expertise at the interfaces between transmission and distribution system operators and charging stations.

As part of Elia Group's Consumer Centricity Programme, 50Hertz and numerous partners are running initial tests on the functions of the highly secure smart meter gateway infrastructure in Germany. These central communication units are installed by measuring point operators, among others, on the property of many electric car owners with their own charging infrastructure. They receive and store data and make it available to network operators and other market players, such as electricity suppliers.

Our colleague Florian tells you more about how the process of charging electric cars can be influenced without any loss of comfort for customers and how smart meters can provide customers with incentives to make their vehicles and charging infrastructure available for system services.

Florian Reinke,
Market Development at 50Hertz

- 33 years young
- lives and works in Germany
- started at 50Hertz in 2016
- passionate South / South-East Asia traveler and committed to run his first Marathon in 2021!

To watch the video click on this link or simply scan the QR code with the camera your smartphone to start the video.
▸ http://bit.ly/EV-charging-AR2020

European TSOs want a greener economy

In a joint statement, high-voltage grid operators from Austria, Belgium, France, Germany, Italy, the Netherlands, Spain and Switzerland announced that they want to help stimulate an ever-greener economy as soon as possible – a reference to the European Green Deal. Elia and 50Hertz regularly align their prevention plans and specific measures with neighbouring TSOs in order to limit the consequences of the COVID-19 pandemic on people, the electricity supply and the European economy.

Internet of Energy ecosystem ends first sandboxing phase

In October 2020, the first sandboxing phase of the Internet of Energy (IO. Energy) project came to an end. Eight Belgian pilot projects were completed. In 2021, a second sandboxing phase will be launched to focus on new opportunities, including electric mobility and household appliances, which have not yet been analysed in depth.

The collaborative innovation initiative IO.Energy was launched in February 2019. Belgium's energy system operators teamed up with 60 companies, public bodies and academic institutions to bridge the gap between digitalisation and sustainability and to promote innovation in the energy sector. It aims to develop new services through the exchange of data between all sector players. The focus is on end users, who will be able to tailor their generation and consumption to grid needs using a digital communication platform.

Elia joins Belgian Alliance for Climate Action

Belgian Alliance for Climate Action

Elia has joined the newly established Belgian Alliance for Climate Action (BACA), which wants to see a greater focus on decarbonisation. By joining the alliance, Elia is demonstrating its commitment to meeting the Paris climate targets and inspiring other companies to do the same. BACA is a coalition of 51 Belgian organisations and was founded by The Shift and WWF.

Elia Group joins European Clean Hydrogen Alliance

Elia Group joined the European Clean Hydrogen Alliance, which is working towards the ambitious deployment of hydrogen technologies by 2030. In joining the alliance, Elia Group will closely monitor developments and prepare for the efficient integration of renewable hydrogen in the interest of society. In addition to rising energy efficiency and accelerated electrification, 'green gases' such as renewable hydrogen will be needed to help decarbonise sectors such as chemicals, steel and long-haul transport.

From 60 to 100 by 2032

50Hertz launched an economic and climate initiative for its grid area: the eastern German states as well as the cities of Berlin and Hamburg. Under the slogan *From 60 to 100 by 2032*: New Energy for a Strong Economy, 50Hertz has set itself the goal of securely covering electricity demand in its grid area with 100% renewable energy by 2032. In 2020, the annual average share of renewables was about 62%.

A climate and industrial policy initiative

With the pandemic, a new strategy and the inauguration of the world's first hybrid offshore interconnector in the Baltic Sea, the year 2020 was special for 50Hertz in many ways. In this interview, CEO Stefan Kapferer reviews the past months and explains how the year of COVID-19 led to a new strategic direction.

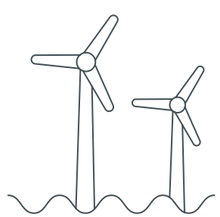
About Stefan
Stefan Kapferer (55) has been CEO of 50Hertz since December 2019. He was previously Chief Executive Officer of the German Association of Energy and Water Industries (BDEW) and Deputy Secretary-General of the Organisation for Economic Cooperation and Development (OECD) in Paris from 2014 to 2016. Prior to that, Stefan Kapferer held the post of State Secretary in the Federal Ministry of Economics in Berlin (2011-2014). Stefan Kapferer comes from Karlsruhe, studied administrative sciences in Constance, is married and has two children

2020 was a unique year in many respects. What did it mean for 50Hertz?

Stefan Kapferer: "The past year proved that 50Hertz can ensure 100% power supply to the grid area at all times, even in extraordinary situations. We were confronted with a pandemic – a first for us –and immediately took measures to protect our employees from infection. Particularly intensive measures were taken for employees in system operations and grid management, who are unable to work from home. Despite these difficult conditions, operations – and thus the supply of electricity to around 18 million people in our grid area – ran reliably. And not only that: we were also able to complete grid expansion projects and we started new ones.

Of course, in the light of the pandemic, our top priority is still to ensure that we can all work safely, whether at our headquarters in Berlin, the control centre in Neuenhagen, the regional centres or the construction sites in our grid area. To this end, we developed a comprehensive action plan in spring 2020 in consultation with our Belgian colleagues that sets out instructions and recommendations for working safely and healthily together, and we have continuously adapted this plan in line with the incidence of infection. A task force was set up very quickly which helped us to make the right decisions prudently and clearly - and to keep adapting them to the situation. Personally, I am convinced that the way we have worked under these crisis conditions has strengthened us: we can rely on each other across all hierarchical levels!

And, of course, 2020 also made it crystal clear how important a consistent digitalisation strategy is. We were already well-positioned and were able to enable the majority of our colleagues to work from home within a very short time. At the same time, we used the year to make even more focused and rapid progress in digitalisation."



We want to do everything possible to cover 100% of total electricity consumption in our grid area with renewable energies by 2032. In 2020, the share was already around 62%. ”

Stefan Kapferer

How did the coronavirus influence the implementation of projects in 2020 and what’s next?

“We are incredibly proud that we were able to inaugurate and commission the world’s first hybrid offshore interconnector, the Kriegers Flak - Combined Grid Solution, together with our project partner Energinet. This connection between Denmark and Germany, which simultaneously transmits offshore wind power to both countries, is certainly a technological milestone and an excellent example for future offshore wind projects not only in the North Sea and Baltic Sea, but in other parts of the world, too. We were also able to complete and commission the Stendal/West - Wolmirstedt overhead line.

In addition, we started preparatory tunnelling work for the diagonal power link in Berlin - one of the most important projects for the energy transition in the greater Berlin area. In the SuedOstLink HVDC project, most of which will be laid underground, we are well on schedule with the planning and approval process and have managed to continue with the construction. In 2020, we awarded the major contract for the 525 kV cable in collaboration with TenneT, which is responsible for the southern part of the project. Lastly, we got the green light to get started on the Uckermark line and the Berlin Northern Ring. We can be very satisfied with what we achieved - especially in this extraordinary year.”

In the midst of the pandemic, 50Hertz has set itself an ambitious strategic goal with its *From 60 to 100 by 2032 – New Energy for a Strong Economy* initiative. By 2032, 100% of electricity consumption in the 50Hertz grid area is to be covered by renewable energies. What’s behind this?

“With the European Green Deal, the EU wants to become climate-neutral by 2050, a goal that had already been set out in Germany’s Climate Protection Act in 2019.

At the same time, energy-intensive industries are making massive efforts to decarbonise their production and processes and become climate-neutral, for which they need green electricity.

In our grid area alone, around 800,000 people were employed in industrial companies in 2020. That’s almost 100,000 more than 10 years ago. Access to electricity from renewable energy sources will be essential for these industries in the future. In concrete terms, the greener the electricity and energy supply, the more attractive the location. Our extra-high-voltage grid will play an important role in helping these industries decarbonise. And this is where 50Hertz will also think and act across sectors in the future. For example, we want to work with the business, science and politics communities to find solutions for the cost-effective production of hydrogen, the decarbonisation of heat supply, and the successful integration of e-mobility into the electricity market.

We decided to actively support this enormous transformation process with its major challenges and therefore launched our *From 60 to 100 by 2032 - New Energy for a Strong Economy* initiative. We want to do everything possible to cover 100% of total electricity consumption in our grid area with renewable energies by 2032. By doing so, we are sending out a clear signal in terms of climate policy and, above all, industrial policy. In 2020, the share was already around 62%. Our role is to securely integrate this constantly rising share of volatile renewables into our grid, our system and the market. We are addressing this challenge and actively shaping it!”

Ultimately, however, the necessary expansion of renewables depends on other stakeholders. How can 50Hertz support this as a transmission system operator?

“Of course, 50Hertz will not build any power plants in the future. However, we will persistently ask our politicians questions, for example: Where will the green electricity come from to cover the forecasted consumption of around 117 TWh in 2032 in our grid area? To do that, the installed capacity of renewable energies in eastern Germany would have to double from around 35 gigawatts (GW) today to around 66 GW by 2032.

In other words, we need a massive expansion of renewables - and we still see great potential here, both offshore and onshore. In the Baltic Sea alone, additional areas with a total capacity of around 2 GW could be developed for offshore wind faster than planned. The situation is similar on land. Mecklenburg-Western Pomerania, for example, is a sleeping wind giant. Even though we have some large onshore wind farms there, on average there is only one wind turbine turning for every twelve square kilometres of land.

And the fact that after 20 years the first wind turbines are coming off the EEG subsidy this year is - despite all the risks to steady development - also an opportunity to make technological leaps. Repowering makes it possible to multiply the output of onshore wind turbines without having to develop new areas. However, a lot of convincing has to be done at the local and regional level to win over an increasingly critical public.

The energy transition is our number one priority. Together with our German partner KfW, we fully support the entire 50Hertz organisation in its efforts to cover the electricity demand in their grid area with 100% renewable energy by 2032. This is fully in line with Elia Group’s strategy and the ambitions of the European Green Deal. Their objective emphasises the pioneering role that 50Hertz is playing in the integration of large quantities of renewable energy production in both the German and European energy systems.”

Chris Peeters,
CEO of Elia Group and chairperson of the 50Hertz Supervisory Board

In the case of ground-mounted photovoltaics, we can see just how dynamic - and positive - the development can be. There are a number of very large projects in the pipeline in our grid area that rely exclusively on Power Purchase Agreement (PPA) financing. But here, too, there will be discussions on the ground. This dialogue is important and we as transmission system operators fully support it. We see ourselves as an active enabler, offering our expertise in the management of complex systems and public participation."

How is the initiative being received by those for whom is it intended? What is the response like?

"Our many discussions with representatives from the business community, politics and associations make it clear that we have hit a target with our initiative for connected cooperative thinking and action. Whether it is BASF with its hydrogen pyrolysis project in Schwarzheide in Lusatia, Linde in the Leuna, the Bitterfeld and Halle chemical triangle, or ArcelorMittal in Hamburg, there is great interest everywhere in ideas for getting more green electricity into the system. At an initial roundtable early this year, we discussed – together with IG BCE, state representatives from our grid area and leaders of the relevant business and energy associations – what can and must be done. The task now is to drive this dialogue forward and achieve some initial tangible results. We do not just want to talk - we want to act together with our partners to provide concrete support to our grid area in its transformation into a sustainable industrial location."

What would you like to see from policymakers? What course would have to be set?

"For me, this is a matter of essentially three factors. First, awareness must be established at all levels around the fact that the energy transition cannot be achieved without additional space – including for wind energy production. This applies both to areas at sea and on land. Second, planning and approval procedures have to become faster. This does not necessarily require new laws; it would be sufficient if the state authorities were given better financial and personnel resources. Thirdly, we must jointly consider how the regulatory framework for sector coupling/convergence can be improved step by step without creating new exceptions that burden the general public."

Did you know?

#100% renewables: Intelligently integrating renewable energy sources into the 50Hertz grid

By 2032, 50Hertz wants its grid to securely operate on 100% renewable energy. Since digital transformation is necessary for this goal to be reached, 50Hertz is developing a new digital grid control system. The name of this future system is 'Modular Control Centre System' (MCCS).

Over the years, 50Hertz has repeatedly upgraded its grid to support the integration of a large amount of renewables into the system and make its infrastructure available to national and international electricity trading companies on a non-discriminatory basis. In 2020, in order to further their success in these areas, 50Hertz decided to develop its own grid control system with partner companies. Innovation has lain at the heart of this process: the new "brain" has to deal with ever-increasing complexity while at the same time enabling constant stable system operations (over long distances without conventional energy feed-in and whilst being confronted with frequent regulatory changes). Moreover, additional challenges linked to the increased use of the existing grid, congestion management (redispatch), and the complex interactions between TSOs and DSOs need to be carefully managed. Consequently, there is a strong need for a decentralised system that incorporates flexible consumers.

Behind the modular approach

Due to the high complexity of system requirements, we initially divided the new control system into ten individual modules. These modules will all be connected and they will interact via an integration platform, which we predefined ourselves and which we will operate later. The integration platform will support data exchange between the individual MCCS modules, but will also form a blueprint for an enterprise application/generic usage across the Group. This is a completely new approach for us as TSO: on the one hand, it means 50Hertz will inherit more responsibility as the integration platform will act as a central connector; on the other hand, it means 50Hertz will be granted greater independence from solution providers in the market due to the reduced complexity of the individual modules.

An individual module could be, for example, a forecasting tool for wind power feed-in for the next day or a grid security calculator. Both the final design of the modules and how to sensibly procure them on the market need to be considered. In-house development at the Elia Group Software Factory is also an option. The modules need clearly defined interfaces and must neither be too small-scale nor too complex.

The advantages of this approach

As part of our current grid control system, the tools we use often communicate in a bidirectional manner with each other and data exchange is not always standardized. With the MCCS, the modules will only be able to communicate with each other via the central platform. Moreover, an entirely new feature of the MCCS is that the standardised interfaces between the modules will be designed by us at 50Hertz - not by the manufacturer of the overall system, as was previously the case – meaning that the MCCS will thus be much more flexible and agile. If a module no longer meets the system requirements, we will be able to adapt it to suit them or will simply replace it. Thanks to shorter adaptation and development cycles, we will be able to implement changes more rapidly. These shorter cycles will also allow us to integrate new technologies and services into the modules (such as automation and artificial intelligence) and connect with other useful data sources. Furthermore, the integration platform will enable faster and more cost-effective connections with additional systems. Such a data-centric approach will offer immediate synergies for the whole of Elia Group.

The impact of this new approach on the market

With the modular approach, we can be more precise when searching for the right manufacturer. If we need a module which can provide a specific grid calculation, we will be able to look for a partner company with whom we can specifically develop this feature only. If we need to include forecasts in a module, we will be able to look for experts specialised in this one area. This will result in higher product quality and will give us a wider range of potential module suppliers to choose from.

We are in frequent dialogue both with other TSOs and DSOs. As more of them adopt this modular approach and its associated integration platform, the market will increasingly feature individual service offerings. Suppliers will have the opportunity to develop sustainable solutions and new product standards. TSOs and DSOs will benefit from higher quality products and expertise on behalf of these individual services. We can all benefit from this – from 50Hertz and Elia Group through to other system operators and suppliers.

First €750 million Green Bond successfully placed

With the first Green Bond in our company's history, we are securing part of the necessary investment in the grid infrastructure over the next few years. In view of the difficult economic environment caused by the coronavirus pandemic, financial market participants interested in our company are showing that they have a high level of confidence in our sustainability strategy and investment plans. The transaction is a key component in driving forward the expansion of our grid and thus the energy transition.

Securing liquidity for further grid expansion

In May 2020, 50Hertz's parent company, Eurogrid GmbH, secured liquidity for the necessary further expansion of the grid for the energy transition with a first Green Bond in the amount of €750 million. Robert Weigert, Head of Treasury at Eurogrid GmbH, explains the challenges and what the green financing is being used for.

Robert Weigert

- 53 years young
- lives and works in Germany
- started at Eurogrid in 2011
- discovering the world is my world

Which projects will 50Hertz use the €750 million for and what criteria does a project have to meet to be considered 'green' financed?

Robert Weigert: "Our Green Bond will help finance the Ostwind 1 and 2 grid connections for the offshore wind farms northeast of Rügen. The wind farms have a combined capacity of around 1.5 gigawatts. To be considered 'green', a project must first meet the requirements for a sustainable green project defined in our Eurogrid Green Bond Framework (GBF). After project selection, an independent third party verifies whether our GBF meets the requirements set out in the international Green Bond Principles, among others, and whether the selected projects pay into it. This assessment is documented and recorded in a Second Party Opinion (SPO) - in our case by Vigeo Eiris. In addition, these projects are also eligible under the EU Action Plan for Financing Sustainable Growth, as they contribute to the EU environmental goal of mitigating climate change. The aim is to increase the number of households that can be supplied with wind energy - thus avoiding CO_2 emissions. In addition, 50Hertz's projects also contribute towards the United Nations Sustainable Development Goals (SDGs), specifically SDG 7, *Affordable and clean energy* and SDG 13, *Climate action* – and thus feed into Elia Group's sustainability initiative, Act Now."

What else did 50Hertz and Eurogrid have to do in advance to successfully issue their first Green Bond?

"50Hertz continuously worked on its sustainable business orientation and constantly expanded its sustainability reporting in recent years. The progress is being reflected and rewarded in our steadily rising sustainability ratings that Eurogrid/50Hertz receive from internationally recognised rating agencies, such as Sustainalytics and Vigeo Eiris. We are currently above average for comparable companies in our industry in all rated areas. With Vigeo Eiris, for example, we started 2016 with a rating of 50 points in the lower midfield and were already able to achieve 57 out of 100 points in the current 2020 rating. This means we are continuing to place ourselves in the second-highest performance level

(Robust) and are already scratching the surface of the highest category (Advanced). We are also achieving consistently good results in Sustainalytics assessments, where we are classified as an outperformer in most fields and even as a leader in the highest category.

In addition to the SPO, we had our Green Bond certified by the Climate Bond Initiative (CBI). This certificate from the CBI, which has been driving the Green Bond market forward enormously for years, is a significant seal of quality and investors have very much welcomed this voluntary additional step."

And what is the consequence of placing the bond? Are you now in a better position than before?

"Of course! This Green Bond has further improved our standing on the scene in markets. It has also enabled us, among other things, to join the NASDAQ Sustainable Bond Network (NSBN). As you know, NASDAQ is the well-known American technology exchange. This platform provides investors with detailed information and data on investment opportunities in environmental and climate-related projects. This facilitates due diligence, i.e. the selection and monitoring of investments. The NSBN lists over 200 Green Bonds, including the first €750 million Green Bond successfully placed by 50Hertz parent company Eurogrid in May. Our inclusion in the NSBN was announced on a giant screen in New York's Times Square."

What are the next steps?

"We are currently preparing our first report in connection with the Green Bond, where we will provide our investors with transparent and public information about the use of the money and the impact of our activities that were financed with the Green Bond. This includes, for example, data on working and safety conditions during construction and maintenance activities. Above all, of course, the Green Bond Report includes how much renewable energy has been provided, how many tonnes of CO_2 have been avoided as a result, and what percentage of households are using renewable energy."

"As a company providing a service for society, we have a duty to be more explicit about our targets and actions with regard to reducing CO_2 emissions and achieving carbon neutrality, the circularity of our assets, safety, environmental and diversity targets, and ethics/compliance objectives. We want to make our company more resilient and more transparent to our internal and external stakeholders. Without compromising the safety of our employees and the grid, we are making our processes more sustainable and aim to be completely climate neutral by 2040. Signing this first line of credit linked to sustainability performance targets is fully in line with this commitment."

Lieve Kerckhof, Accounting & Finance Officer at Elia

- 56 years young
- lives and works in Belgium
- started at Elia in 1999
- loves travel, art and cooking

Did you know?

Eurogrid earns good credit and sustainability ratings

In the current financial rating from Standard & Poors (S&P), as well as in the recently performed assessment by sustainability rating agency Vigeo Eiris (V.E), Eurogrid GmbH holds a good position in terms of credit standing and sustainability as an economic unit along with transmission system operator 50Hertz and 50Hertz Offshore, despite a difficult market environment due to the coronavirus pandemic.

S&P confirmed the unchanged result of BBB+ with a stable outlook for Eurogrid and certified 50Hertz's good track record in the implementation of the investment programme. Consequently, it is expected that the upcoming onshore and offshore projects, which are accompanied by additional financing, will be realised as planned.

The total score for the V.E sustainability rating improved to 57 (2018:52). This means that Eurogrid, under the operational management of 50Hertz, has been maintaining the second-highest performance level (Robust) and is already approaching the highest category (Advanced, 60 points and higher).

Elia share trends

The year 2020 again saw a strong performance by the Elia Group share, despite strong volatility on the financial markets driven by the COVID-19 pandemic. Given its limited exposure to COVID -19 and supported by the realisation of solid financial results, the Elia Group share yielded a total annual return of 25.61%, easily outperforming peers and the BEL 20 Index. Following the capital increase in 2019, the share's liquidity further increased upon Elia Group joining the MSCI Belgium Index and the SE European Utility Index in 2020. Driven by its strong performance, Elia Group received the BelMid Company of the Year 2020 award, representing the highest relative increase in market capitalisation for 2020.

Elia signs first line of credit linked to sustainability performance targets

Elia signed a €650 million revolving credit facility (RCF) agreement that is tied to three of Elia's sustainability performance targets. As a first step towards a sustainable financing strategy, the agreement shows that Elia aims to be more ambitious and explicit about the importance of its environmental, social and corporate governance (ESG).

The sustainability performance targets that impact the credit facility's pricing mechanism are related to the company's efforts to fight climate change and its health and safety performance.

#The Nest

The rapid development of digital technologies offers numerous opportunities to deal with the growing complexity of the energy sector. There are two key objectives: transform into a digital TSO to deliver even greater quality and efficiency in our core business and internal processes; and build new data-driven business models to secure competitiveness, long-term growth and Elia Group's relevance in the future.

The Nest provides equipment and tools to fit the team's needs and promote creativity, team work and easy prototype building. This playful easy-to-deploy environment is packed with gadgets to ensure the focus is put on creative content.

A digital incubator

In September 2020, Elia Group launched the Nest, its digital incubator with two physical locations in Brussels and Berlin. This laboratory enables the rapid development, testing and prototyping of digital ideas within a sandbox environment. The Nest not only has infrastructure providing access to all necessary data and digital technology expertise (e.g. artificial intelligence, Internet of Things, blockchain), but it also focuses on using agile methodologies and techniques such as design thinking and UX methods.

To scale innovation, Elia Group invites all employees to submit their innovative ideas to the Nest for developing functioning prototypes that can solve daily business challenges. Anyone can submit ideas to managers of the Nest. Idea owners have to describe their idea, their hypothesis and its strategic relevance and then pitch it in front of a jury, the Nest Panel, which uses predefined qualification criteria to decide which ideas can ultimately enter the Nest for a prototyping cycle typically lasting 12 weeks.

Once an idea has been selected, the Nest managers assign a multifunctional team providing all the relevant expertise –data analysts, data engineers, data scientists, UX/UI designers, agile coaches and technical experts – to the idea owner, who will then start his or her journey as a product owner.

Three days a week, the entire team works together on developing the prototype in a highly focused manner. By applying an agile mindset, which in practice means using scrum or kanban methodologies, the objective is broken down into small pieces. These pieces are translated into concrete deliverables (increments) during each sprint, which can take one to four weeks. During regular sprint reviews, the team presents to their customers: the business departments that will adopt the prototype in their daily operations if it is successful.

The Nest

"With the Nest, we want to foster a new culture of innovation focusing on co-creation, feedback and agile development, where prototyping practices are applied within a sandbox environment and where failure is seen as an opportunity. The potential business impact and value of the innovation will decide whether the prototype is transferred to the business, pivoted to a second cycle in the Nest or discontinued. In any case, the team always celebrates their journey and leverages their learnings throughout other business activities."

Oz Ural, Manager of the Nest

- 30 years young
- lives and works in Germany
- started at 50Hertz in 2020
- basketball fan, loves reading about technology/innovation & sailing the Mediterranean

"End user input is one of the key principles of an agile mindset. In this sense, short feedback cycles are crucial for identifying as early as possible what is important to the customer and what is not, and for establishing what will work and what will not. This way, the team can consider the feedback in the next sprint and implement the necessary development steps in a highly targeted manner to reach maximum value in minimum time."

Thijs Vral, Deputy Manager of the Nest

- 28 years young
- lives and works in Belgium
- at Elia since 2017
- always asking himself: "Can it be improved?"

"As a product owner, I particularly enjoy working with a great team on creative solutions in a highly focused and fast manner. To make this possible, it was critically important to reorganise my regular daily work together with my manager and my colleagues in advance. We prioritised my tasks and distributed some of them across several shoulders in the team to free up three days a week for my work in the Nest during the 12 week-cycle."

Dominik Gross, Product Owner Algo-Trading, the Nest

- 39 years young
- started at 50hertz in 2014
- really keen on data and AI
- when my laptop is closed, I love to ride my road bike

"Not yet knowing what we will end up working on is part of the Nest's DNA. I quickly recognised the potential of this new approach, even if it initially it was a bit uncomfortable. One thing that was particularly enriching for me was the enormous flexibility of the agile methodology and the use of a wide variety of technologies and skills. When something did not work out as planned, we simply and almost playfully changed direction and ultimately ended up with an even better result."

Eva Schramm, Technology Innovation Manager at the Nest

- 32 years young
- lives and works in Germany
- started at 50Hertz 2014
- fresh air fanatic and die hard inbox zero freak

A typical journey in The Nest

01 Opportunity

You have a great idea and want to dedicate some time to trying it out? Discuss it with your manager, complete the form and submit it to the Nest Panel.

02 Qualification & prioritisation

Present your idea to the Nest Panel, who then evaluates it based on defined qualification and prioritisation criteria.

03 Team set-up

The Nest Manager builds your idea team and works closely with HR to ensure everyone is on boarded for the kick off.

04 Prototyping

You are now the product owner and will work 3 days per week in the Nest. Your team, composed of developers and business experts, is constantly supported by the Nest Agile & Design Thinking coaches.

05 Idea testing

You experience new ways of working. Together with the business teams and idea teams, you ensure the prototype is relevant and make it evolve.

06 Idea transition

After 12 weeks, your idea passes through exit qualification criteria. Your idea is either:

1. transferred to the business for scaling
2. pivoted to another cycle in the Nest
3. discontinued

07 Reintegration

At the end of the project, you reintegrate smoothly into your department. You share your Nest experience by showing team members new ways of working.

The Nest

Did you know?

The purpose of Elia Group's holistic innovation approach serves three main missions:

1. Innovation as a lab and eye-opener paving the way for the future of the business
2. Innovation as a service supporting the full company in its innovative journey
3. Innovation as a driver accelerating the cultural change

In its first mission, Elia Group innovation is leading and supporting many projects around our value chain:

- Enable decentralised flexibility management
- Predict, support decisions and automate system operations
- Automate and make remote inspections
- Increase efficiency of infrastructure development
- Increase capacity of the infrastructure
- Make our core business sustainable
- Increase flexibility and efficiency of our corporate functions

The Elia Group Innovation Team accelerates the use of transversal technology like AI, Blockchain, IoT and VR through partnerships and explores technologies such as 3D Printing or very new ones like quantum computing, which are not yet mainstream. With all these tools and technologies at hand, Elia Group has now put a framework around it: The Nest – an incubator that provides employees with guidance on using the right methodology, easy access to all those technologies and dedicated time to work on discovering innovation projects in a highly focused way. With this framework, Elia Group can ensure much faster development cycles.

"The goal is clear: we need to accelerate the adoption of innovation both in terms of technology and methodology. As innovation is not a team but a mindset, we can achieve real impact by scaling up adoption. That is why "The Nest" completes our holistic approach to innovation and encourages ideas and creative approaches from all employees much more than before!"

Loïc Tilman, Head of Elia Group Innovation

- 33 years young
- lives and works from his Belgian home-office since 1 year
- started at Elia in 2018
- brings fun while making the energy transition happen

Our colleague Rachel tells you more about Elia Group's approach to innovation and the use or artificial intelligence.

Rachel Berrymen, Data Scientist - AI Center of Excellence at 50Hertz

- 34 years young
- lives and works in Germany
- born in the United States of America
- started at 50Hertz in 2020
- enjoys learning German and traveling

To watch the video click on this link or simply scan the QR code with the camera your smartphone to start the video.
► http://bit.ly/Innovation-EliaGroup-AR2020

Strengthening our culture of innovation

Open Innovation Challenge

With its annual Open Innovation Challenge, Elia Group expands its external ecosystem to gain access to additional knowledge and expertise for faster development. Start-ups from all over the world are invited to pitch their innovative ideas. The winner is given the opportunity to implement a pilot project together with Elia Group.

The 2020 Open Innovation Challenge finale was broadcast live from studios in Brussels. The 2020 competition focused on the development of digital solutions promoting more secure grid and data management. Of the 82 entrants, five finalists were shortlisted. The finale was broadcasted live from Brussels. Due to the COVID-19 crisis, only a limited number of attendees were allowed.

"It was very exciting to participate in the Elia Group Open Innovation Challenge and we are very much looking forward to implementing our solution within the business. We've developed a software package that processes and analyses images from multiple cameras and then sends out real-time warnings, thereby enhancing data security and the safety of Elia Group's grid."

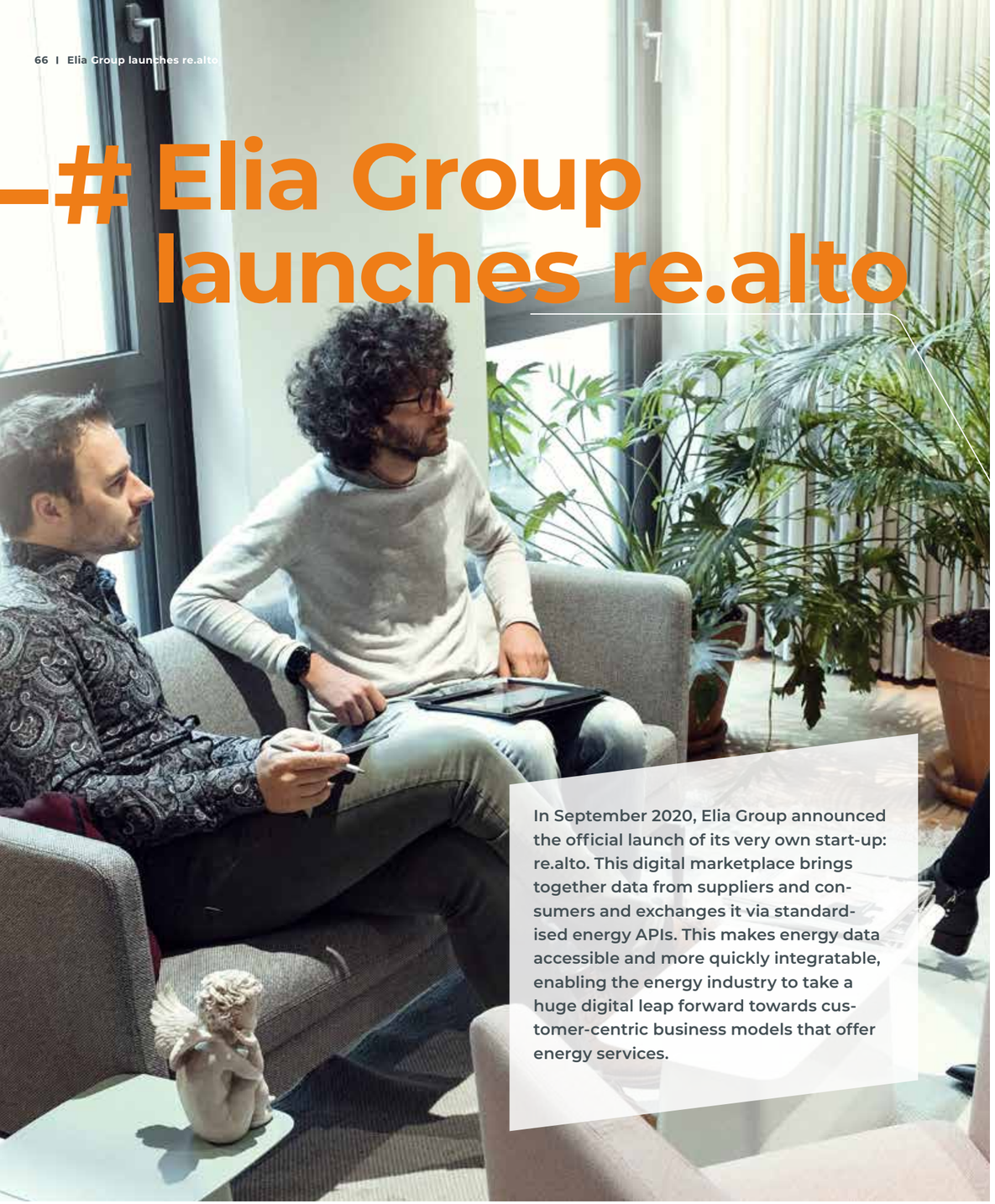
Ricardo Santos, CEO of Heptasense and winner of the 2020 Open Innovation Challenge

Innovation Week

With its annual Innovation Week for all employees, Elia Group aims to arouse people's deep-seated interest in and curiosity about working on innovative projects – and to make doing so an attractive proposition. During this event, Elia Group showcases its full innovative power and potential while at the same time facilitating and fostering sharing and dialogue on and around innovation.

Due to the COVID-19 safety measures, this year's Innovation Week had to be hosted virtually. The turnout was better than hoped for, with over 500 colleagues from Elia and 50Hertz attending the online event.

Elia Group launches re.alto



In September 2020, Elia Group announced the official launch of its very own start-up: re.alto. This digital marketplace brings together data from suppliers and consumers and exchanges it via standardised energy APIs. This makes energy data accessible and more quickly integratable, enabling the energy industry to take a huge digital leap forward towards customer-centric business models that offer energy services.

The first EU marketplace for the digital exchange of energy data and services

re.alto is the first European digital marketplace for energy data and services. The aim of the re.alto marketplace is to make energy data easy to access and integrate, enabling the industry to take a giant digital stride towards more widespread adoption of Energy-as-a-Service business models and ultimately drive a low carbon energy future.

To download the white paper, visit the re.alto library:

▸ https://realto.io/re-alto-library/

re.alto was set up by Elia Group to create the first European marketplace for the exchange of energy data and digital products and services via APIs (software interfaces that allow two applications to talk to each other).

The launch of re.alto's API platform has attracted interest from energy players looking to increase market visibility and generate new revenue streams through the monetisation of data and digital products.

The re.alto team brings together a unique combination of industry experience and knowledge from across the energy and technology sectors. For organisations with data and digital products to offer, the platform provides a new sales channel to monetise their APIs to new markets, generating new revenue stream opportunities. For businesses that want to buy and integrate third-party data, the marketplace offers simple access to a range of digital tools to streamline the API exchange process and bring down the cost of data acquisition, which previously may have been prohibitively expensive.

Understanding how APIs drive the digital transformation of energy

To shine a light on how the exchange of energy data can accelerate digital transformation and decarbonisation, re.alto has published a white paper titled R*ealising the energy transition in times of change: the role of the API marketplace in driving down data acquisition costs and establishing new service-led business models.*

The white paper explores the barriers to digital change faced by the energy industry, focusing in particular on the exchange of energy data, a crucial cornerstone of digitalisation. It looks at the opportunities for innovation presented by the dual crises of COVID-19 and climate change, highlighting the valuable role that an API marketplace can play in enabling operational streamlining and the creation of entirely new revenue streams.

"As the energy transition towards a more sustainable system accelerates, cooperation between decentralised and numerous stakeholders is becoming key. We believe digitalisation of scalable business models is a big part of this transition, and our marketplace re.alto aims to provide the tools for these digital products to reach the many easily."

Alexandre Torreele, CEO of re.alto

- 37 years young
- lives and works in Germany
- Surrounded by women, a lovely wife and 2 fantastic daughters

"re.alto's value proposition is so unique, so forward-thinking for energy, that our offering attracted a phenomenal level of industry interest right from the start. As a new company, that was an undexpected, but an incredibly useful springboard from which to build brand recognition even before officially launching the product. As such, from a marketing standpoint, our main focus in 2020 was on brand development and brand growth as part of the overall sales activation strategy."

Poppy Blautzik, Marketing Lead at re.alto

- 42 years young
- Lives and works in Germany
- Active mum of four

"With re.alto, we want to accelerate the digitalisation of the energy world by simplifying access to data and services for all players involved. Data is the lubricant for new business models. With our marketplace for digital interfaces (APIs) and our service for accessing meter readings, we are creating the basis for innovative business models in the market. As a start-up, we are at the forefront and can directly incorporate our experience from the market into our product innovations."

Sebastian Scholz, Product Lead at re.alto

- 44 years young
- lives and works in Germany
- bicycling enthusiast and traveller

"As the world electrifies, we need to make it easier for all the new kids on the block to interact with the electricity market. There are historical and technical reasons for today's complex system, but we now need to change it from within to allow the rest of the world to join that huge machine without breaking it. Digitalisation is the answer to that challenge. There are so many bright start-ups and new business ideas out there that can make it happen, with re.alto facilitating their collaboration and entry into the market."

Dieter Jong, Sales Lead at re.alto

- 38 years young
- lives and works in Belgium
- loves traveling & fine dining

"It has been particularly exciting to have the rare opportunity to work on a product from its inception. We have the chance to create something great and we're definitely having some fun doing it – the team here is fantastic! The energy industry is rapidly following in the footsteps of other industries and embracing the digital transformation. Our marketplace is enabling that change; it provides energy businesses with the digital means for greater collaboration and smarter information flow from one end of the value chain to the other."

Marcel Felder, CTO at re.alto

- 37 years young
- lives and works in Germany
- loves music, tech, travel, and friends

Data and services to transform your business

Wind SCADA data

Wind turbine SCADA data has a range of operational benefits, enabling cost-effective preventative maintenance and accurate forecasting based on actual output.

- Grid operator
- Energy trader and wind forecaster
- Digital O&M and analytics services

Energy monitoring 2.0

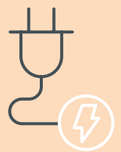
Enrich your monitoring platform experience by adding more services for your customer. Reduce the cost of integrating with the data source of your choice by buying the right access yourself instead of via your IT provider.

- Energy monitoring provider
- Industrial consumers and facility managers
- Home owner

Spot market pricing

Access spot market pricing data for the wholesale electricity market from a wide range of energy price APIs on the re.alto marketplace.

- Energy traders
- Energy trading platform
- Analytics and forecasting



Smart meter access

Access metering data securely over with an API to enable greater customer insights, streamline your data acquisition, or fuel innovative digital applications.

- Innovators
- Energy monitoring and management
- Suppliers and utilities

Smart charging e-mobility

Don't get left behind in a rapidly changing e-mobility sector. Reach new markets, drive new revenue streams, scale at speed across Europe with the smartest charging strategy.

- Utilities
- CPOs
- Charge pole manufacturer/CPO SaaS provider

Weather forecasting

Get access to a broad range of standardised weather forecast packages – from temperature and humidity to wind speed and irradiation data – all tailor-made to the energy sector.

- Energy Trader or Grid Operator
- Power generator (renewables)
- Analytics, modelling and forecasting

Visit the website
▸ https://realto.io/use-cases/
to learn more about each use case.

Brabo II enters service

Elia's Brabo project will increase the grid's supply capacity, enabling it to cope with growing electricity consumption in the Port of Antwerp. Nationally and internationally, the project will upgrade Belgium's north-south axis and bolster Europe's network of international interconnections. This will improve international trade opportunities and reduce reliance on Belgian generating facilities.

Vital for a secure, sustainable electricity supply

On 27 November 2020, Elia commissioned the upgraded high-voltage line along the A12 between Zandvliet and Lillo. The project involved upgrading an existing overhead line from 150 kV to 380 kV, replacing 46 pylons and laying new conductors over 16 kilometres. The upgraded high-voltage line means Elia can transmit electricity more efficiently.

The Brabo project will shore up Belgium's electricity grid at local, national and international level:

- **Growth of the Port of Antwerp:** the last major investments in the high-voltage grid in and around the Port of Antwerp were made in the 1970s.
- **Increased grid capacity:** will enable it to respond to growing electricity consumption that has resulted from the port's growth.
- **A stronger Belgian high-voltage grid with a higher import capacity:** once the Brabo project is complete, Elia will be able to import more electricity from the Netherlands to the Belgian high-voltage grid. Under ideal conditions, it will be possible to import up to 20% more electricity than at present.

The Brabo project consists of three subprojects. Brabo I is already operational. Work on Brabo II is completed. Brabo III – which is due to be commissioned by the end of 2024 – will enhance electricity transmission within Belgium and make it easier to trade power with the Netherlands.

"This year has been particularly challenging for the Brabo project. We were in the most complex phase of construction when the COVID-19 epidemic broke out. The work had to be halted while new work procedures were implemented to ensure compliance with health measures. Finally, after a few weeks' stoppage, work resumed and we were able to catch up and commission the two new 380-kV Doel-Lillo-Mercator and Lillo-Zandvliet lines in 2020, as initially planned. This would not have been possible without magnificent teamwork. I would like to thank all Elia employees and our external partners for this magnificent success."

Cédric Jacqmin, Brabo Project Leader

- 35 years young
- lives and works in Belgium
- started at Elia in 2008
- enjoys playing sports with friends

"When Brabo II entered service, I could only think back on this project with pride and joy. I had the good fortune to be part of the construction of the largest pylons in the Benelux, which, just to make things more challenging, had their foundations in the river Scheldt. We had to lay foundations that took into account all possible preconditions we could think of (Port of Antwerp, gas pipelines, Seveso companies, canals, lack of space, breeding seasons, stakeholders and more). Perhaps the nicest part of the project was the excellent cooperation within our amazing project team."

Katrien Moeys, Leader for Civil works at Elia

- 32 years young
- lives and works in Belgium
- started at Elia in 2013
- plays Gaelic football

"What will stay with me personally from Brabo II is how the team dealt with setbacks. It was remarkable to see how with every problem that arose, they immediately pivoted and looked for solutions. Never, ever was any time wasted looking for culprits. Designer, project leader, project assistant, quality manager, expert, project conductor, tester, community relations officer, negotiator, contract manager … everyone thought up solutions to reach the goal."

Valérie Daloze, Manager of Infrastructure Projects at Elia

- 47 years young
- lives and works in Belgium
- started at Elia in 1999
- Busy mum of four

Antwerp's mayor Bart De Wever was rescued from one of the high-voltage pylons on the banks of the Scheldt in Antwerp as part of a spectacular week-long evacuation drill organised the local fire and emergency services. At 192 metres, the pylons are the tallest in the Benelux.

"With the commissioning of the Brabo II project, we are concluding a long and intense period with our team. It is a period that I look back on with great pride and gratitude. For me personally, the successful completion of the new Scheldt crossing at an extremely complex location was literally and figuratively a highlight. In addition to the technical challenges we faced on this project, my collaboration with countless external stakeholders in the port of Antwerp was very enriching. This project would not have been possible without the preparatory work done by many internal and external employees. I would therefore like to take this opportunity to thank everyone who contributed to its success."

Sam Roels, Brabo Project Leader

- 30 years young
- lives and works in Belgium
- started at Elia in 2014

Key facts

The pylons that cross the river Scheldt are the highest in Benelux.

192m high

Standing 192 metres high, these pylons will be the tallest structures on the Antwerp skyline.

The last major investments in the high-voltage grid at the Port of Antwerp date back to the 1970s.

20% more imported electricity

Thanks to this project, it is now possible to import 20% more electricity under ideal conditions.

This project is the only one of its kind in Europe.

200-metre-high crane was needed to erect the two high-voltage pylons over the river Scheldt. Only 11 such machines can be found in the whole of Europe.

911m

The conductors crossing the Scheldt cover a distance of around 911 metres.

Did you know?

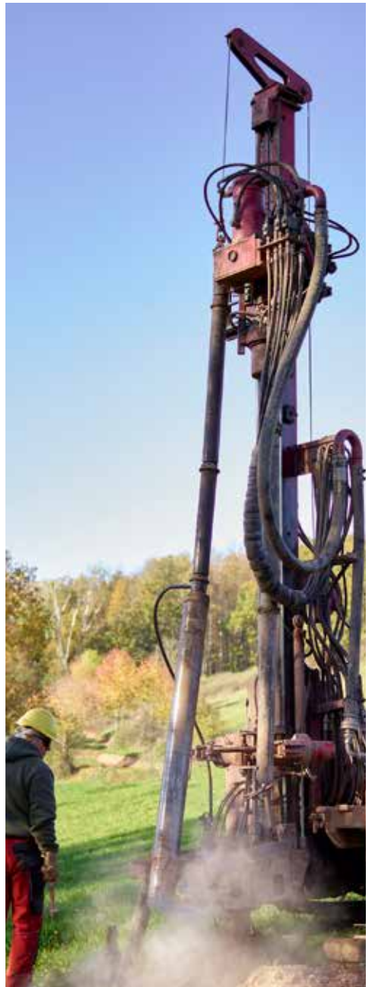
40 years of operation simulated in just 12 months

All bidders had to prove the quality of their cables in an elaborate pre-qualification test. The test simulated the operational load for the planned total operating life of around 40 years within twelve months.

North-south energy transition line

Halfway point reached for SuedOstLink (SOL), the 540 km high-voltage direct-current line that will bring renewable electricity from Saxony-Anhalt to Bavaria. SOL is a key component in ensuring the supply of electricity in southern Germany, especially after the phase out of nuclear energy.

After an almost two-year negotiation process, 50Hertz and its project partner TenneT awarded the contract for the 540 km DC link to Danish cable manufacturer NKT (northern part/50Hertz) and Prysmian PowerLink (southern part/TenneT). In total, the two companies will manufacture and lay around 1,000 kilometres of plastic-insulated underground cable that will carry electricity at 525 kV.



Involving the public - in person and digitally

50Hertz was able to successfully and transparently communicate the plans and schedule for the SuedOstLink, even in a year marked by the coronavirus. Working under special conditions, the team of route planners, environmental planners, property managers and public participation representatives hit the road with DialogMobil, its mobile information office. Over a period of three weeks, they visited a total of 22 towns and communities in Saxony-Anhalt, Saxony and Thuringia. In addition, 50Hertz regularly organised digital participation events, expanded the information available on its website and invited people to video conferences.

“By using digital tools for public participation, we were able to reach residents, owners and interested citizens even during the pandemic, thus continuing the dialogue as transparently as possible under these circumstances.”

Danuta Kneipp, Head of Public Participation 50Hertz

- 43 years young
- lives and works in Germany-
- started at 50Hertz in 2016
- loves the transiberian train and traveling in her VW camper

Shaping the onshore grid

Elia and 50Hertz are further expanding and optimising the onshore grid to respond to demand and accommodate local renewable energy generation.

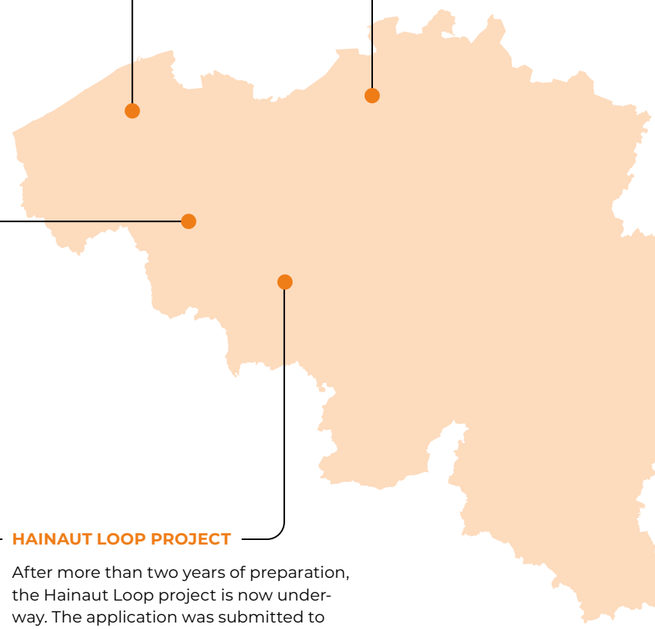
Elia

VENTILUS

The integrated planning process to develop a regional land use plan (GRUP) for the Ventilus project began in March 2020 and a special planning team, including Elia experts, was set up. Ventilus is a new high-voltage project in West Flanders that will connect the offshore and onshore electricity grids.

BRABO III

Elia used a new digital map app when presenting the Brabo III project to local residents. Brabo III is the last part of the large-scale Brabo project, which will upgrade the power grid in and around the Port of Antwerp and improve the connection with the Netherlands. It is scheduled for completion by the end of 2024.



HORTA-AVELGEM PROJECT COMPLETED

The high-voltage line between Zomergem and Avelgem is fully operational again. In the past two years, the conductors were replaced by a new type that can transmit more current, doubling transmission capacity to 6 gigawatts. This will enable Elia to exchange more electricity with France in the future and distribute energy from offshore wind farms further inland. Along the line, 97 pylons and foundations were reinforced to support the new conductors.

HAINAUT LOOP PROJECT

After more than two years of preparation, the Hainaut Loop project is now underway. The application was submitted to the municipal authorities and in September 2020, Elia completed a series of information sessions. Stretching over approximately 84 kilometres, the Hainaut Loop will be one of Elia's largest infrastructure projects in Belgium. The planned 380 kV line between Avelgem and Courcelles in Hainaut Province is a missing link in the Belgian high-voltage grid.

Visit

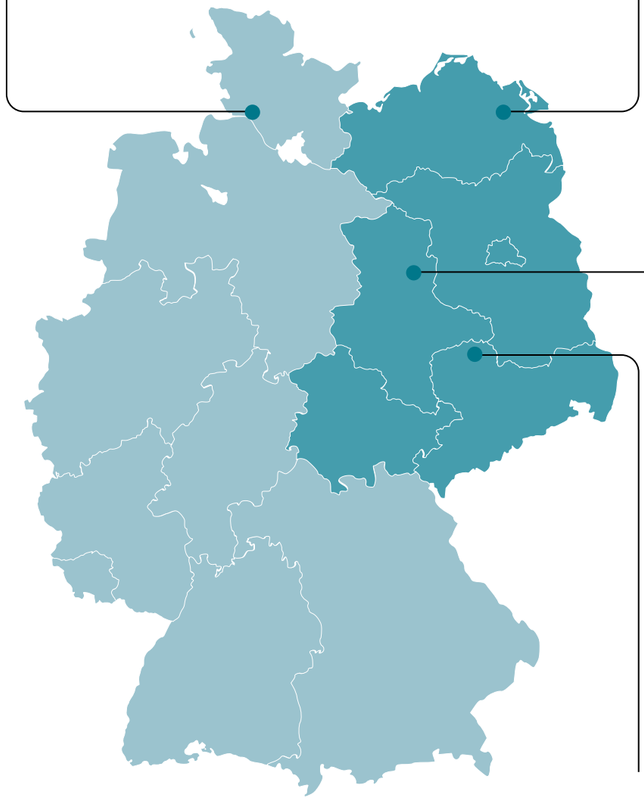
- https://www.elia.be/nl/infrastructuur-en-projecten/infrastructuurprojecten

for an overview of our infrastructure projects in Belgium.

50Hertz

HAMBURG/OST HIGH-VOLTAGE SUBSTATION

50Hertz plans to install four phase-shifting transformers at the Hamburg/Ost high-voltage substation to control flows on the grid, prevent overload and cut redispatching costs. A key permit was issued, marking a major step forward, and the project team should be able to meet the ambitious rollout deadline. The first phase-shifting transformers will be commissioned in 2022, the aim being to ensure that the electricity system remains reliable despite the sharp increase in volumes of variable wind energy.



Visit

- https://www.50hertz.com/en/Grid/Griddevelopement

for an overview of our infrastructure projects in Germany.

UCKERMARK LINE

50Hertz obtained planning permission for the Uckermark line, an overhead high-voltage connection between the Bertikow and Vierraden substations northeast of Berlin. The existing 220 kV line will be replaced by a 380 kV line. Eventually, this will allow five times more electricity to be transmitted. The line runs through a Natura 2000 area, which is why a great deal of attention is being paid to the fauna and flora present. Beacons for birds will be installed and the pylons will be 20 metres lower in certain places.

STENDAL WEST - WOLMIRSTEDT

50Hertz commissioned the 380 kV overhead line between Stendal West and Wolmirstedt, boosting transmission capacity in order to integrate wind energy into its grid. This is the first step in replacing a 220 kV line dating back to the 1950s. Five additional sections between Stendal West and Güstrow in the Rostock area near the Baltic sea will follow. The upgrade is necessary in order to transmit large-scale wind power generation efficiently from the north of Germany to consumption centres in the south. The timely completion of the planned grid infrastructure is required to meet European renewables targets and to reduce redispatching measures caused by grid congestion.

LEIPZIG –ERFURT

50Hertz installed high-temperature conductors (HTLS) on a 27 km section of the 380 kV line between Saxony and Thuringia. These are made of a special alloy capable of increasing transmission capacity by up to 40%, which means that more electricity from renewable sources can be safely integrated into the system

Reporting parameters

Registered office

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

The registered office of Elia Transmission Belgium and Elia Asset is located at
Boulevard de l'Empereur 20
1000 Brussels, Belgium

The registered office of 50Hertz GmbH is established at
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D-10557 Berlin, Germany

The registered office of Eurogrid International is located at
Rue Joseph Stevens, 7
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Reporting period

This annual report covers the period from 1 January 2020 to 31 December 2020.

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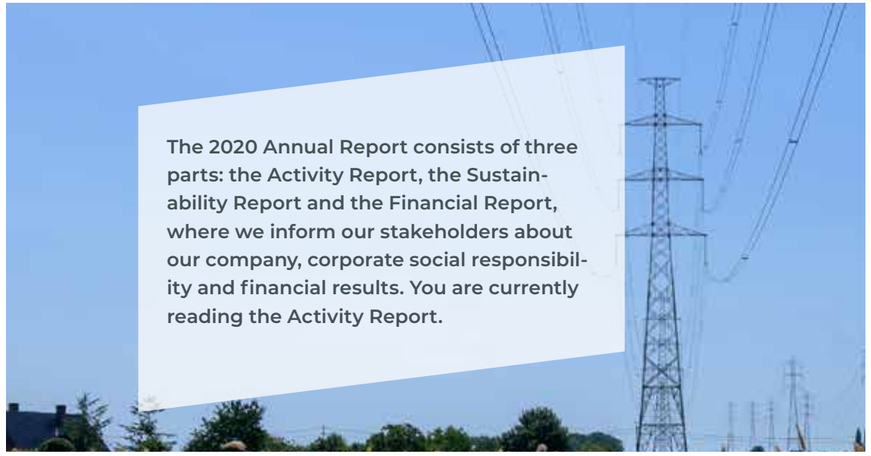
We would like to thank everyone who contributed to this annual report.

About this report



The 2020 Annual Report consists of three parts: the Activity Report, the Sustainability Report and the Financial Report, where we inform our stakeholders about our company, corporate social responsibility and financial results. You are currently reading the Activity Report.

This report explains who we are, what we do and the context in which we operate. It outlines our strategy and the progress we have made towards achieving our goals. The Activity Report concerns regulated information, published on April 16th 2021, after trading hours.

GRI Standards: Core option

This report has been prepared in accordance with the GRI Standards, the first global standards for sustainability reporting. The applicable GRI Standards performance indicators are highlighted in the report wherever Elia Group has reported economic, environmental or social impacts. Consult the GRI Index on page 63 of the Sustainability Report for a full overview.

Please visit
▸ www.eliagroup.eu/publications
to consult parts two and three.

The online references in this report provide more in-depth information on a subject by way of video, brochure or webpage.

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