PRESS RELEASE | 27 June 2025

Key priorities from Belgium's Adequacy and Flexibility Study 2026-2036:

continued implementation of the CRM, accelerated development of flexibility and clarity on the long-term energy mix

KEY FINDINGS

- The rate at which electrification occurs in Belgium will push the level of demand beyond the level of available capacity from 2028 onwards. However, the capacity remuneration mechanism (CRM) remains a cornerstone of Belgium's adequacy strategy: it keeps vital thermal capacity online while driving investment in new low-carbon assets.
- Flexibility is becoming critical on both the demand and supply side for managing increasing volatility and periods of oversupply. By unlocking end-user flexibility, a double win is created for consumers: lower system costs and lower electricity bills.
- To complement the capacity secured by the CRM and close the supply gap in the long-term, additional levers could be mobilised, such as the lifetime extension of nuclear units or the construction of new units; an increase in offshore wind capacity, cross-border interconnectors; or a structural reduction in demand.

BRUSSELS | To ensure that Belgium always has enough electricity to cover its consumption, Elia has released its fifth adequacy and flexibility study, which covers the period 2026–2036. The latter shows that electrification and digitalisation are triggering a transformation of the Belgian electricity system. While adequacy is ensured in the short term (thanks to the current CRM mechanism and the lifetime extension of nuclear units), additional capacity will be needed from 2028 onwards to maintain the country's security of supply. The CRM therefore remains a critical pillar for securing both existing and new capacity. However, complementary structural measures could be considered to safeguard long-term reliability. A critical enabler of the ongoing transition is the accelerated development of flexibility across the entire Belgian energy system. From consumer-side response and storage to controllable renewables, flexible resources are essential for managing volatility, ensuring grid stability, and making efficient use of surplus levels of renewable generation. With the right regulatory enablers (such as real-time pricing and digital tools), smart flexibility could deliver €350 to €500 million in annual savings for the system by 2036, while helping consumers to significantly lower their electricity costs.

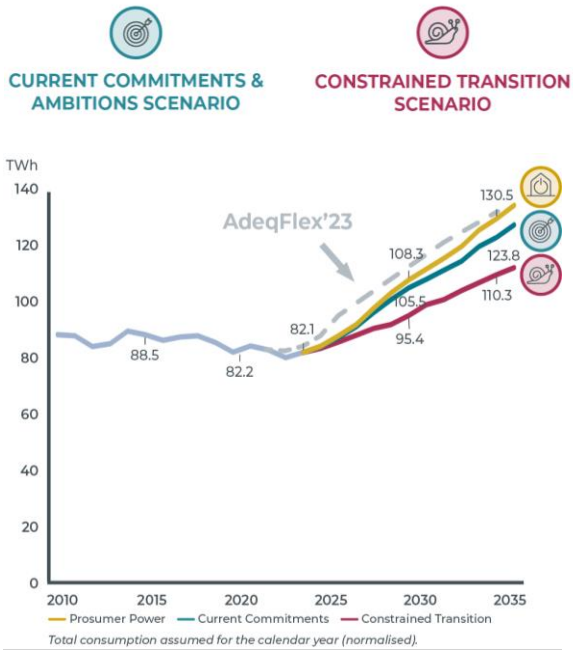
"The facts are known, the levers have been identified, and there is political will to shape a long-term energy vision for our country. Delivering on this vision will require the continued implementation of the CRM, an acceleration of the development of flexibility - both on the demand and generation side - and greater clarity about long-term choices for the energy mix. Achieving this will require coordinated and sustained efforts from all actors: public authorities, regulators, grid operators, producers, market participants, industrial players, and citizens. We sincerely hope that this report will act as a meaningful contribution to the upcoming discussions that will be held about the shaping of Belgium's future energy policy. Delivering on this collective commitment is now our shared priority."

Frédéric Dunon, CEO of Elia Transmission Belgium

GRAPHIC 1 – TOTAL BELGIAN ELECTRICITY CONSUMPTION ACROSS SCENARIOS

The energy transition continues to present us with surprises. The remarkable growth of battery storage and data centres, for example, has far exceeded expectations. In order to reflect these uncertainties, three distinct scenario frameworks have been included in this study for the first time: **(1) *Current Commitments & Ambitions*** *(based on existing targets and policies);* **(2) *Constrained Transition*** *(which involves a slower pace of change)*; and (3) ***Prosumer Power*** *(a faster, consumer-driven transition)*.

The three scenarios presented in this study each result in distinct outcomes for the energy system. Each scenario involves different levels of electrification and varying electricity mix choices, which in turn lead to differences in renewable energy shares, net electricity imports, levels of fossil fuel consumption, overall fuel expenditure, and emissions reductions.

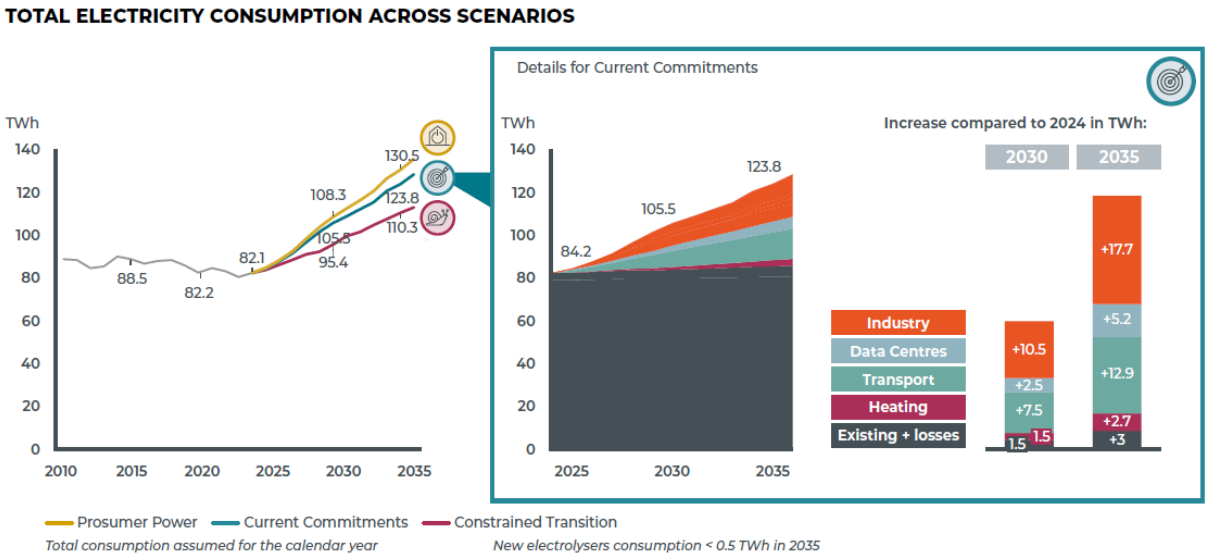


In comparison with our previous adequacy and flexibility study (AdeqFlex'23), the projected level of electricity consumption in Belgium is lower.

- The electrification outlook for the transport and heating sectors remains largely in line with previous projections.
- The remarkable growth of battery storage and data centres far exceeds expectations.
- By contrast, forecasts related to industrial consumption levels have yet to materialise, largely due to uncertainties and delays in industrial electrification and broader competitiveness pressures.

GRAPHIC 2 – TOTAL ELECTRICITY CONSUMPTION - CURRENT COMMITMENTS & AMBITIONS SCENARIO

The figure below provides a detailed view per sector for the Current Commitments & Ambitions scenario. This is the path Belgium is currently on, assuming that targets which have been published so far are indeed implemented across Europe. This scenario is aligned with Belgium's current energy policy and published targets such as forecasts from the Bureau du Plan, the ambitions in the National Energy and Climate Plan (NECP), recent federal and regional government agreements, and industrial electrification plans.

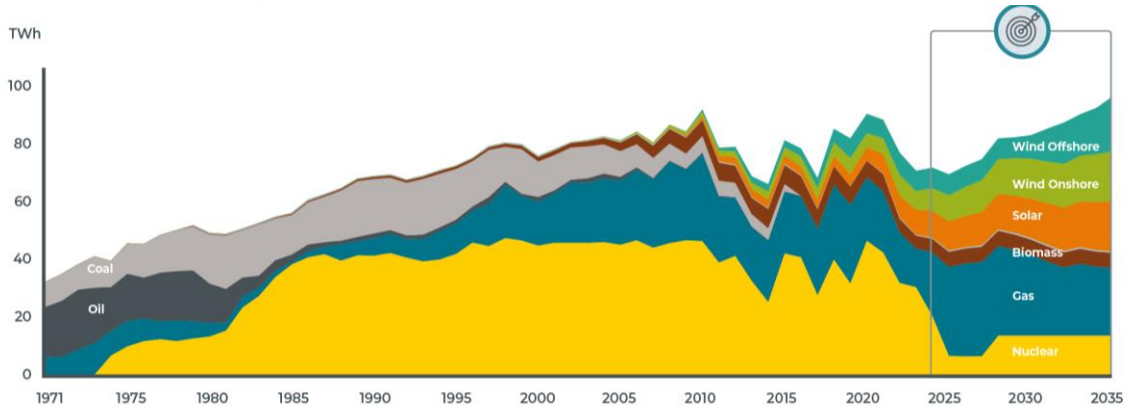


What does the figure above demonstrate?

- THE DEMAND FOR ELECTRICITY is expected to grow over the next 10 years; electrification will be the main driver of growth. Among the four key sectors – industry, data centres, transport and heating – the electrification of the industrial and transport sectors is expected to have the most significant impact.
- DATA CENTRES are also emerging as a future driver of electricity demand, particularly given the rise of artificial intelligence and growing levels of digital consumption.
- THE LEVEL OF ADOPTION OF ELECTRIC HEATING in buildings remains relatively low due to the conservative assumptions considered.

GRAPHIC 3 – HISTORICAL AND FUTURE CHANGES IN BELGIUM'S ELECTRICITY MIX

To illustrate the changes in Belgium's electricity mix, specific choices regarding the future generation mix are made for the Current Commitments & Ambitions scenario. While many uncertainties remain, the figure below assumes 2 GW of nuclear generation in operation after 2035 and 5.8 GW of offshore wind capacity from 2035 onwards. In addition, various sensitivities are analysed and can be found in the study.

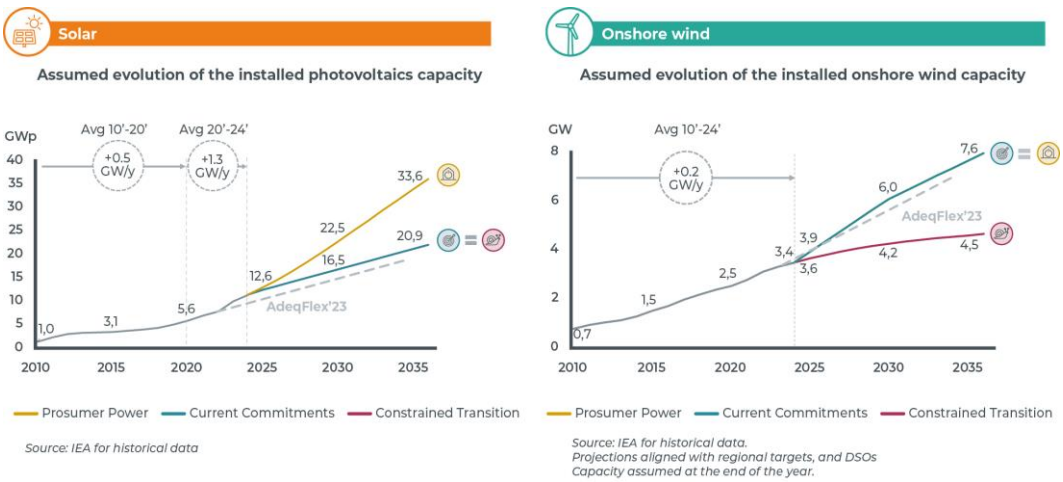


Source: historical data based on EMBER and IEA. Elia's simulations for EU-BASE-CC scenario.

What does the figure above demonstrate?

- Looking to the future, the figure depicts a growing share of renewables and decreasing share of gas-fired generation while taking into account the lifetime extension of nuclear units.
- After an exceptional surge in 2023, solar PV capacity continued to grow in 2024 (reaching more than 11 GW). The installed capacity is expected to reach regional targets of 16.5 GW by 2030, even under the Constrained Transition (CT) scenario, due to the accessibility and cost of solar PV. See Graphic 4 below.
- Achieving the 2030 regional targets for onshore wind (CC and PP scenarios) will require the historical growth rate to double over the next five years. See Graphic 4.

GRAPHIC 4 – ASSUMED CHANGES IN THE INSTALLED LEVELS OF SOLARONSHORE WIND CAPACITY



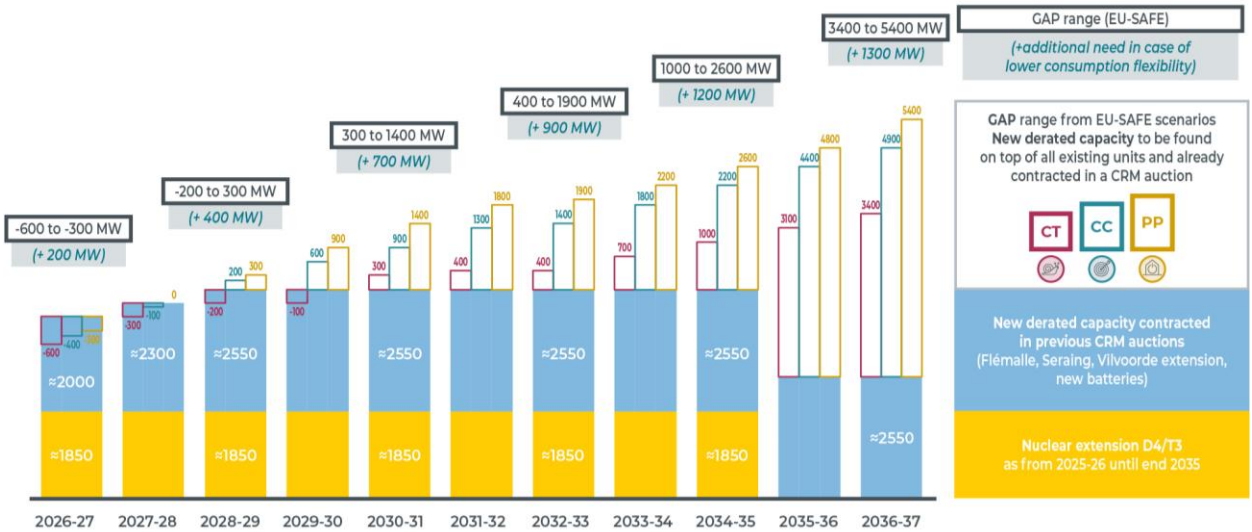
Source: IEA for historical data

Source: IEA for historical data.
Projections aligned with regional targets, and DSOs Capacity assumed at the end of the year.

GRAPHIC 5 – BELGIUM'S PROJECTED CAPACITY NEEDS OVER THE NEXT 10 YEARS

The figure below illustrates the new amounts of capacity that Belgium will need (assuming a 100% availability level) to meet its reliability standard over the coming decade, on top of what has already been secured in previous CRM auctions and the 10 year extension of D4/T3 (2025-2035).. The capacity requirements already take into account the development of expected levels of additional consumer flexibility.

However, if this flexibility does not materialise, additional volumes of capacity will need to be secured. Specifically, the slower uptake of flexible consumption in the residential, tertiary and industrial sectors could increase capacity needs by approximately +700 MW by 2030 and +1,300 MW by 2036.



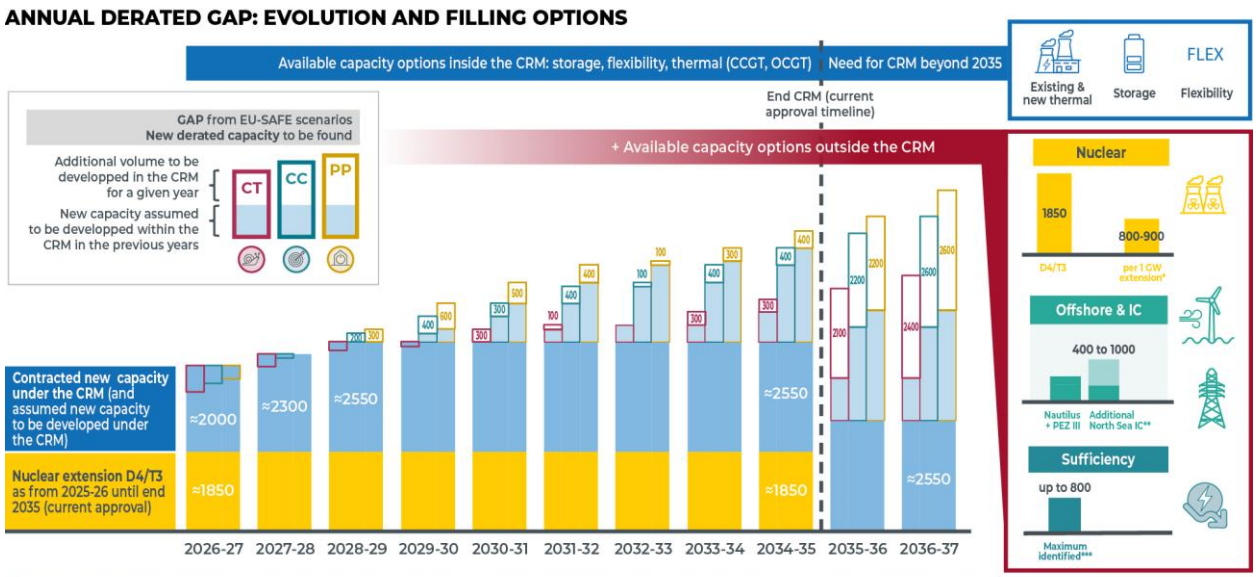
What does the figure above demonstrate?

- NEAR-TERM MARGIN, BUT NEW NEEDS FROM 2028 - While Belgium is expected to maintain a capacity margin in the near term – supported by the lifetime extension of nuclear reactors and capacities contracted under the CRM – a need for new capacity emerges from 2028 onwards in certain scenarios, and from 2030 onwards in all scenarios. The annual new capacity gap increase is estimated to be 100-600 MW: a volume that can realistically be covered by future CRM auctions, as it is comparable to new volumes that have been contracted in the past. However, over time, this could become more challenging if a growing share of batteries is selected, given that battery derating factors are expected to decrease as their penetration increases.
- LARGER GAP EXPECTED BY 2035 - By 2035, a larger capacity gap is expected to appear as current nuclear reactors (Doel 4 and Tihange 3) reach the end of their lifetime extensions.

Our analysis shows that without support mechanisms - such as the CRM - approximately 1,600 MW of existing thermal capacity (about 20% of the current thermal fleet) could be at risk of leaving the market in the coming decade. This at-risk volume could increase to up to 2,400 MW if an additional lifetime extension is applied to a nuclear unit (assumed to be 1 GW in the simulations) within the simulated period. Indeed, such an extension would further reduce the running hours of existing thermal plants, so amplifying the 'missing money' problem and increasing the likelihood of plant closures.

GRAPHIC 6 – TO CLOSE THE SUPPLY GAP BEYOND 2035, ADDITIONAL LEVERS COULD BE MOBILISED

The figure below builds on the previous one. CRM auctions are expected to continue fulfilling their role in securing the capacity Belgium requires to meet its adequacy needs in the coming years. However, to address the capacity gap in the medium to long run, additional structural solutions may be used to complement the CRM.



*Nuclear extension: The effective contribution could be limited by potential redispatching measures that may be required depending on the year of extension.
**Additional North Sea IC: contribution to adequacy will depend on the cable size, configuration and the country to which it is connected.
***Sufficiency: Demand reduction driven by behavioral changes (e.g., temperature setpoints, vehicle size choices, modal shifts, circular economy practices), also referred to as 'sobriété' in French. The indicated value represents the maximum potential impact, assuming full implementation of all measures outlined in the study.
CT: Constrained Transition; CC: Current Commitments & Ambitions; PP: Prosumer Power.

What does the figure above demonstrate?

- 2028-2035 - The figure above shows the remaining capacity needs for each year within the currently approved CRM timeline. It assumes that the CRM continues to fulfill its role by contracting the new volumes of required capacity through Y-1, Y-2, and Y-4 auctions, while also ensuring existing capacity remains in the market.
- BEYOND 2035 - The capacity gap is expected to grow significantly due to the planned phasing out of nuclear power and the current CRM framework has not yet been validated for this period. Complementary measures would also contribute to addressing energy supply needs in the long term.

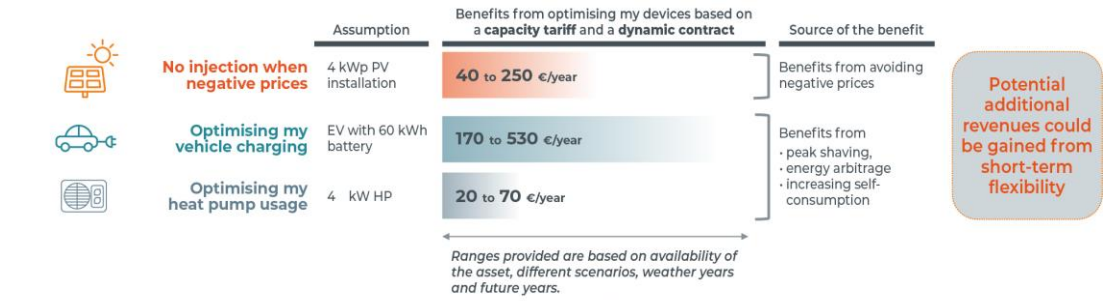
A number of technological options, which fall outside of the CRM, could significantly reduce the adequacy gap, including: the lifetime extensions of nuclear units; additional levels of interconnection capacity (including through a new interconnector between Belgium and the UK); additional levels of renewable capacity, particularly offshore wind capacity; and sufficiency measures aimed at reducing the level of demand. Given the long lead times required to deploy the above-mentioned solutions (which fall outside of the CRM), it is essential to start shaping a clear and coordinated vision for Belgium's future energy system.

GRAPHIC 7 – ADDITIONAL END-USER FLEXIBLITY CAN DELIVER €350 to €500 MILLION IN ANNUAL SAVINGS BY 2036 FOR THE BELGIAN ELECTRICITY SYSTEM

Periods of surplus energy (when the level of renewable energy and must-run generation is higher than the level of consumption) are becoming more frequent in Belgium and across Europe. Building a dynamic and responsive energy system means aligning consumption with renewable production and allowing production to adapt to price signals, so that its output can be reduced when necessary. The controllability of solar power in particular can play a critical role when other sources of flexibility, such as demand-side response and batteries, are already being used to their maximum.

What does the figure above demonstrate?

- Facilitating end-user flexibility helps to reduce the need for additional balancing capacity (system operation needs) and the cost of additional capacity that needs to be procured through the CRM. This not only strengthens the reliability of the system, but also leads to substantial cost savings, which are estimated to total between €350 to €500 million annually by 2036. This value is further increased by grid investment gains and the value of consumers reacting to energy market prices.
- Smart flexibility could also deliver big savings for residential consumers. Our analysis highlights three key levers through which flexibility delivers value: no injection when negative prices occur; the optimisation of EV charging; and the optimisation of heat pump use.



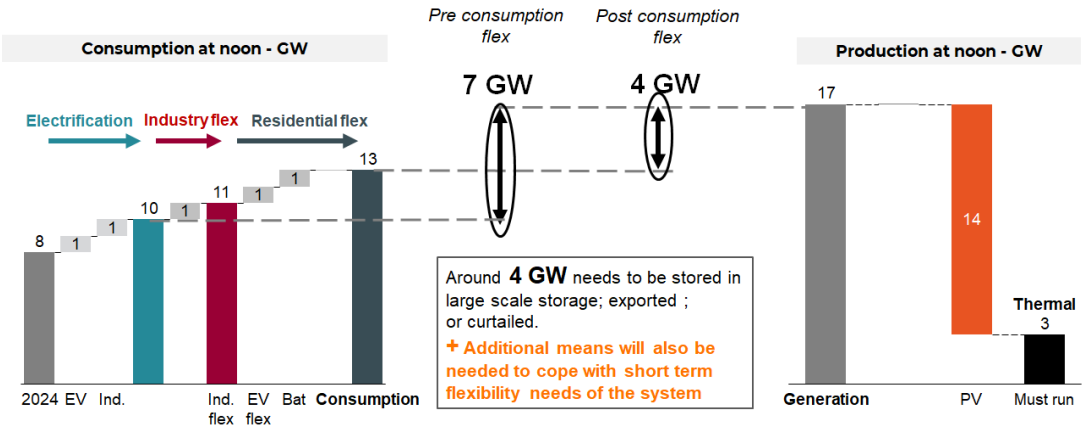
· *Benefits are express as a delta for a dynamic contract, do include the benefits from capacity tariffs as set today in Flanders but exclude additional benefits from providing ancillary services.*
· *Benefits are not necessarily cumulative for the 3 categories as synergies exist.*
· *Benefits including grid fees, taxes and levies*

Unlocking the value of end-user flexibility remains a strategic priority for Belgium's electricity system. Yet today, many consumers – both industrial and residential – are not fully aware of the value and benefits they can create by adopting a flexible approach to their use of electricity.

GRAPHIC 8 – MODULATING GENERATION IS ONE OF THE OPTIONS TO KEEP THE SYSTEM IN BALANCE

Looking ahead, the continued growth of renewables will cause deeper and more volatile residual patterns. More periods of excess are likely to occur around midday, when large volumes of solar PV generation coincide with lower levels of demand. In 2026, there is a risk that flexibility needs will not be met for around 300 hours. Depending on how quickly battery capacity and end-user flexibility is developed, this number could increase to 600 hours by 2036.

An additional 1.8 GW (in 2026) to 2.5 GW (in 2030) of consumer flexibility and decentralised PV flexibility/modulation is needed to react in the market to manage system imbalances.



The graphic above illustrates the situation on a sunny, windless day in May 2032.

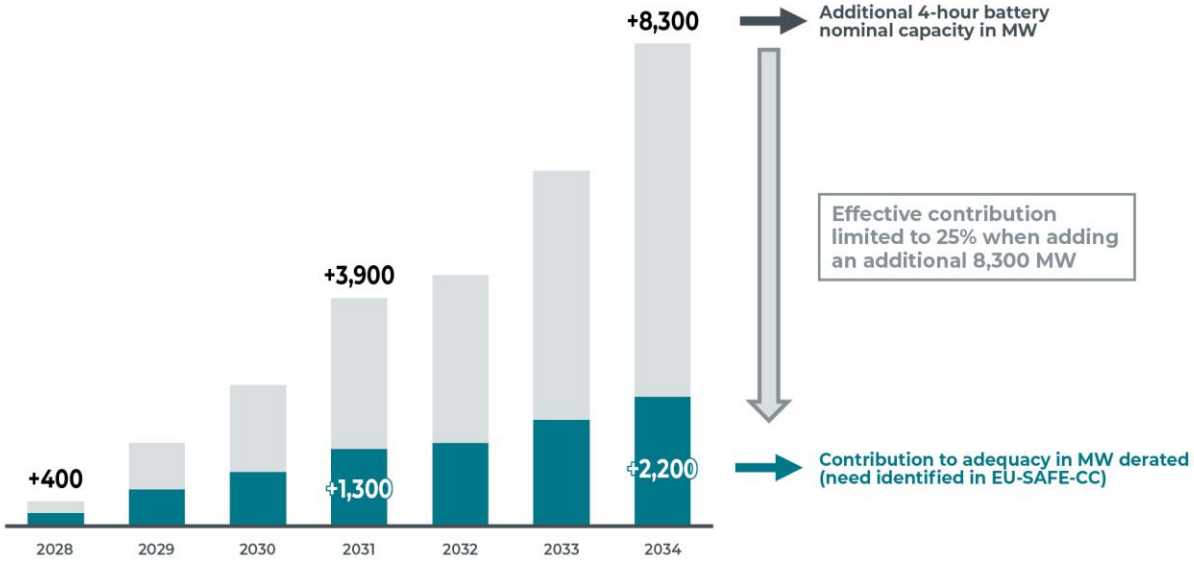
- CONSUMPTION - In a situation in which electrification progresses following the Current Commitments scenario, the total level of midday weekend demand could reach ~10 GW. Activating different means of flexible consumption (industrial flexibility, EVs and residential batteries) could add an additional 3 GW. The level of demand would then reach 13 GW.
- PRODUCTION - In terms of production, around 3 GW of must-run thermal units (of which 2 GW of nuclear) and around 14 GW of PV generate electricity. This figure excludes wind generation. The production level reaches ~17 GW, leaving a surplus (when compared to the demand) of around 4 GW that must be stored, exported, or curtailed.
- FLEXIBILITY NEEDS - While 4 GW are needed (after pre-consumption flexibility has been activated) in this example, additional levels of flexibility might be required to cope with imbalances that arise between the day-ahead market and real-time operations. During these moments, further reducing the levels of generation may be necessary to maintain system stability.

As Belgium moves towards establishing a more electrified and renewables-based energy system, managing moments of structural oversupply — particularly during the spring and summer — is becoming a central challenge. During these moments, further modulation of renewables (wind and solar PV) is one of the options to keep the system in balance.

GRAPHIC 9 – THE EFFECTIVE CONTRIBUTION OF LARGE-SCALE STORAGE TO ADEQUACY IS EXPECTED TO DECREASE AS MORE CAPACITY IS DEPLOYED IN BELGIUM AND ACROSS EUROPE

The figure below depicts the required capacity of 4h large-scale batteries which are needed to fully close the adequacy gap identified in the EU-SAFE Current Commitments scenario between 2028 and 2034. The derating factor of the technology is its effective contribution to adequacy.

ADDITIONAL NOMINAL CAPACITY OF BATTERIES THAT WOULD BE REQUIRED TO FILL THE ENTIRE GAP OF THE EU-SAFE-CC SCENARIO (ON TOP OF THE 1,500 MW ALREADY PLANNED FOR 2028)



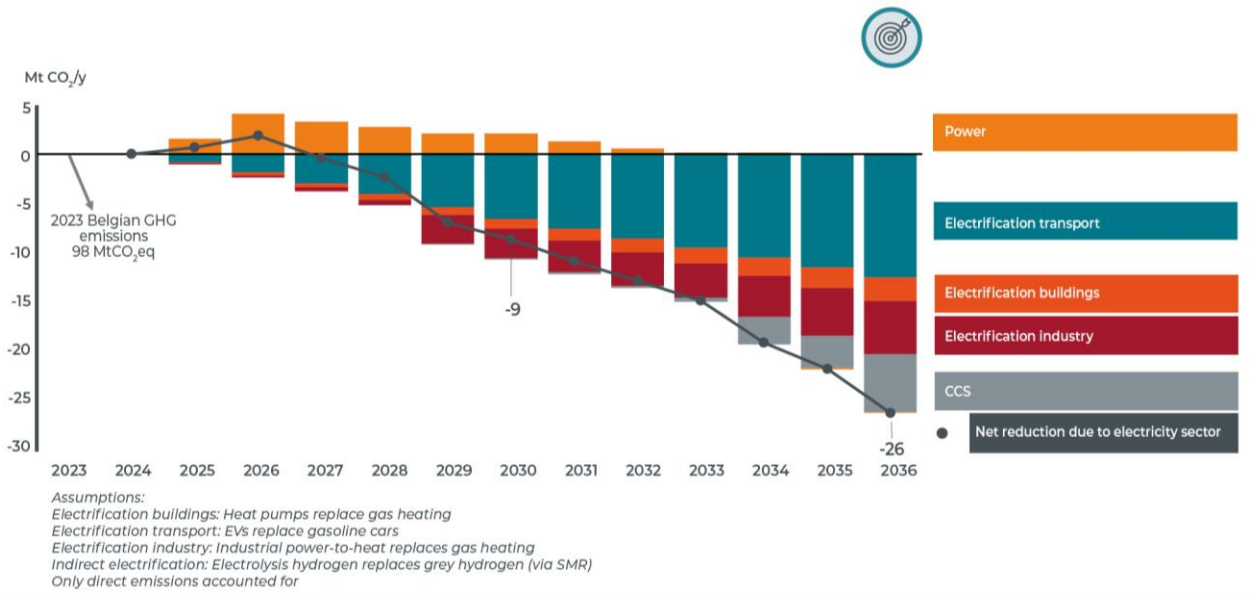
What does the figure above demonstrate?

- In 2028 - 400 MW of additional battery capacity will be needed to fully close the 200 MW adequacy gap. This corresponds to a derating factor of 50%.
- By 2034 - If the entire gap were to be filled using batteries, an additional capacity of 8,300 MW would be needed. However, this could result in an effective contribution of only 2,200 MW, implying a derating factor of around 25%.

GRAPHIC 10 – CHANGES IN CO_2 EMISSIONS FROM THE POWER SECTOR

INCLUSING IMPORTS AND CROSS-SECTOR OFFSETS DRIVEN BY ELECTRIFICATION (COMPARED WITH 2024)

Electrification offers up important opportunities for reducing the consumption of fossil fuels, which in turn lead to significant reductions in direct domestic CO_2 emissions. The replacement of internal combustion engine vehicles, gas boilers for residential and tertiary heating purposes and fossil-based heat supplies in industry will lead to a significant reduction in (direct) emissions in these sectors.



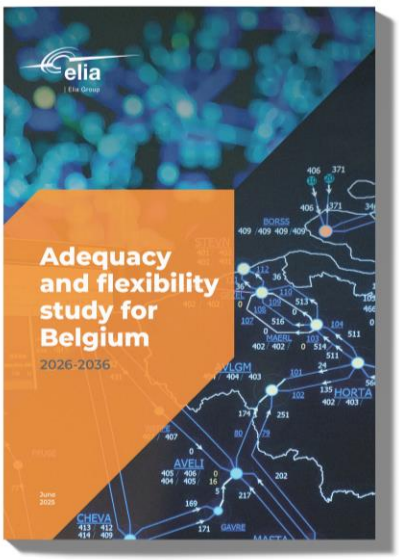
What does the figure above demonstrate?

- IN THE SHORT TERM – The total emissions (domestic and imports) linked to the generation of power in Belgium are expected to increase and then drop in the longer term. This is mainly due to additional levels of gas generation, which will increase the CO_2 intensity of electricity generation in the lead-up to 2026.
- BEYOND 2026 - CO_2 emissions linked to power generation will steadily decrease due to more renewable energy sources being integrated into the system, despite the growing level of electrification.

The electrification of the mobility, heating and industrial sectors will more than compensate for the additional emissions linked to increased power generation needs. The effect of electrification can reduce emissions by more than 9 Mt of CO_2 by 2030 and almost 26 Mt of CO_2 by 2036 when including carbon capture and storage (CCS) in industrial processes. While CCS is not seen as direct electrification, it requires large amounts of electricity, which is taken into account in electricity consumption.

The ‘Adequacy and Flexibility study for Belgium 2026-2036’ has been published on Elia's website.

It can be downloaded via the following link: https://elia.group/AdeqFlex2025



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 19,741 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 socioeconomic 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/NextGrid Holding.

eliagroup.eu

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