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Elia envisages increasing capacity shortage to cope with the nuclear exit in Belgium; new report indicates the urgency of the situation and the need for a systematic safety net to maintain security of supply

KEY POINTS

- As a result of the accelerated coal exit in its neighbouring countries, the replacement capacity Belgium requires to cope with the nuclear exit in 2025 is now up from 3.6 GW (figure given in the Elia study in late 2017) to around 3.9 GW.
- This accelerated coal exit also means that additional capacity perhaps even exceeding 1 GW will be needed for 2022-2025, requiring further measures to be taken.
- Given the growing need, it is crucial that the federal government's work on developing the planned capacity remuneration mechanism (CRM) continues unabated so that Belgium has a robust safety net in place to maintain security of supply from 2025 onwards.

BRUSSELS – As provided for by the Belgian Electricity Act, Elia conducted an additional analysis of the adequacy and flexibility requirements for 2020-2030. These are both crucial pillars of a smoothly operating electricity system. The new report confirms and reinforces the conclusions of previous Elia studies from 2016 and 2017. Elia notes that the need for replacement capacity to cope with the nuclear exit laid down by law is now becoming even greater than before, with the new added factor of neighbouring countries bringing forward their coal exit set to make it harder for Belgium to import electricity when it has shortages. Given the growing urgency of the situation, Elia calls on the caretaker Belgian government and the next federal government to make this a priority and continue unabated with developing the planned CRM. Even if there is a partial nuclear renewal, Elia considers there is the need for a safety net which will give rise to the investment required to ensure that all the necessary replacement capacity is available in time.

This new Elia study was conducted in collaboration with the Federal Public Service (FPS) Economy and the Federal Planning Bureau and in consultation with the Commission for Electricity and Gas Regulation (CREG). As the operator of Belgium's high-voltage grid, Elia plays an exclusively policy-support role in the energy debate. Against this backdrop, we repeat our call to action, given our recognition of the increasing urgency of the situation and the fact that the power grid is a key pillar of Belgium's prosperity.

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CONCLUSION 1

IF THE NUCLEAR EXIT IS TO TAKE PLACE IN AN ORDERLY WAY, A REPLACEMENT CAPACITY OF AROUND 3.9 GW WILL BE NEEDED AS OF 2025.

As of the nuclear exit (winter 2025-2026) we will see a systematic need for new capacity of some 3.9 GW. This takes into consideration uncertainties in Belgium's neighbouring countries (around 1.5 GW) over which Belgium has no control, such as the reduced availability of generation or interconnections.

This 3.9 GW can be provided by any technology but is necessary to be able to maintain security of supply in Belgium. Whereas in its study from late 2017 entitled *Electricity scenarios for Belgium towards 2050* Elia mentioned the need for 3.6 GW of replacement capacity, this is now quantified as 3.9 GW. The urgency is growing due to the accelerated coal exit in Belgium's neighbouring countries, especially in Germany.

Even if the nuclear exit is partly reversed by, for example, keeping two reactors (2 GW) open for longer, there will still be a systematic need for new capacity.

The structural capacity requirements will remain at a stable level between 2025 and 2030. Within this time frame, the gradual decommissioning of conventional generation plants in Europe will be balanced out by the mass arrival of renewable energy production on the scene. The speed of this transition and its exact timing may adversely affect capacity requirements if it is not planned properly.

CONCLUSION 2

THE EARLY COAL EXIT IN NEIGHBOURING COUNTRIES MEANS THAT WE WILL NEED UP TO >1 GW OF ADDITIONAL CAPACITY IN THE PERIOD 2022-2025.

Furthermore, due to this accelerated coal exit in neighbouring countries, the additional capacity Belgium will require for the winters 2022-2023, 2023-2024 and 2024-2025 has increased. This new development means that even before the nuclear exit in late 2025, yet more additional capacity exceeding 1 GW will be needed, requiring further measures to be taken.

In the next 10 years, coal-fired and nuclear power plants with a total capacity of around 100 GW will be shut down in Europe, above all in Western Europe. Since the publication of the previous adequacy and flexibility study in 2016, announcements of early and additional shutdowns mean a capacity reduction of 26 GW. The accelerated coal exit in neighbouring countries (the Netherlands, the United Kingdom, Italy, France and especially Germany) will have an adverse impact on our ability to import electricity in the winter months.

Additional measures will be required as of winter 2022-2023 to maintain security of supply in this changing context, given that the current strategy reserves mechanism has only been approved until winter 2021-2022. The general capacity remuneration mechanism (CRM), with the support this will give the market, will only be introduced in 2025, meaning that additional measures will be needed in the meantime to bridge the period 2022-2025.





CONCLUSION 3

FAILING ANY INTERVENTION (IN THE FORM OF A CRM), THERE WILL BE INSUFFICIENT INVESTMENT TO ENSURE THAT A FULL 3.9 GW OF NEW REPLACEMENT CAPACITY WILL BE AVAILABLE IN TIME TO COPE WITH THE NUCLEAR EXIT.

This study confirms the need for a systematic intervention (even if there is a partial nuclear renewal) that provides the investment required to ensure that the full replacement capacity is available in time. Therefore, Elia asks the caretaker Belgian government and the next federal government to make this a priority so that the planned CRM offers market security for the near future.

If we want to systematically ensure security of supply in Belgium after the nuclear exit, then we still consider that a market-wide CRM, complementing the energy market (Energy-Only Market) with a real capacity market, would be an effective solution. This mechanism must be technology-neutral (production, storage, demand management and so on), cost as little as possible and be in line with EU legislation.

An important first step was taken in April 2019 with the amendment of the Electricity Act to establish the framework for introducing such a capacity remuneration mechanism. This work, including the preparation of implementing decrees and the relevant detailed market rules, must continue unabated so that the formal European Commission notification procedure can be launched by the end of December 2019. The Commission will then investigate whether the mechanism distorts the market.

Just as important as planning the CRM is the need to continue focusing on energy efficiency. The accelerated development of renewable energy sources also makes a positive contribution to honouring the Paris climate agreements and helps ensure security of supply, albeit to a limited extent.

CONCLUSION 4

IN THE YEARS LEADING UP TO 2030, THE AVAILABLE FLEXIBILITY RESOURCES WILL BE ABLE TO COPE WITH THE INCREASING VARIABILITY THAT RENEWABLE ENERGY PRODUCTION INTRODUCES INTO THE ELECTRICITY SYSTEM.

Despite the additional challenges an increasing volume of renewable energy production will pose for system management, Elia expects that sufficient flexibility resources will be available to cope with the increased fluctuations between injections and offtake resulting from more volatile means of generation. This of course depends on there being no problems with the adequacy of the electricity system.

Although there will be enough flexible capacity in the system, care must be taken to ensure that this capacity is actually operationally available at all times in the period 2020-2030. This means there must be sufficient flexible resources in place that can be made available both by the market and by Elia. This is the only way to cope with unexpected fluctuations in injections and offtake.

This study also confirms that new technologies covering areas such as storage and demand response will increasingly help cope with fluctuations in a renewable electricity system. Elia encourages this, actively contributing to proposals supporting this trend. In this light, Elia was one of those behind the launch of the Internet of Energy (IO.Energy) project in late 2018. After a pilot phase that is currently in preparation, the elimination of thresholds and the use of more fine-grained time-dependent price signals will ensure that even at the lower voltage levels, flexibility can play an optimal role in market operations.





CALL TO ACTION 2.0

For the sake of Belgian society, both the caretaker Belgian government and the next federal government absolutely must have all the resources they need in time to avoid a serious capacity crisis. Despite the efforts of the past year, at the time of writing we are not yet ready for any scenario. It is still five minutes to midnight.

Elia points out that the alternative scenario of a more gradual nuclear exit (e.g. renewal for Doel 4 and Tihange 3) would also have a significant impact. Even then, a considerable replacement capacity would still be necessary. Furthermore, there will be a need for upgrades to reactors whose operating licences are being renewed, with order times and periods of unavailability running into the winter months, which already promise to cause difficulties.

This means that each scenario requires appropriate measures and there must be clarity soon about the consequences and the action to be taken. Therefore, just as important as providing replacement capacity is the need for discussions to start soon with the nuclear power plants' owners.

Nor is that the end of it. Once the measures to support the nuclear exit have been taken, further efforts will be needed to pursue the process of meeting the climate objectives. This cannot happen without a long-term vision – a strategy that outlines the process and is adjusted along the way so that the goals can be achieved.

You can find the full *Adequacy and flexibility study for Belgium 2020 - 2030* at www.elia.be/.



About the Elia Group

ONE OF EUROPE'S TOP FIVE PLAYERS

The Elia Group is active in electricity transmission. We ensure that generation and consumption are balanced around the clock, supplying 30 million end users with electricity. With subsidiaries in Belgium (Elia) and north-east Germany (50Hertz), we operate 18,990 km of high-voltage connections. As such, our group is one of Europe's top 5. With a reliability level of 99.999%, we give society a robust power grid, which is important for socio-economic prosperity. We also aspire to be a catalyst for a successful energy transition towards a reliable, sustainable and affordable energy system.

WE MAKE THE ENERGY TRANSITION HAPPEN

By expanding international high-voltage connections and integrating ever-increasing amounts of renewable energy generation, the Elia Group promotes both the integration of the European energy market and the decarbonisation of our society. At the same time, the Elia Group is innovating its operational systems and developing market products so that new technologies and market parties can access our grid, thus making the energy transition happen.

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IN THE INTEREST OF SOCIETY

As a key player in the energy system, the Elia Group is committed to working in the interest of society. We respond to the rapidly changing energy mix, i.e. the increase in renewable energy, and constantly adapt our transmission grid. We also ensure that investments are made on time and within budget, with a maximum focus on safety. When we carry out our projects, we manage stakeholders proactively by establishing two-way communication with all affected parties very early on in the development process. We also offer our expertise to our sector and relevant authorities to build the energy system of the future.

INTERNATIONAL FOCUS

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

The Group operates under the legal entity Elia System Operator, a listed company whose core shareholder is the municipal holding company Publi-T.

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