PRESS RELEASE | 29 June 2023

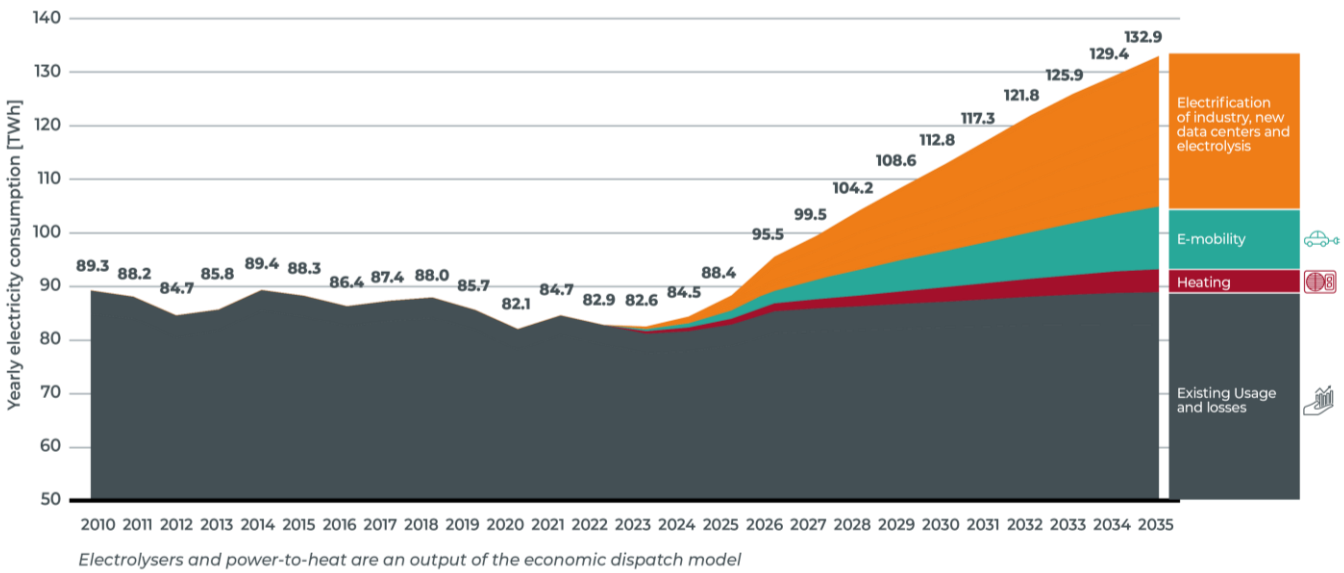
Elia publishes its adequacy & flexibility study for Belgium for the period 2024-2034

FOUR KEY MESSAGES

- Electrification is spreading across society both earlier and at a faster speed. This is creating additional capacity needs, which can be mainly addressed by the Capacity Remuneration Mechanism (CRM).
- Flexible consumption has the potential to flatten consumption peaks and manage the variability of renewable energy sources (RES), so directly contributing to security of supply. It is an important lever for reducing capacity needs linked to the rising electricity demand.
- Electrification delivers large benefits in terms of CO_2 reduction and provides solutions to economic and geopolitical challenges.
- Any delay in unlocking flexibility or realising grid infrastructure will result in additional capacity needs. Investing in accelerated digitalisation is therefore as important as investments in the timely build-out of grid infrastructure.

BRUSSELS | Elia has published its fourth biennial study which focuses on Belgium's adequacy and flexibility needs for the coming decade (2024-2034). In order to ensure the country's security of supply during the coming winter periods and particularly during times of scarcity, it is crucial to address the rapid spread of electrification across sectors such as mobility, heating and industry (see graphic 1). This trend creates additional capacity needs that can be partly mitigated by promoting flexible consumption through incentivising off-peak usage at reduced costs. To enhance system efficiency and control expenses, additional action is required in terms of digitalisation and infrastructure. Strong cooperation across all political levels is vital for successfully implementing these measures.

GRAPHIC 1: HISTORICAL AND ASSUMED FUTURE YEARLY ELECTRICITY CONSUMPTION IN BELGIUM



Electrolysers and power-to-heat are an output of the economic dispatch model

Since the publication of our last adequacy and flexibility study in June 2021, significant policy developments have occurred in Belgium and Europe, primarily in response to the Russian invasion of Ukraine and the resulting gas crisis. Throughout the past year, a set of measures has been implemented to accelerate the expansion of renewable energy, enhance infrastructure development and drive electrification efforts. As a result, fundamental changes have emerged on both the supply and demand side of the electricity system.

> *"Our country is on the verge of a profound transformation. Within the next two to three decades, Belgium's economy will undergo a shift from one which runs on fossil fuels to a sustainable one that optimises green resources and efficiency. The implementation of the CRM in Belgium represents one crucial lever to facilitate security of supply. However, if we want to improve the efficiency of the system and keep the cost of the energy transition under control, additional action is required, particularly in terms of digitalisation and infrastructure".*
>
> **Chris Peeters, CEO Elia Group**

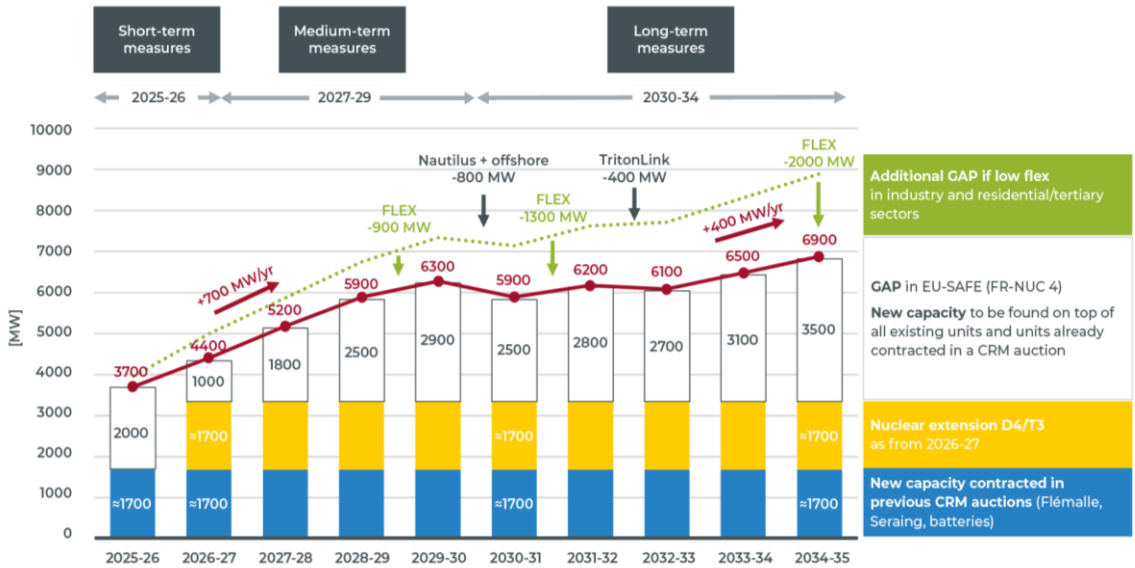
Based on the many calculations and different scenarios that this adequacy and flexibility study explores, four key messages stand out, as outlined below. From these, a list of short-, medium- and long-term recommendations is then derived. Belgian society has much to gain from anticipating the upcoming changes and working on structural measures. Doing so will ensure that our energy system is able to keep pace with the speed of electrification in an efficient and affordable way.

MESSAGE 1

Electrification is spreading across society both earlier and at a faster speed than predicted. The war in Ukraine and rising gas prices have resulted in new targets and action plans linked to ensuring an independent, resilient and climate-neutral energy system. This is creating additional capacity needs, which can be addressed by the CRM.

Electrification combined with the accelerated expansion of low-carbon electrons will be one of the main levers for decarbonising society over the next 10 to 20 years. The expected spread of electrification across society will create additional capacity gaps from 2027 onwards, which can be addressed by Belgium's capacity remuneration mechanism (CRM).

GRAPHIC 2: REQUIRED NEW CAPACITY TO ENSURE BELGIUM'S SECURITY OF SUPPLY AFTER 2025



The graph above shows how Belgium's capacity needs will develop over the next ten years, alongside measures which could be adopted to mitigate these like more flexible electricity consumption, the build-out of RES and the construction of new hybrid interconnectors (Nautilus & TritonLink).

SHORT-TERM: 2025-2026

This study reconfirms the conclusions from our previous study related to Belgium's short-term adequacy needs during the winter periods of 2025-2026 and 2026-2027.

The first Y-4 CRM auction (held in October 2021) for the winter of 2025-26 contracted new capacity amounting to 1,700 MW (100% available). This included the addition of two new combined-cycle gas turbines (CCGT). However, 2 GW of additional capacity still needs to be fulfilled for this delivery period. Indeed, the Belgian Federal Government has recently decided (following the outbreak of Russia's war in Ukraine and the gas crisis) to adopt a prudential approach and to use the so-called EU-SAFE scenario as a reference for maintaining Belgium's security of supply (as already suggested in Elia's AdeqFlex '21). This scenario represents the sensitivity of a reduced availability of France's nuclear fleet.

Developing 2 GW of new capacity to be available during the winter periods from 2025-2026 onwards is not realistic. The Y-1 CRM auction, which will be held in 2024 for the 2025-2026 delivery year, will most probably not be able to fill the remaining gap without other solutions being activated.

To maintain Belgium's security of supply, the solution therefore lies in the implementation of the so-called 'Flex-LTO' scenario that involves the flexible long-term operation of two of Belgium's nuclear units. The extension can be implemented in such a way that the two nuclear units remain available during winter periods from 2025-26 onwards. If the flexible long-term operation of two of Belgium's nuclear units is not pursued, additional exceptional measures will have to be considered. However, these will be insufficient, complex and costly – and thus should be avoided.

MEDIUM-TERM: 2027-2029

The increased electrification of demand requires distribution and transmission grids to be strengthened and expanded. The timely realisation of grid infrastructure is instrumental, as infrastructure developments have a significantly longer lead time compared with industrial projects. Streamlining permitting procedures will be an important lever in this timely realisation of grid infrastructure.

As we approach 2029, the demand for additional capacity will steadily rise due to the expected expansion of electrification in the mobility, heating, and industrial sectors. By 2029, about 2.9 GW of additional new capacities will be needed to keep the system adequate. While the increasing need was apparent in our previous study, based on increased electrification targets, it is developing five years earlier than anticipated. These additional new capacities can be filled via the existing CRM and partially be mitigated by increasing flexibility in the system. Therefore, new sources of flexibility, such as demand side management, need to be fully unlocked as soon as possible. See messages 2 & 4.

LONG-TERM: 2030-2032

The timely commissioning of the Princes Elisabeth Zone and additional interconnectors like Nautilus (BE-UK) and TritonLink (BE-DK)* will ensure that Belgium's need for capacity between 2029 and 2033 remains stable while the level of consumption rises. If these projects are delayed, the country's need for new capacity will continue to rise after 2029, requiring additional investments in generation assets to be made. See message 4.

* *It is important to note that, while both the Nautilus and the TritonLink projects are included in Elia's Federal Development Plan and in this study's assumptions, a final decision regarding the realisation of both projects has not yet been taken. Indeed, the development of TritonLink will require sufficient financial support to ensure its business case is positive for Belgian society.*

BEYOND 2033

From 2033 onwards, the capacity gap will increase once more as a result of the continued electrification of the system. Fortunately, by taking action today, these future needs can be anticipated and addressed. Belgium can experience significant benefits, for instance, by successfully realising its offshore wind ambitions in the North Sea. Over the next few years, substantial planning and designing efforts are required to ensure the successful installation of up to 8 GW of capacity in the Belgian North Sea.

To complement its limited domestic RES potential, Belgium also needs to investigate the development of agreements and interconnectors with countries that generate a surplus of electricity and have a de-correlated electricity supply.

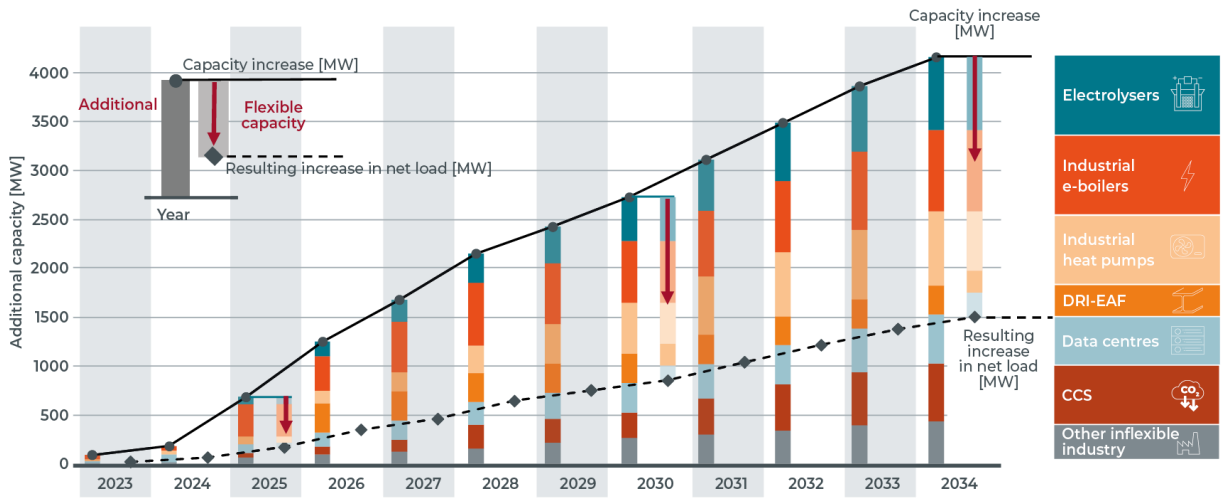
MESSAGE 2:

Flexible consumption has the potential to flatten consumption peaks and manage RES variability, so directly contributing to security of supply. It is an important lever for reducing capacity needs linked to Belgium's rising electricity demand.

Until now, flexibility has primarily served as an on-demand ancillary service, helping grid operators to balance supply and demand by addressing the variability of RES and disruptions to the operation of large-scale generation units.

In the future, the flexible use of new electrical appliances will play a pivotal role in flattening consumption peaks. Harnessing end user flexibility is therefore a critical lever for mitigating the growing electricity demand, thus enhancing the efficiency and affordability of the energy transition.

GRAPHIC 3: NEWLY ELECTRIFIED INDUSTRIAL PROCESSES OPERATING FLEXIBLY AT TIMES OF SCARCITY CAN STRONGLY REDUCE THE NEW CAPACITY REQUIRED FOR ADEQUACY



For this study, it is assumed that by 2030, 70% of the newly electrified industrial demand can be operated in a flexible manner, particularly during moments of scarcity. Newly electrified industrial processes could therefore deliver important benefits to the system.

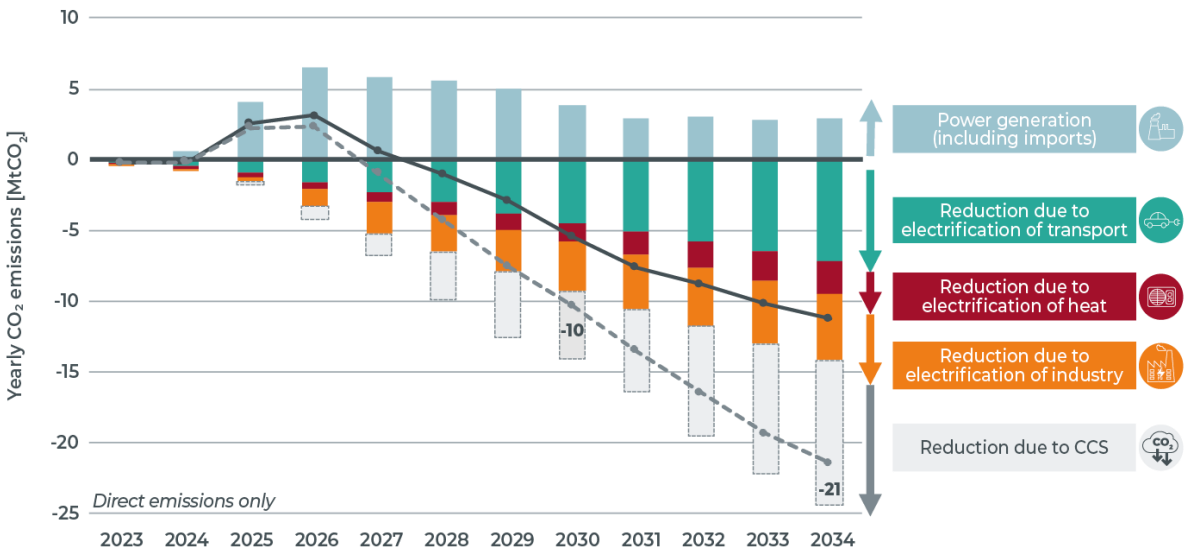
Discussions with all involved partners should be held in order to assess the implications, benefits, barriers to and operational implementation of such an approach.

Similarly to industrial flexibility, at the residential level, it is anticipated that two-thirds of EVs will hold intelligent charging capabilities, one-third of HPs will respond to local or market signals, and over half of home batteries will actively participate in the energy market.

MESSAGE 3:

Electrification reduces primary energy consumption levels whilst maintaining consumer comfort. This significant efficiency improvement therefore delivers large benefits in terms of CO_2 reduction - an effect that will become even more prominent as the share of renewable energy in the energy mix grows. In addition to important climate benefits, electrification also provides solutions to our country's economic and geopolitical challenges.

GRAPHIC 4: THE EVOLUTION OF THE POWER SECTOR'S CO_2 EMISSIONS (INCLUDING IMPORTS) AND OFFSETS IN OTHER SECTORS DUE TO ELECTRIFICIATION (COMPARED WITH 2022)



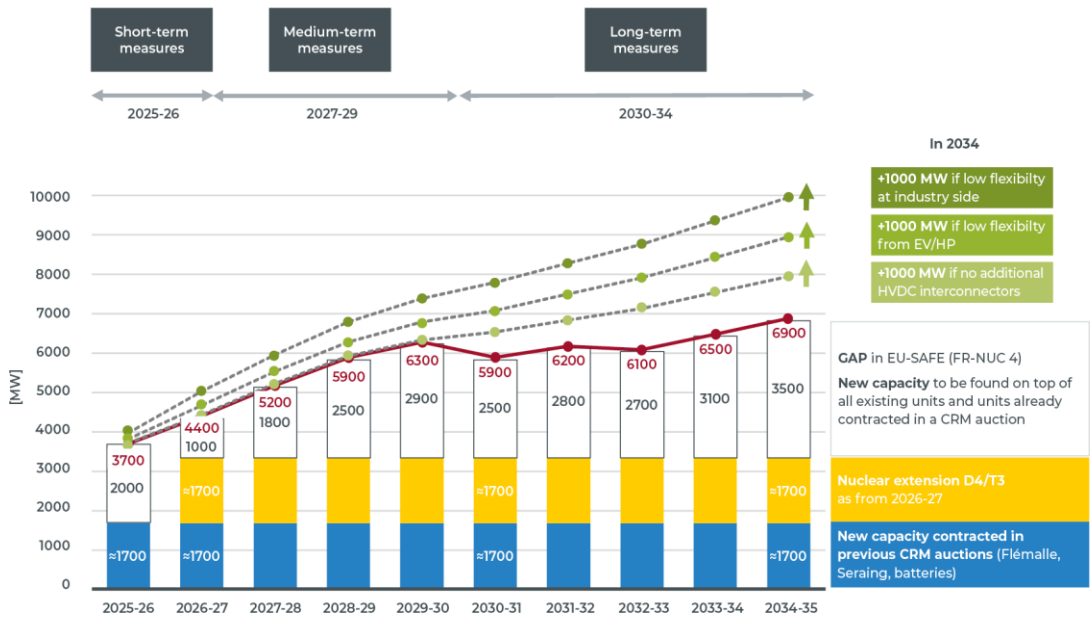
Electrification, combined with the accelerated integration of renewable energy into the system, creates the opportunity to reduce the consumption of fossil fuels. This, in turn, leads to significant reductions in direct domestic CO_2 emissions. In addition to these climate-related benefits, electrification will deliver economic and geopolitical advantages.

Indeed, industry will be given access to affordable electricity, meaning that it can be anchored in Europe, and jobs can be preserved. Moreover, the shift to an energy system with a high amount of renewables will make this system more independent and resilient.

MESSAGE 4:

Any delay in unlocking flexibility or realising grid infrastructure will result in additional capacity needs. If Belgium's security of supply is to be achieved in the most (cost-)efficient way possible, investing in accelerated digitalisation is as important as investments in the timely build-out of grid infrastructure.

GRAPHIC 5: IMPACT OF UNLOCKING FLEXIBILITY & THE TIMELY BUILD-OUT OF ADDITIONAL HVDC INTERCONNECTORS ON THE CAPACITY GAP



Accelerated digitalisation and the timely realisation of grid infrastructure will have a major impact on the volume of new capacities that need to be contracted in future CRM auctions. Further delays in implementing these will place Belgium's approach to electricity policy in a state of constant crisis management. If Belgium fully harnesses industrial and residential flexibility and realises its planned grid investments, capacity needs in 2034 will decrease by 3,000 MW compared with a situation where these key moves are delayed.**

Digitalisation covers both the necessary IT infrastructure and end-to-end connectivity between assets and service providers. Besides establishing a new market framework and engaging consumers, additional measures are needed in relation to the deployment of metering infrastructure, the standardisation of communication protocols, the optimisation of devices (including their capacity for remote access), and the interoperability of equipment from different vendors. Elia is investigating barriers and solutions to these which it will outline in its upcoming viewpoint, which will be published in November 2023.

** *Boucle du Hainaut, Ventilus, HTLS upgrades, Nautilus and TritonLink projects.*

The study has been published on Elia's website; it can be downloaded via the following link:
https://elia.group/ADEQFLEX-EN

About Elia Group

One of Europe's top five TSOs

Elia Group is a key player in electricity transmission. We ensure that production and consumption are balanced around the clock, supplying 30 million end users with electricity. Through our subsidiaries in Belgium (Elia) and the north and east of Germany (50Hertz), we operate 19,349 km of high-voltage connections, meaning that we are one of Europe's top 5 transmission system operators. With a reliability level of 99.99%, we provide society with a robust power grid, which is important for socio-economic prosperity. We also aspire to be a catalyst for a successful energy transition, helping to establish a reliable, sustainable and affordable energy system.

We are making the energy transition happen

By expanding international high-voltage connections and incorporating ever-increasing amounts of renewable energy into our grid, we are promoting both the integration of the European energy market and the decarbonisation of society. We also continuously optimise our operational systems and develop new market products so that new technologies and market parties can access our grid, thus further facilitating the energy transition.

In the interest of society

As a key player in the energy system, Elia Group is committed to working in the interest of society. We are responding to the rapid increase in renewable energy by constantly adapting our transmission grid. We also ensure that investments are made on time and within budget, with a maximum focus on safety. In carrying out our projects, we manage stakeholders proactively by establishing two-way communication channels between all relevant parties very early on in the development process. We also offer our expertise to different players across the sector in order to build the energy system of the future.

International focus

In addition to its activities as a transmission system operator, Elia Group provides consulting services to international customers through its subsidiary Elia Grid International. In recent years, the Group has launched new non-regulated activities such as re.alto - the first European marketplace for the exchange of energy data via standardised energy APIs - and WindGrid, a subsidiary which will continue to expand the Group's overseas activities, contributing to the development of offshore electricity grids in Europe and beyond.

The legal entity Elia Group is a listed company whose core shareholder is the municipal holding company Publi-T.

eliagroup.eu

For further information, please contact:

Corporate Communication
Marleen Vanhecke (EN) | M +32 486 49 01 09 | **marleen.vanhecke@elia.be**

Elia Transmission Belgium SA/NV
Boulevard de l'Empereur 20 | Keizerslaan 20 | 1000 Brussels | Belgium