C/2024/4921

8.8.2024

STATE AID — BELGIUM

State aid SA.106107 (2024/N) — Lifetime extension of two nuclear reactors (Doel 4 and Tihange 3)

Invitation to submit comments pursuant to Article 108(2) of the Treaty on the Functioning of the European Union.

(Text with EEA relevance)

(C/2024/4921)

By means of the letter dated 22 July 2024 reproduced in the authentic language on the pages following this summary, the Commission notified Belgium of its decision to initiate the procedure laid down in Article 108(2) of the Treaty on the Functioning of the European Union concerning the abovementioned aid.

Interested parties may submit their comments on the aid within one month of the date of publication of this summary and the following letter, to:

European Commission,
Directorate-General Competition
State Aid Greffe
1049 Bruxelles/Brussel
BELGIQUE/BELGIË
Stateaidgreffe@ec.europa.eu

These comments will be communicated to Belgium. Confidential treatment of the identity of the interested party submitting the comments and/or of parts of the comments submitted may be requested in writing, stating the reasons for the request.

TEXT OF SUMMARY

Procedure

Belgium started pre-notification contacts in January 2023. Several meetings were organised with the Belgian authorities and several documents were exchanged while the Belgian State made progress on the negotiations with the parties. Eventually, Belgium notified the measure on 21 June 2024.

Description of the aid

In the context of the 2022 energy crisis and the war in Ukraine, as a measure to reduce Belgium's dependency on fossil fuels and to contribute to security of supply, the Belgian government decided to extend the lifetime of two nuclear reactors (Doel 4 and Tihange 3) for ten years. The two nuclear reactors, of which Electrabel, a subsidiary of Engie, is the majority owner and sole operator, were planned to be shut down in 2025, following the 2003 Law on the nuclear phase-out in Belgium. The other (minority) owner of the two nuclear plants is Luminus, a subsidiary of EDF.

The lifetime extension of the two nuclear reactors increases Engie's risk profile and requires Engie to modify its business strategy. The Belgian government, Engie and Electrabel therefore decided to put in place a partnership on the management of the extended nuclear activities in Belgium. On 13 December 2023, the Belgian government, Engie and Electrabel signed a set of agreements covering all aspects of the partnership, with a view to restarting the two reactors by 1 November 2025, following works necessary to extend their lifetime.

The agreement, which is subject to a standstill clause in line with State aid rules, includes a few interventions, which can be grouped in three main components:

Component 1

Financial and structural arrangements, including

— Pre-funding of Electrabel's costs and expenses for the development activities until all required legislative changes have entered into force, with the objective to come to an eventual cost-sharing on a 50/50 basis.

— The creation of a joint-venture ('JV'), BE-NUC, owned 50/50 by the Belgian State and Electrabel, with equal participation (through a capital increase) and decision-making authority. Both, the Belgian State and Electrabel will provide funding for the JV. BE-NUC will not become a nuclear operator: Electrabel is and will remain the sole operator of the two nuclear reactors through an Operations and Maintenance ('O&M') Agreement, including control rights of BE-NUC over the operating costs. Electrabel will also issue to BE-NUC a shareholder loan (the 'Electrabel Shareholder Loan') and so will the Belgian government (the 'Belgian Government Shareholder Loan') on pari passu terms to finance any expense contemplated by the shareholder's agreement.

— Various financial support mechanisms, including a working capital facility ('WCF') and SDC loans, a minimum OPEX and capital payment ('MOCP'), and a two-way contract for difference ('CfD') in order to make sure that the JV and Luminus (in their capacity as co-owners of the reactors and of the electricity produced) receive sufficient income from the power generation to invest in and operate the reactors and to make an appropriate financial return (target rate of return of 7 %), while reducing their market and operational risks and transferring any revenue which is not necessary to attain this objective to the Belgian State.

— The set-up of an Energy Management Services Agreement ('EMSA') with a third party or an Engie entity, which will act as an agent for BE-NUC to sell the electricity output on the wholesale electricity market.

Component 2

Transfer of liabilities concerning nuclear waste, spent fuel and decommissioning

— A cap on the liability of producers of radioactive waste resulting from the production of electricity through nuclear energy in order to reduce uncertainty regarding the cost of nuclear waste and spent fuel in the future, through the payment of a lumpsum amount of EUR 15 billion by the nuclear operator.

— Transfer of increased decommissioning liabilities of all Belgian nuclear reactors to the Belgian State, as far as they are resulting from the lifetime extension and can be proven by Electrabel.

Component 3

Legal protections

— Provisions on legal protections, which define the risk-sharing in the event of future legislative changes, specifically concerning nuclear operators in Belgium or Electrabel's nuclear activities and having a negative impact on the material terms of the transaction.

The ultimate beneficiaries of the measures are Engie, including its subsidiary Electrabel, and EDF, including its subsidiaries Luminus and EDF Belgium.

The agreement brought forward a set of legal acts which implement the transaction between Engie and the Belgian State, including:

— an amendment of the Nuclear Phase-Out Law of 2003,

— a law to guarantee security of supply in the energy sector and reforming the nuclear energy sector ('Phoenix Law'),

— a law on the creation, organisation and operation of the administrative service with autonomous accounting and various provisions relating to the exchange of information ('BE-WATT Law'), and

— a law on the creation, organisation and operation of a public institution whose purpose is to take over the financial responsibility for certain nuclear liabilities 'Hedera Law').

The costs of the measures will be financed through the State budget, including the potential paybacks from the two-sided CfD.

Assessment

Existence of aid

The Commission considers that all components of the notified measure included in the agreements between the Belgian State, Electrabel and Engie are part of one single intervention, since they are all related to the same event, i.e., the lifetime extension of the two nuclear reactors. The agreement on the transfer of nuclear waste, spent fuel and decommissioning liabilities, as well as the legal protections were also part of the requests by Engie to agree on the lifetime extension and are therefore an inherent part to the conclusion of the overall deal. Since the two-way CfD establishes a stable revenue stream for the production of electricity from nuclear sources, thereby shielding the plants' owners from market risks, and since the various financial support mechanisms mentioned above shield the plants' owners from a share of operational risks, a selective advantage is provided to Electrabel and Luminus, as co-owners of the nuclear reactors. by means of State resources, which constitute State aid.

Incentive effect of the aid

Before Belgium's decision to extend the lifetime of the two nuclear reactors in 2022, Engie had already announced its plans to leave the nuclear sector in Belgium after 2025, and was initially hesitant to accept the lifetime extension, claiming that nuclear energy had become too expensive and too risky. Therefore, all components of the notified measure were required to have Engie agree to continue the operation of the two LTO Units. The Commission therefore considers, at this stage, that it is plausible that the notified measures have an incentive effect on Engie and Electrabel.

Compliance with relevant EU Laws

The measure was notified to the Commission under the TFEU and under the Euratom Treaty and was preceded by an environmental impact assessment. The costs related to the agreement are covered by the State budget where required, and benefits of the project flow back to the State budget, so that there are no resources hypothecated to the measure and Article 30 and 110 TFEU are complied with. Nevertheless, the Commission has doubts that CfD mechanisms complies with the CfD design principles set out in Article 19d(2) of Regulation (EU) 2024/1747. Therefore, the Commission cannot conclude, at this stage, that the proposed measures comply with relevant provisions of EU law.

Necessity of the aid

In line with Euratom provisions, the transfer of the liabilities for radioactive waste management serves the objective to secure the financing of spent fuel and radioactive waste management as a prerequisite for the responsible and safe management of these materials and is therefore needed. The same holds for the legal protections agreement which is needed in the case of nuclear to deal with regulatory and political risks.

With respect to the financial support measures, the Commission recognises that there is a need for the nuclear operator and owners of the nuclear reactors to have a stable source of revenues, which can be provided by the two-way CfD, given the uncertainties related to the future electricity market price. However, the Commission is currently unable to conclude that additional measures on top of the two-way CfD are all necessary, in particular the creation of a JV to which the Belgian Government will be a shareholder, the minimum OPEX and capital payment and the SDC loans. Therefore, the Commission has, at this stage, doubts on the necessity of the aid.

Appropriateness of the aid

Given the existence of market failures related to the uncertain costs of waste management and decommissioning, as well as related to political and regulatory risks, the Commission considers the agreement on the transfer of nuclear waste and spent fuel liabilities and the legal protections appropriate to address these respective market failures.

However, the Commission has doubts on the CfD design proposed by Belgium, since it lacks appropriate incentives to react to market circumstances and to schedule maintenance in the most efficient way. In this respect, the Commission also wonders whether the day-ahead market price used as market reference price in the CfD design is the most appropriate option in order to provide the right incentives to dispatch the production units. Moreover, the package of remuneration measures might relieve the beneficiaries from too big a share of the market and operational risks. For these reasons, the Commission has doubts on the appropriateness of the aid.

Proportionality of the aid

The Commission has doubts on the proportionality of several of the financial remuneration measures (including the SDC loans and MOCP). Those measures are combined with a CfD and they are set to reach, by design, the target return rate of 7 %, which can only be assessed with respect to the measures themselves and the risk-reduction they provide. Therefore, the proportionality of this target return rate cannot be assessed *in abstracto* and can only follow the assessment of the appropriateness of the measures.

In addition, the Commission has doubts on the establishment of the amount of the lumpsum payment of EUR 15 billion for the transfer of the nuclear waste and spent fuel liabilities, as well as on the amount of the (potential) transfer of decommissioning liabilities resulting from the LTO Project. Therefore, the Commission has doubts on the proportionality of the aid.

Effects on the market

The Commission considers that some features of the measures may lead to undue market distortions. In particular, the CfD design might not provide the right incentives to the nuclear operator to react in accordance with market signals, while the day-ahead market price might not be the most appropriate reference market price. In addition, further reassurances are needed on the identity and independence of the agent selling the plant's output in the market under the EMSA.

Conclusion

The Commission has doubts on the compatibility of the aid with the internal market and has thus decided to open the formal investigation procedure.

In accordance with Article 16 of Council Regulation (EU) 2015/1589 ([1]), all unlawful aid can be subject to recovery from the recipient.

([1]) Council Regulation (EU) 2015/1589 of 13 July 2015 laying down detailed rules for the application of Article 108 of the Treaty on the Functioning of the European Union (OJ L 248, 24.9.2015, p. 9, ELI: http://data.europa.eu/eli/reg/2015/1589/oj).

TEXT OF LETTER

The Commission wishes to inform Belgium that, having examined the information supplied by your authorities on the measure referred to above, it has decided to initiate the procedure laid down in Article 108(2) of the Treaty on the Functioning of the European Union.

1. THE PROCEDURE

(1) On 21 June 2024, further to pre-notification contacts, including conference calls, meetings and requests for information, to which responses were submitted, the Kingdom of Belgium ('Belgium') notified the agreement to extend the lifetime of two nuclear reactors, Doel 4 and Tihange 3, concluded between Engie S.A. ('Engie') and the Belgian government on 13 December 2023.

(2) By letter dated 14 February 2024, Belgium agreed to exceptionally waive its rights deriving from Article 342 TFEU in conjunction with Article 3 of Regulation 1/1958 ([1]) and to have the present decision notified and adopted in English.

2. BACKGROUND ON THE ENERGY SECTOR IN BELGIUM

2.1. Nuclear fleet in Belgium

(3) Until 2022, Belgium's nuclear park consisted of seven nuclear reactors, four located in Flanders (Doel) and three located in Wallonia (Tihange). All reactors came into operation between 1975 and 1985 ([2]) and were built by public utilities (Ebes, Intercom and Unerg) that were eventually merged to become Electrabel (majority owned by Tractebel) in 1990. In 1996, the Société Générale de Belgique ('SGB') became the majority shareholder of Tractebel and in 1999, Suez acquired nearly 100 % of SGB. Since the merger between Suez and Gaz de France ('GDF') in 2008, the ultimate owner of Electrabel has been Engie ([3]).

(4) In 2003, the Belgian Federal Parliament adopted the 'Nuclear Phase-Out law', establishing a nuclear phase-out between 2015 and 2025 ('2003 Law' or 'Nuclear Phase-Out law') ([4]). Article 3 of the Nuclear Phase-Out law prohibited the construction of new nuclear units aimed at the industrial production of electricity by nuclear fission in Belgium, and Article 4 limited the operation of the already existing reactors to 40 years. According to the Nuclear Phase-Out law, the closing dates of the nuclear plants in Belgium would have been 15 February 2015 (Doel 1), 1 December 2015 (Doel 2), 1 October 2022 (Doel 3), 1 July 2025 (Doel 4), 1 October 2015 (Tihange 1), 1 February 2023 (Tihange 2) and 1 September 2025 (Tihange 3). As initially foreseen by the Nuclear Phase-Out law, Doel 3 and Tihange 2 were permanently disconnected from the grid on 23 September 2022 and 31 January 2023 respectively. By the laws of 18 December 2013 and 28 June 2015 ([5]), the Nuclear Phase-Out law was amended and the lifetime of the three oldest reactors, Tihange 1, Doel 1 and Doel 2, was extended by 10 years, until 30 September 2025, 14 February 2025 and 30 November 2025 respectively (10-year lifetime extension) ([6]). According to the Nuclear Phase-Out law, Doel 4 and Tihange 3 were to close by 2025, but the Belgian government took the principle decision to reverse this decision in 2022 (see section 3.1 below). An overview is provided in Table 1.

([1]) Regulation No 1 determining the languages to be used by the European Economic Community (OJ 17, 6.10.1958, p. 385).
([2]) Doel 1, Doel 2 and Tihange 1 in 1975; Doel 3 and Tihange 2 in 1982 and 1983 respectively; Doel 4 and Tihange 3 in 1985.
([3]) The subsidiary will hereafter be referred to as Electrabel ('Engie-Electrabel' being its commercial name).
([4]) 31 January 2003, Wet houdende de geleidelijke uitstap uit kernenergie voor industriële elektriciteitsproductie/Loi sur la sortie progressive de l'énergie nucléaire à des fins de production industrielle d'électricité.
([5]) On 5 March 2020, the law of 28 June 2015 was annulled by the Constitutional Court (Case 34/2020) - after a preliminary ruling of the Court of Justice of the European Union (Case C 411/17) - because the obligations regarding the environmental impact assessment were not respected, while maintaining the effects of the law until 31 December 2022. On 11 October 2022, after an environmental impact assessment, a 'Repair Law' was passed changing the deactivation dates. The Repair Law postponed the deactivation of Doel 1, Doel 2 and Tihange 1 to 2025.
([6]) See Commission Decision (EU) 2017/1516 final of 17 March 2017 on the aid scheme SA.39487 (2016/NN) Belgium – Lifetime extension of the nuclear power plants Tihange 1, Doel 1 and Doel 2 (OJ C 142, 05.05.2017, pp. 1-2).

(5) Since 2020, Engie's strategic objectives concerning nuclear activities were to (i) withdraw from nuclear activities in Belgium to de-risk its exposure as nuclear operator to market price volatility ([7]), and (ii) no longer position nuclear activity as part of Engie 's core business ([8]). This withdrawal has resulted in a halt to all studies relating to the extension of its nuclear power plants (all located in Belgium) from 2020 onwards. Engie's financial communication since 2020 is in line with this strategic objective of withdrawal and has been taken into account in the accounting assumptions used to prepare the consolidated financial statements, in particular in impairment tests.

(6) From 2022 onwards, the context changed when the Belgian government announced its decision to amend its energy policy by requesting the extension of the operation (Long-Term Operation, 'LTO' ([9])) of two of the seven nuclear reactors for 10 years (see section 3.1). Engie entered into discussions with the Belgian State to explore the modalities of this project, regardless of its previous communications to its shareholders and the markets. Since, according to Engie and Belgium, such a lifetime extension of the two nuclear reactors entails significant investments and risks for Engie, the Belgian State agreed with Engie to set up a mechanism to share, in a balanced and transparent manner, the risks and rewards in relation to the lifetime extension of the two reactors. According to Belgium, Engie made it clear from the start that without a risk sharing mechanism and a solution for the costs of nuclear waste stemming from the operation of the seven nuclear power plants, it would not consider the lifetime extension of the two nuclear reactors, which forces Engie to substantially modify its company strategy and risk exposure ([10]).

([7]) Evidence regarding Engie's initial decision to withdraw from its nuclear activities: Engie URD 2020, p.12 (https://www.engie.com/sites/default/files/assets/documents/2021-03/ENGIE_URD_2020_0.pdf) and Engie URD 2021, p.13 (https://www.engie.com/sites/default/files/assets/documents/2022-03/ENGIE%20DEU%202021%20VA%20%281%29_8.pdf): '*In nuclear, following the Belgian government's confirmation of its intention to withdraw from nuclear, the Group has been supporting the transition of the Belgian power system, while complying with the highest nuclear safety standards.*'; Notice of Engie shareholders' meeting of 20 May 2021, p.8 (accessible via https://www.engie.com/en/general-meeting-may-2021): '*Following announcements by the Belgian government during the fourth quarter of 2020, the decision was made to cease all preparatory work to extend the lifespan of two units by 20 years beyond 2025 as this extension appears unlikely considering technical and regulatory constraints. This change in expected lifespan, coupled with changes to commodity price assumptions, led to the recognition of a depreciation of €2,9 billion in nuclear power assets, a non-recurring item in the 2020 income statement. ENGIE remains committed to Belgium and to contributing to the security of the country's supply*.'

([8]) Evidence regarding Engie's strategic decision to reorient its activities to focus on renewable energies and energy infrastructures: Engie press release of 31 July 2020 'ENGIE to refocus and accelerate growth in renewables and infrastructure assets'(https://www.engie.com/sites/default/files/assets/documents/2020-07/PR%20RECENTRAGE%20EN_0.pdf): '*ENGIE intends to implement a new capital allocation strategy, focusing on two growth areas servicing the energy transition. ENGIE plans to accelerate its development in renewables, by increasing the target for renewables capacity commissioned 3 GW p.a. currently to 4 GW p.a. on average over the medium-term, while increasing the number of renewables projects retained on its balance sheet.*' Press article (L'Echo) 'Renouvelables et simplification, Engie dévoile sa nouvelle stratégie' (19/05/2021): '*In the first quarter of 2021, Engie posted a 7,3 % increase in ebitda. The group confirms its strategic repositioning and embraces renewable energies. […] Catherine MacGregor's big announcement focuses on the significant development of renewables in the group's portfolio of activities. [...] Engie is a global energy player focused on renewables and infrastructure, supporting customers' decarbonisation.*' (convenience translation)

([9]) Doel 4 and Tihange 3 will hereafter be referred to as the 'two nuclear reactors' or the 'LTO Units'.

([10]) Evidence of Engie's request for a risk-sharing mechanism and a solution for nuclear waste: Letter to Engie's shareholders of July 2022, p.10 'What is the position of Engie on the possible nuclear extension in Belgium?' (https://www.engie.com/sites/default/files/assets/documents/2022-07/ENGIE-Lettre%20Actionnaires%20-Juillet%202022%20VF.pdf): '*ENGIE has taken note of the Belgian government's decision to change its energy policy, in the current geopolitical circumstances, by extending nuclear power until 2035. ENGIE will contribute to this reflection by studying with the government the feasibility and conditions for implementing the solutions envisaged at this stage. The decision to extend the Doel 4 and Tihange 3 power plants raises major safety, regulatory and implementation constraints, especially as this extension would take place at the same time as dismantling activities on neighbouring units have begun. The unpredictable nature and scale of the risk profile thus exceed the normal activities of a private operator. ENGIE would therefore only embark on such a project as part of a balanced risk-sharing approach, with a defined, stable and viable regulatory framework for the investment required, including a clear framework for decommissioning and spent fuel management.*' (convenience translation); Engie press release, 13 December 2023 (accessible via: https://en.newsroom.engie.com/news/engie-signs-a-final-agreement-with-the-belgian-government-on-the-extension-of-tihange-3-and-doel-4-nuclear-reactors-6aef-314df.html): '*We are very pleased to announce the final signature of this agreement, which allows a balanced sharing of risks associated with the extended operation of the two nuclear units and eliminates uncertainties for ENGIE Group related to the evolution of nuclear waste liabilities*' (statement from Catherine McGregor, CEO).

(7) Electrabel, a subsidiary of Engie, has always been the nuclear operator and majority owner of the seven Belgian nuclear reactors. Today the ownership of the Belgian nuclear reactors is as follows:

(a) Electrabel owns 100 % of Doel 1 and Doel 2, 89,807 % of Doel 3, Doel 4, Tihange 2 and Tihange 3, and 50 % of Tihange 1;

(b) Luminus, a subsidiary of EDF Belgium, owns 10,193 % of Tihange 2, Tihange 3, Doel 3 and Doel 4;

(c) EDF Belgium ([11]) owns the remaining 50 % of Tihange 1.

(8) Table 1 below provides an overview of the seven Belgian nuclear reactors, including their ownership status, net capacity, and initial deactivation dates according to the Nuclear Phase-Out law and the revisions thereafter.

Table 1

Overview nuclear power plants in Belgium

Nuclear reactor	Ownership	Net capacity (MWe)	Deactivation date (Nuclear Phase-Out law)	Deactivation date (revised)
Doel 1	Electrabel (100 %)	445	15 February 2015	14 February 2025
Doel 2	Electrabel (100 %)	433	1 December 2015	30 November 2025
Doel 3	Electrabel (89,807 %) Luminus (10,193 %)	1006	1 October 2022	*Deactivation on 23 September 2022*
Doel 4	Electrabel (89,807 %) Luminus (10,193 %)	1026	1 July 2025	31 October 2035 (*)
Tihange 1	Electrabel (50 %) EDF Belgium (50 %)	962	1 October 2015	30 September 2025
Tihange 2	Electrabel (89,807 %) Luminus (10,193 %)	1008	1 February 2023	*Deactivation on 31 January 2023*
Tihange 3	Electrabel (89,807 %) Luminus (10,193 %)	1038	1 September 2025	31 October 2035 (*)

Source: Belgian authorities - Reference is made to the website of the FPS Economy on nuclear power production in Belgium, last consulted on 18 June 2024: https://economie.fgov.be/fr/themes/energie/sources-et-vecteurs-denergie/nucleaire/parc-de-production-de. As indicated, Doel 3 and Tihange 2 have been deactivated. The following report includes their former net capacity: International Atomic Energy Agency, Operating Experience with Nuclear Power Stations in Member States, Operating Experience with Nuclear Power Stations in Member States, IAEA, Vienna (2022) (accessible via the FPS for Economy website).

(*) Revised deactivation date when the nuclear reactors are operational on 1 November 2025; last possible date for deactivation is 31 December 2037.

([11]) EDF Belgium and Luminus are separate legal entities. They are both part of the EDF Group. EDF Belgium is a 68,6 % shareholder of Luminus. The other shareholders of Luminus are Ethias, Publilec, Socofe and Nethys.

2.2. **Electricity market in Belgium**

(9) Belgium's energy mix is currently dominated by gas and nuclear-based electricity generation. More details on the wholesale and retail electricity market in Belgium and the market position of Electrabel and Luminus, are provided in sections 2.2.1 and 2.2.2, respectively.

2.2.1. *Generation and wholesale market for electricity*

(10) In 2022, after the closure of Doel 3, the total installed capacity across all voltage levels, i.e., including renewables connected to the distribution grid, reached 26 GW in 2022 (up from 21,4 GW in 2016) ([12]). The share of nuclear power generation in the total installed capacity in Belgium has been steadily decreasing from 27,6 % (5,9 GW) in 2016 to 18,7 % (4,8 GW) in 2022. Thermal power plants are the second largest source in terms of capacity with 30.7 % (8 GW) in 2022, decreasing from 39,3 % (8,4 GW) in 2016. The share of renewables has been steadily increasing over the past years, from 26,5 % (5,7 GW) in 2016 to 45,1 % (11,7 GW) in 2022. Coal has been fully phased-out in 2016. The total electricity generation capacity connected to the transmission grid in Belgium amounted to 15,7 GW in 2022, increasing from about 14 GW in 2016 ([13]).

(11) According to Belgium, the main players in the electricity generation market, in terms of installed capacity connected at the transmission grid level ([14]), are Electrabel, Luminus, TotalEnergies, RWE and Eneco ([15]).

(a) Most of the Belgian electricity generation capacity at transmission level is operated by Electrabel, a fully owned subsidiary of the French energy company Engie. Electrabel has been the former incumbent on the Belgian electricity market before its liberalisation in 1996. The installed generation capacity operated by Electrabel has increased from 10,2 GW in 2016 to 11 GW in 2022, while their market share of installed capacity has decreased from 73 % to 67 % during the same period. Electrabel's electricity production in Belgium is mostly nuclear based. While Electrabel operates all nuclear power plants in Belgium, it does not fully own the produced energy as Luminus and EDF Belgium own parts of the plants (see Table 1).

(b) Luminus is the second most important player with operated generation capacity at transmission level, with generation capacity of 2,3 GW in 2022, which corresponds to a market share of 14 % of generation capacity connected to the transmission grid (similar as in 2016). Luminus, as operator, generates electricity mostly with gas-fired and wind power plants and to a smaller extent from hydro power plants.

(c) RWE is the third most important player at transmission level and has expanded its generation capacity from 0,3 GW in 2016 to 0,9 GW in 2022, thereby increasing its market share from 2 % to 6 % during the same period. The majority of RWE's electricity generation is natural gas- and wind-based, representing each roughly 50 % of RWE's capacity.

(d) Eneco is the fourth player at transmission level with a generation capacity of 0,7 GW in 2022, which is fully wind-based at transmission level, corresponding to a market share of 4 % (up from 2 % in 2016).

([12]) Data on installed capacity and electricity generation by plant type is based on SPF Economie data for the Belgian Energy Data Overview, available here: https://economie.fgov.be/fr/belgian-energy-data-overview.

([13]) Data on installed capacity and electricity generation by plant type is based on the annual CREG reports, available here: https://www.creg.be/en/publications-available-english.

([14]) The market shares in terms of installed capacity refer to installations connected at the transmission grid level and are taken from the annual CREG reports (based on data from Elia). On the distribution grid level, the number of market participants and installations is higher and includes in particular renewable energy sources. Therefore, when including installations both at the transmission and distribution level, market shares and overall market concentration are expected to be lower.

([15]) Unless stated otherwise, data are taken from the annual market monitoring reports by CREG, available here: https://www.creg.be/en/publications-available-english; company-based data on the type of energy source used for electricity generation is taken from Elia sources, available here: https://opendata.elia.be/explore/dataset/ods036/table/?refine.date=2022&sort=date.

(e) TotalEnergies is the fifth player, with generation capacity consisting mostly of gas-fired plants amounting to 0,6 GW in 2022, which corresponds to a market share of 4 % (up from 3 % in 2016).

(12) During the period 2016 until 2022, electricity production from installations connected at the transmission grid level has been varying, reaching its lowest level in 2018 with 58,7 TWh, and its highest level in 2021 with 78,7 TWh. For installations connected across all voltage levels, electricity generation amounted to 75 TWh in 2018 and 100,5 TWh in 2021. The variation in generation output and resulting differences with electricity demand are compensated by imports and exports with interconnected markets.

(a) The share of nuclear in the generation mix varies over time as the availability of nuclear plants is not consistent, with values ranging from 38,1 % up to 50,8 % during the period 2016 to 2022. In 2022, the share of nuclear in the generation mix was 45,7 %.

(b) Gas-fired power plants made up 22,9 % of the generation mix in 2022, with varying values between 22,4 % and 32 % during the period 2016 to 2022.

(c) Renewables connected across all voltage levels contributed for 25,5 % to electricity generation in 2022.

(13) According to Belgium, the main players in terms of electricity generation from installations connected to the transmission grid ([16]) in Belgium are Electrabel, Luminus, Eneco, T-Power and RWE.

(a) Electrabel's market share in terms of electricity production has been relatively stable during the period 2016 to 2022, levelling at 75 % in 2022. In absolute terms, Electrabel's electricity production at transmission level was 55,1 TWh in 2022 (remaining stable compared to 2016).

(b) Luminus is the second largest electricity generator operating a plant fleet that produced 9,5 TWh in 2022 at transmission level, up from 7,2 TWh in 2016. Similarly, Luminus's market share reached 13 % in 2022, up from 10 % in 2016.

(c) Eneco is the third largest producer and generated 0,7 TWh and 1,9 TWh of electricity in 2016 and 2022 respectively, thereby increasing their market share over the same period to approximately 3 % at transmission level.

(d) T-Power ([17]) and RWE are the fourth largest producers, with each less than 2 TWh of electricity production in 2022 and a market share of 2 % at transmission level.

(14) Besides market shares, the HHI ([18]) is used as a common index for market concentration.

(a) In terms of generation capacity at transmission level Belgium submits that the HHI decreased from 5 510 in 2016 to 4 865 in 2022. The decreasing market concentration can be partially explained by the increased development of renewable energy sources (solar and wind) by non-incumbent market players.

(b) In terms of electricity production, Belgium submits that the HHI decreased from 6 372 in 2016 to 5 795 in 2022. Similarly, as for generation capacity, the decrease can be explained by the increased electricity production from renewable energy sources.

([16]) The market shares in terms of generated electricity refer to generation from installations connected at the transmission grid level and are taken from the annual CREG reports (based on data from Elia). On the distribution grid level, the number of market participants and installations is higher and includes in particular renewable energy sources. Therefore, when including installations both at the transmission and distribution level, market shares and overall market concentration are expected to be lower.

([17]) Since 2018, T-Power is fully owned by the Tessenderlo Chemie Group; the electricity produced is commercialised via RWE.

([18]) Herfindahl-Hirschman Index is a measure for market concentration, calculated by squaring the market share of each competing firm in the market and then summing the resulting numbers. Markets with a HHI above 2 500 are generally seen as highly concentrated markets. The HHI values are taken from the annual CREG reports and are based on installed capacity and generation from installations connected at the transmission grid level.

2.2.2. *Retail market for electricity*

(15) According to Belgium, at the retail level, there were in total 17 electricity suppliers present in the regions of Brussels, Wallonia and Flanders in 2022 ([19]). The main suppliers are Electrabel, Luminus, TotalEnergies and Eneco, while many players are very small.

(a) Electrabel's market share in terms of electricity supplied amounted to 47,2 % in 2022 (slightly up compared to 2016 (44,1 %)).

(b) Luminus is the second largest electricity supplier with a market share of 18,6 % in 2022, up from 15,1 % in 2016.

(c) TotalEnergies and Eneco are the third and fourth largest players with market shares of 6,1 % and 5,2 % respectively in 2022.

(16) Market shares in terms of access points supplied were the largest for Electrabel (45,1 %), Luminus (22,6 %), Eneco (9,9 %) and TotalEnergies (9,2 %) in 2022, compared to 45,9 %, 20,2 %, 8,8 % and 7,7 % respectively in 2016.

2.3. **Objectives of the measure and alternative financing options**

2.3.1. *Resource adequacy concerns in Belgium*

(17) Since 2019, the Belgian transmission system operator ('TSO'), Elia, conducted three national resource adequacy studies ('2019 NRAA', '2021 NRAA' and '2023 NRAA') ([20]), which all identified a systematic need for new capacity by the Winter of 2025-2026, as a consequence of the (partial) nuclear phase-out in Belgium, which started with the decommissioning of Doel 3 and Tihange 2 in 2022 and 2023 (see recital (4)), reinforced by the decommissioning of thermal generation capacities in neighbouring countries and problems with the French nuclear assets.

(18) In order to address these resource adequacy concerns, Belgium set up a capacity mechanism ('CM'), approved by the Commission in 2021 ([21]), that will kick in as of Winter 2025. The Belgian CM aims at addressing resource adequacy concerns in electricity, while supporting the energy transition. Capacity holders that have been selected in CM auctions are awarded a capacity contract. The first capacity auctions have taken place in September 2021, 2022 and 2023, for delivery in 2025, 2026 and 2027, respectively.

(19) In 2022, as a result of the Russian invasion in Ukraine, which caused additional concerns for security of supply and called for measures to reduce dependency on gas, the Belgian government decided to extend the lifetime of Doel 4 and Tihange 3 (see recital (29)). In 2023, Belgium amended the CM in order to take into account this lifetime extension, approved by the Commission in case SA.104336 ([22]). As shown in the 2023 NRAA, although the lifetime extension of the two nuclear reactors helps to address the resource adequacy concerns, the need for the CM remains.

([19]) See joint reports by CREG, CWaPE, Brugel and VREG of 2022 (https://www.creg.be/nl/publicaties/verslag-ra230712) and 2016 (https://www.brugel.brussels/publication/document/persberichten/2017/nl/Gezamenlijk-rapport-ontwikkeling-van-elektriciteits-en-aardgasmarkten-in-Belgie.pdf).

([20]) The latest national resource adequacy study by Elia (NRAA 2023) is the 'Adequacy and flexibility study for Belgium (2024-2034)'. Available at: https://issuu.com/eliagroup/docs/adequacy_flexibility_study_for_belgium_2024-203?fr=sOTBhNDYxOTUwMTY.

([21]) See Commission Decision (EU) 2022/639 of 27 August 2021 on the aid scheme SA.54915 – 2020/C (ex 2019/N) Belgium – Capacity remuneration mechanism (notified under document C(2021) 6431) (OJ L 117, 19.04.2022, pp. 40-105).

([22]) Decision of 29.09.2023, C(2023) 6650 final, State Aid SA.104336 (2023/N), Belgium, Amendments to the Capacity Remuneration Mechanism (OJ C 265, 18.10.2023, p.1).

(20) Belgium submits that, while contributing to security of supply, the lifetime extension of the nuclear reactors also aims at (1) reducing the dependency on imported fossil fuels (in line with the REPowerEU objectives) and dependency on imports in general ([23]), and (2) supplying baseload capacity in the context of increased electrification needs in the near future in Belgium. In contrast, the CM is a market-wide measure that aims at compensating the readiness of plants to supply electricity in pre-defined periods, regardless of whether they produce or not (thereby ensuring sufficient capacity to guarantee that production meets demand).

2.3.2. *Market failures and financing of the LTO outside the CM*

(21) Belgium argues that the lifetime extension of the two nuclear reactors requires a specific support package outside the CM, because of the specific economic situation and the specific risk profile of nuclear energy ([24]).

(22) First, under the Nuclear Phase-Out law, the Belgian nuclear assets were legally bound to shut down by - at the latest - 2025. Subsequent governments confirmed this final phase-out date. Hence, the nuclear operator abandoned all preparations for their extension accordingly (see recital (5)). Since it has been decided in 2022 to have the two LTO Units operational again for ten more years, there is a need to refurbish the LTO Units depending on the approval by the Belgian Nuclear Safety Agency (AFCN/FANC ([25])). The tight schedule for the LTO investments changes the cost, schedule of the LTO works and affects financing arrangements as no provisions for the LTO were made by Electrabel, in accordance with the legally defined closure of all nuclear power plants in 2025. In addition, the fuel costs and the costs of other necessary parts have risen sharply in recent years. The uncertainties regarding the LTO investment costs are therefore considerable.

(23) Second, as recognised in the decision in case SA.104336 ([26]), Belgium submits that the objective of the capacity mechanism is to overcome a number of market failures which prevent energy producers to invest in additional generation capacity, such as (i) the lack of efficient price signals (e.g. energy prices are prevented from increasing up to the value of the VOLL), and (ii) risk aversion of investors at times of high volatility of energy prices and regulatory uncertainty. On top of the market failures present in the energy market in general, Belgium submits that electricity and carbon markets exhibit additional market failures, among others:

(a) The limited ability to hedge on forward markets due to limited transparency and liquidity. With a lack of long-term hedging opportunities, investment projects are exposed to volatile markets, and hence, options to secure the required market revenue streams to make the investment economically viable are not given;

(b) The negative externalities from greenhouse gases, which are not priced at a socially optimal level and lack a long-term predictable price signal due to the structural volatility of the EU Emission Trading System ('ETS');

(c) The positive externalities associated with a diverse generation mix that are not adequately remunerated in liberalised markets (e.g., contributing to improved energy independence and resilience of the energy system).

([23]) See Elia's Adequacy and Flexibility Study for Belgium (2024-2034), p.48: *'[…] when studying Belgium's adequacy, it is crucial to consider all relevant interactions with other countries, since Belgium is located at the heart of the European grid. Belgium is structurally dependent on electricity imports for adequacy*'.

([24]) While the Belgian CM is in principle open to all (new and existing) technologies, the two LTO Units are considered as non-eligible capacities. This means that their contribution to adequacy is taken into account by deducting their volume from the volume to be auctioned, and that the impact of the nuclear lifetime extension is reflected in the quantitative assessment of the need for the CM.

([25]) Agence Fédérale de Contrôle Nucléaire (AFCN) / Federaal Agentschap voor Nucleaire Controle (FANC). As sole nuclear operator in Belgium and holder of the operating license for the LTO Units, Electrabel is responsible for proposing and agreeing with the nuclear safety authority on the list of investments/projects required to upgrade the LTO Units, enable their long-term operation, and for delivering these projects. Belgium submits that Electrabel should not be considered a contracting authority and hence is not subject to public procurement regulation in case it would subcontract all or part of the (potential) construction works related to the LTO Project.

([26]) See section 2.3.3 of the decision in case SA.104336.

(24) Third, Belgium argues that in addition to the general market failures as well as policy and regulatory uncertainties affecting investment in generation capacities in electricity markets (as described in recital (23)), a number of specificities of nuclear investments create further risks that are difficult to hedge or manage for merchant investors, and that cannot be addressed by the CM. Belgium submits that the objective of the notified measure is to overcome additional risks to which the nuclear operator is exposed:

(a) Technical and project management risks:

— the scope of the necessary investments will only become clear in a later stage, after elaboration and submission of the LTO file by the nuclear operator and its approval by the nuclear safety authority;

— depending on the scope of the required works, the implementation of LTO works can impact the availability and therefore the income of the nuclear plants;

— whereas the LTO should not face any major technical barriers, potential technical risks that may arise due to the extended operating period need to be anticipated and managed; and

— the order, transport and delivery of nuclear fuel can be delayed, taking into account the current tightening of the market for uranium with a reduction of possible suppliers (notably Russia) and rising prices.

(b) Risks related to waste management and decommissioning:

— costs related to the management and disposal of spent fuel and nuclear waste are subject to a substantially larger degree of uncertainty compared to other costs (due to specific regulatory and policy risks); and

— longevity of spent nuclear fuel and radiation within the facility create risks concerning waste and decommissioning with significant long-term liabilities.

(c) Market and investment risks:

— the investment costs associated with the LTO increase the nuclear units' exposure to market risks. The operator may possibly not be able to recover investment costs if wholesale prices are too low. High electricity market prices during the energy crisis have not persisted, and future market prices are too uncertain to be counted upon in order to recover investment costs. In addition, price hedging is only possible to a limited extent, as the forward and power purchase agreement ('PPA') markets have limited liquidity.

— a nuclear operator is confronted with a general uncertain investment climate because of the particular nature of risks inherent to nuclear energy, increasing the cost of financing and insurance.

(d) Regulatory and political risks:

— the LTO is subject to an extensive procedure, including the approval by the nuclear safety agency and a positive environmental impact assessment ('EIA') with a large cross-border public consultation and a vote of a Parliamentary Act modifying the calendar of the nuclear phase-out ([27]);

— high fixed cost technologies such as nuclear power require policy stability, which is not guaranteed as shown by the multiple revisions of the initial nuclear phase-out calendar; and

— up-front investment costs create a regulatory hold-up risk, which means that investors are exposed to changes in regulation and policies after having invested in the asset.

([27]) The EIA is annexed to the Law of 26 April 2024 amending the Nuclear Phase-Out Law. Further information on the EIA of the postponement of the deactivation of the nuclear reactors of Doel 4 and Tihange 3 is available at the following address: https://economie.fgov.be/en/environmental-impact.

(25) Belgium argues that the existence of market failures and specific risks to nuclear operators, mentioned in recitals (23) and (24) respectively, may ultimately result in a situation where the expected market revenue stream is insufficient to ensure the economic viability of the lifetime extension of the LTO Units (i.e. the expected revenues are too low to ensure a sufficient return on investment given the different risks associated with this investment) or where the ongoing operations are not funded with cash, equity, or debt. Belgium argues that, in the light of these market failures, which are expected to persist in the near future, the specific risks related to nuclear power should be accounted for and therefore a commitment to support the nuclear lifetime extension is needed by the Belgian government.

(26) Belgium also submits that the potential funding gap, singular economic situation and specific risk profile of the LTO Units cannot be adequately addressed through participation in the CM. First, the CM consists of a competitive process with annual auctions, which have by definition an uncertain outcome for the participants. However, the Belgian government decided that nuclear power should be part of Belgium's energy mix for the next 10 years, which is not compatible with the uncertain outcome of an auction. Second, the remuneration through the CM auctions is also incompatible with the timing of the lifetime extension. In order for the nuclear capacities to be available by November 2025, the nuclear operator needs to start investments as soon as possible, which cannot await the outcome of the auction. Finally, the CM only aims at addressing the missing money/funding gap issue and does not help to overcome the specific risks to which the nuclear operator is exposed.

(27) Therefore, participation by the nuclear operator in the CM auctions would not address the specific needs to support the nuclear capacities and their timely lifetime extension, and hence the choice was made by the Belgian State for a combination of the CM and a separate support mechanism in order to address the security of supply concerns in Belgium ([28]).

(28) The Belgian government agreed with Engie on the measures as described in section 3, which should mitigate the above-mentioned market failures and risks, and provide an appropriate remuneration outside the CM. Belgium submits that the alternative support mechanism, consisting of several components as described in section 3, ensures the appropriate allocation of risks and allow the necessary investments in order to achieve the timely availability of the two nuclear reactors, while avoiding excessive remuneration and windfall profits. According to Belgium, the notified measure has the following objectives:

(a) addressing the risk of potential funding gap as market revenues alone may be insufficient to ensure the economic viability of the lifetime extension of the two nuclear reactors, or as the ongoing operations may not be funded;

(b) reducing risks associated with unpredictable and uncontrollable market price evolution, while preventing excess remuneration and windfall profits;

(c) mitigating the exposure to policy risk due to a changing stance of public opinion and policymakers towards nuclear assets;

(d) mitigating the risk related to residual waste management costs;

(e) ensuring adequate risk allocation and incentives during the initial CAPEX period ([29]) to manage the constraints and risks of delays and cost overruns, due to the upgrade works and tight timeframe; while

(f) ensuring proper market integration by maintaining market-based incentives to ensure dispatch and operations in an efficient and non-distortive manner.

([28]) Therefore, whereas their contribution to resource adequacy is taken into account, the nuclear capacities on Belgian territory are considered non-eligible capacities in the CM.

([29]) The initial CAPEX period is the period commencing with the LTO restart date and ending on but excluding the True-up Date. The True-up Date is 31 December 2028, unless amended.

3. DETAILED DESCRIPTION OF THE MEASURE

3.1. Background on the agreement with Engie and Electrabel

(29) On 18 March 2022, the Belgian federal government decided to reassess the nuclear phase-out, by allowing the extension of the operating lifetime of two of the then seven existing nuclear reactors, Doel 4 and Tihange 3, with a combined nominal power of approximately 2 GW (see Table 2 below), for a period of 10 years. The decision by Belgium was made in the context of the European response to the Russian war against Ukraine (including the need for EU Member States to reduce their gas consumption and gas dependency), the resulting gas crisis, the increased electrification needs (to enable the energy transition) and the low availability of the French nuclear fleet (due to unforeseen corrosion issues and extensive maintenance to prolong its operation lifetime).

(30) Subsequently, the government started negotiations with the operator of Doel 4 and Tihange 3, Electrabel. Engie, the parent company of Electrabel, was initially hesitant to accept the lifetime extension, claiming that […]. Engie's intention was to stop nuclear operations in Belgium after 2025 (see recital (5)).

(31) On 21 July 2022, the Belgian State and Electrabel concluded a 'letter of intent' for the extended operation of Doel 4 and Tihange 3.

(32) On the basis of that letter of intent, the Belgian State, Engie and Electrabel concluded a 'Heads of Terms and Commencement of Long-Term Operation ("LTO") Studies Agreement' on 9 January 2023, by which Electrabel initiated the studies required for the lifetime extension of Doel 4 and Tihange 3 and by which the parties continued the negotiations towards a more detailed definitive agreement regarding the lifetime extension of the two nuclear reactors with a view to restart operations (initially) on 1 November 2026.

(33) These negotiations led to the signature of an Amendment to the Heads of Terms and Commencement of the LTO Studies Agreement on 29 June 2023, in which a number of agreements ('obligation of means') were developed in more detail, in particular as regards the business model and the long-term storage and disposal of nuclear waste. On the same day, a Joint Development Agreement ('JDA') was concluded, setting out the concrete actions taken by Engie and Electrabel with a view to a LTO within the time limit and the terms and conditions under which the Belgian State pre-finances certain costs of Electrabel linked to the development activities preparing for the extension of operation and the start of the actual works related to the lifetime extension.

(34) On 21 July 2023, the Belgian State, Engie and Electrabel concluded a binding Framework Agreement which imposes an obligation (on a reasonable endeavour basis) on Engie and Electrabel to make it possible to restart the two nuclear reactors by 1 November 2025, one year earlier than initially foreseen, approved by the Belgian Nuclear Safety Authority. On the same day, the JDA was amended and restated 'JDA+'.

(35) On 13 December 2023, the Belgian State, Engie and Electrabel concluded a more detailed 'Implementation Agreement' in which the agreements contained in the Framework Agreement are developed into definitive agreements. The implementation of these agreements and, more generally, the extension of the lifetime of the Doel 4 and Tihange 3 nuclear reactors require legislative intervention (see section 3.7). On this date, the 'JDA++' was signed as well, thereby replacing the JDA+.

(36) For the purpose of the present decision, the Implementation Agreement between the Belgian State, Engie and Electrabel consists of a set of measures to support the 10-year lifetime extension of Doel 4 and Tihange 3, which can be grouped along three main components:

(a) **'Component 1'**: the set of sub-measures related to the remuneration and financial arrangements allowing stable revenues for the two nuclear reactors, as well as the changes in the shareholder structure through the creation of BE-NUC (referred to in the transaction documents under the working name 'NuclearSub') (see section 3.3);

(b) **'Component 2'**: the set of sub-measures related to the decommissioning of the nuclear power plants and the long-term storage and final disposal of nuclear waste and spent fuel (including the amendment of the safeguards package to monitor the financial situation of the nuclear operator against the risk profile modified due to the agreed cap) (see section 3.4); and

(c) **'Component 3'**: the agreements on risk-sharing and indemnification in case of legislative changes (see section 3.5).

(37) The three components of the notified measure together aim at the lifetime extension of the two nuclear reactors (LTO Units) and a long-term solution on the financing of nuclear waste and spent fuel, will hereafter be referred to as the 'LTO Project' or the 'Transaction'. Belgium recognises that the three components of the notified measure, mentioned in recitals (36)(a), (36)(b) and (36)(c), can be assessed as part of one single intervention.

(38) Electrabel is and will remain the sole nuclear operator in Belgium and will assume on its own all related tasks and obligations. Belgium submits in this respect that Electrabel is the only market party possessing the necessary know-how and authorizations to operate the LTO Units. Belgium further argues that access to nuclear generation capacity requires special, including country-specific, know-how which is not available to all market players, which the Commission previously acknowledged regarding Electrabel ([30]). The know-how, intellectual property, and relevant permits regarding nuclear installations in Belgium is unique and only Electrabel currently possesses them. Belgium also submits that in general, given the specificities of nuclear technology, only a limited number of operators have the knowledge and financial strength to undertake the investments needed and operate the nuclear reactors, which the Commission recognised in decisions concerning nuclear energy ([31]). Therefore, there is no credible alternative to Electrabel and the launch of a tender procedure to select the operator of the LTO Units would not have led to a meaningful outcome given the specificities and constraints of the LTO Project.

(39) In addition, Belgium argues that, in order to enable the restart of the LTO Units in November 2025, Electrabel had to conduct certain preparatory works and feasibility studies ('Development Activities' ([32])) before the actual start of works on the LTO, as early as possible and in parallel with the negotiations on the agreement with the Belgian government. With respect to these development activities (governed by the JDA++), Electrabel, in its role as sole nuclear operator in Belgium, has the unique knowledge to undertake these activities quickly and effectively. These activities require very specific knowledge, resources, and tools so that only Electrabel is technically able to carry them out. Therefore, given the timeframe necessary to avoid shortages in the electricity supply, the urgent need to limit dependency on fossil fuel imports and the specific constraints imposed by the LTO, no operator other than Electrabel could have been selected.

([30]) See recital (126) in Commission Decision of 17 March 2017 in case SA. 39487: '*Access to nuclear production capacity requires specific know-how, which not all market players have. Moreover, as Electrabel is the owner of the nuclear plants, the State was not in a position to organize a competitive tender to pick an operator for the LTO Units*'.

([31]) See recital (402) in Commission Decision of 8 October 2014 regarding Hinkley Point C, SA.34947.

([32]) The relevant preparatory works and studies ('Development Activities') are described in Schedule 1 of the JDA++ and aim to meet the expectations from the safety authority regarding the LTO. In summary, the development activities covered by the JDA++ are technical studies mainly in relation to the conception and ageing of the installations, design improvements, the competences of the management, test and inspection programs, environmental impact assessment (including the preparation of necessary licensing and permitting documents) and periodic safety reviews of the LTO Units.

3.2. **Availability and technical details of Doel 4 and Tihange 3 after LTO restart**

(40) Table 2 presents the nominal electricity production capacity, annual electricity production and share in national electricity demand in Belgium for Doel 4 and Tihange 3, before and after the lifetime extension (envisaged for 1 November 2025).

Table 2

Key characteristics of Doel 4 and Tihange 3

	Doel 4	**Tihange 3**
Before lifetime extension		
Nominal capacity	1 026 MWe	1 038 MWe
Annual electricity production *(2022 figures)*	8 940 GWh	7 366 GWh
Share of Belgian electricity demand *(2022 figures)*	11 %	9 %
After lifetime extension		
Nominal capacity	1 026 MWe	1 030 MWe
Annual electricity production *(estimates)*	2026-2028: 3 435 GWh after 2029: 7 158 GWh	2026-2028: 3 435 GWh after 2029: 7 186 GWh
Share of Belgian electricity demand *(estimates)*	2026-2028: 3-4 % after 2029: 6-8 %	2026-2028: 3-4 % after 2029: 6-8 %

Sources: World Nuclear Association; Elia's Adequacy and flexibility study for Belgium (2024-2034)

(41) The lower expected electricity production over the period 2026-2028 is due to more than usual scheduled outages of the two reactors during the restart phase ('scheduled LTO outages'). These planned LTO outages are required to bring the LTO Units in compliance with the requirements of the Belgian Nuclear Safety Authority for the LTO Project. The unavailability of the LTO Units during the scheduled LTO outages is expected to be 24 weeks per year and this during the first 3 years after the LTO restart date. On top of the scheduled LTO outages, a yearly normal outage ('scheduled non-LTO outages') is expected for the whole period of the lifetime extension, up to 1 year before the end of operations for Doel 4 and until the last year of operations for Tihange 3. Each scheduled non-LTO outage is expected to last 6 weeks. As a result, during the first 3 years after LTO restart, the two nuclear reactors are expected to be shut down for 30 weeks.

(42) On top of the scheduled outages mentioned in recital (41), there can be unplanned and unforeseen problems which require additional shut down of the LTO Units. A forced outage rate of 10 % has been assumed in the signing financial model ([33]) underlying the remuneration agreement. This implies that both Doel 4 and Tihange 3 have a target availability rate of 90 % over 10 years, when not considering the scheduled LTO and non-LTO outages. When including all scheduled outages, Doel 4 and Tihange 3 have a target availability rate of 68,43 % and 67,40 % respectively.

([33]) The signing financial model is the financial model underlying the Remuneration Agreement signed on 13 December 2023.

3.3. **Component 1: Financial and structural arrangements**

(43) A set of sub-measures has been foreseen to allow for the financing of a timely and safe lifetime extension of the two nuclear reactors.

3.3.1. *Joint Development Agreement (JDA)*

(44) As mentioned in recital (39), due to the strict timing for the LTO restart (to allow electricity production for the winter 2025/2026), Electrabel has, as nuclear operator, identified and agreed to undertake certain development activities, necessary to enable the LTO restart in time and necessary to meet the Safety Authority's requirements and expectations, prior to entering into the final transaction. These development activities have been laid down in the JDA, amended by the JDA+ on 21 July 2023 and amended by the JDA++ on 13 December 2023.

(45) According to the JDA++, the Belgian State pre-funds Electrabel's costs and expenses for the development activities until all required legislative changes have been adopted and entered into force (the 'Legislative Condition'). After the satisfaction or waiver of the Legislative Condition, Electrabel will fund its own costs and expenses for the development activities until the amount of Electrabel's funding equals the amount pre-funded by the Belgian State, after which Electrabel and the Belgian State will fund the costs and expenses for the development activities on a 50/50 basis.

(46) Belgium submits that the pre-funding by the Belgian State of the costs and expenses for the development activities is limited to any costs and expenses actually (to be) borne by Electrabel. A control mechanism is set up, as well as a 'True-Up' ([34]) at the end of the contract period. Belgium also submits that the funding arrangements under the JDA+ +, as well as under any agreement between Electrabel and third parties, are on arm's length and value for money basis.

(47) Belgium argues that the JDA++ does not provide an economic advantage to Electrabel, since it merely concerns pre-funding and cost coverage of the development activities. Nevertheless, Belgium includes the JDA++ in the notified measure, as part of the set of sub-measures which could be assessed as one single intervention.

3.3.2. *Joint venture*

(48) The Belgian State will invest, together with the nuclear operator Electrabel, in a joint venture ('JV'), named BE-NUC, which will own 89,807 % of the LTO Units (as Electrabel currently does). The remaining 10,193 % will stay in the hands of Luminus. Electrabel and the Belgian State will each own 50 % of BE-NUC and act as equal shareholders in terms of financial participation and share of power sales earnings. BE-NUC, as co-owner, will bear 89,807 % of the investments needed to extend the operation and the Belgian State will therefore indirectly bear 44,9035 % of the investment costs. However, BE-NUC will not become a nuclear operator: Electrabel is and will remain the sole nuclear operator of the two nuclear reactors through an Operations and Maintenance ('O&M') Agreement (see section 3.3.8) which includes that BE-NUC will have control rights over the operating costs.

(49) There will be no purchase by the Belgian State of co-ownership stakes in the LTO Units, but rather a transfer (partial demerger of the relevant assets) from Electrabel to the JV, according to the following main steps:

(a) incorporation of the JV (BE-NUC) by Electrabel, after signing of the Transaction Documents (13 December 2023); this incorporation took place on 8 May 2024;

([34]) A 'true-up' is a process used to ensure that all accounts and records are accurate and balanced. It involves comparing the estimated or initial figures with the actual, final figures, and making necessary adjustments.

(b) acquisition by the Belgian State of a 50 % interest in BE-NUC (on the closing date) (according to the share purchase agreement, 'SPA I');

(c) transfer (partial demerger) of the LTO Units from Electrabel to BE-NUC and subsequent transfer of the issued shares by Engie to Electrabel, resulting in Electrabel receiving additional shares in BE-NUC for the contribution of the LTO Units;

(d) transfer of shares in BE-NUC between Electrabel and the Belgian State in order for the Belgian State not to be diluted, as a result of the partial demerger, and in order for the Belgian State to retain a 50 % stake (according to the share purchase agreement II, 'SPA II').

(50) According to the Joint Partial Demerger Proposal (Schedule 4 of the SPA II), Electrabel will transfer its 89,807 % ownership rights regarding the LTO Units (as well as the related permits and any other assets required) to BE-NUC, in return for the distribution of BE-NUC shares to Engie (at that time Electrabel's sole shareholder). The contribution of Electrabel to BE-NUC will be valued in consideration of the scrap value of the building, the value of the land and the value of immovable installations.

(51) More precisely, according to the Joint Partial Demerger Proposal, the value of the contribution of Electrabel to BE-NUC is evaluated on the basis of:

(a) the scrap value of the buildings ([35]): 89,807 % of the scrap value of the LTO buildings, which amounts to EUR 28,3 million, based on a third-party assessment as reviewed by two Belgian nuclear authorities (NIRAS/ONDRAF and CPN/CNV) in the context of the 2022 CPN/CNV triennial revision;

(b) the value of the land ([36]): 89,807 % of the value of the land, valuated at EUR 21,1 million, based on comparable transactions; and

(c) the value of immovable installations (to be determined at a later date by Electrabel on the basis of their total costs plus a relevant margin provided by the O&M Agreement).

(52) This valuation of the contribution of Electrabel is reflected in the purchase price that will be paid by the Belgian State at the closing of the SPA II, which amounts to EUR 24,7 million (subject to adjustments) in order to acquire new shares in BE-NUC and retain a 50 % stake in BE-NUC. The Board of Directors of BE-NUC will request a (statutory) auditor or a certified accountant to prepare a report regarding the contribution in kind, assessing notably the applied valuation and the valuation methods used for that purpose.

(53) A Shareholders' agreement between Electrabel, the Belgian government and BE-NUC was concluded to set up the corporate governance of BE-NUC and each of its shareholders' rights. According to this agreement, the board of directors is composed of four directors, two appointed upon nomination of the Belgian government and two appointed upon nomination of Electrabel. BE-NUC's chairperson and chief financial officer will always be Belgian government directors. The quorum at the board of directors is a simple majority, and its resolutions are voted by simple majority. Conflict of interest provisions have been put in place.

(54) The role of the Belgian State as shareholder presupposes, *inter alia*, the financing of BE-NUC's capital costs (CAPEX) and operating costs (OPEX), the management of shares and the exercise of shareholder rights (e.g., voting rights), and the support of the two directors of BE-NUC, appointed upon nomination of the Belgian State.

(55) Certain assets currently held by Electrabel will be transferred to Engie so as to streamline their management from the perspective of Engie:

([35]) The valuation of the buildings reflects their scrap value, i.e., their fair market value in case of a 'no LTO' scenario.

([36]) The land has been valued based on the sale price per m^2 of neighbouring plots of land sold by Engie in 2021 and 2022.

(a) European assets currently held by Electrabel (including Belgian assets) are required to remain held by Electrabel, in order to meet and secure its liabilities and obligations as a nuclear operator, whereas

(b) non-European assets currently held by Electrabel will be transferred to Engie.

(56) Belgium submits that the transfer will occur at no additional cost or disadvantage for Electrabel and a use funds arrangement has been foreseen to secure the use of the proceeds of the relevant sale.

(57) As explained in more detail in section 3.4.7, the waste cap modifies the risk profile of the nuclear operator, which justifies and requires an adjustment of the existing security package, i.e., the removal of Electrabel's non-European assets from the Electrabel perimeter and monitoring of the nuclear operator's financial position. Moreover, Engie, as mother company of Electrabel, will guarantee that at least EUR 4 billion (equity value as of 30 June 2023) remains in Electrabel at the time of the closing of the agreement between the Belgian State and Electrabel ([37]). After closing, other safeguards apply such as the continued and enhanced monitoring of the financial position of the nuclear operator by the CPN/CNV, and the uncapped and uncancellable parent company guarantee granted by Engie for certain obligations of the nuclear operator.

(58) Belgium argues that the JV constitutes a *pari passu* investment, as the two shareholders enter into the JV under equal terms and conditions and, as shareholders, with the same level of risk and rewards. Nevertheless, Belgium includes the JV in the notified measure, as part of the set of sub-measures which could be assessed as one single intervention.

3.3.3. *Shareholder financing*

3.3.3.1. Equity injection and shareholder loan

(59) The Belgian government and Electrabel will each provide equity to BE-NUC through a share capital increase in order to finance any expense contemplated by BE-NUC's shareholders' agreement.

(60) Electrabel will also issue to BE-NUC a shareholder loan (the 'Electrabel Shareholder Loan') and so will the Belgian government (the 'Belgian Government Shareholder Loan') to finance any expense contemplated by the shareholder's agreement. The terms and conditions of the Electrabel Shareholder Loan and the Belgian Government Shareholder Loan are identical.

(61) Belgium submits that the introduction of a shareholder loan in addition to the equity injection follows from financial and transactional considerations. On the one hand, the provision of the shareholder loan reduces transaction costs and grants more flexibility in the design of drawdown and repayment schedules. In particular, loan repayment provisions may be agreed upon with less regulatory constraints than dividend payments or equity repayments. On the other hand, the loan optimises the financial structure with respect to taxable income. In particular, up to 30 % of EBITDA is redeemable to deduct interest.

(62) The loan will be granted on market terms, at interest rates that have not yet been set, but would be, according to the Shareholder Loan Agreements, set by the board of BE-NUC in accordance with the Shareholders' Agreement by reference to prevailing market rates and any comparable third-party debt financing which may be available at the relevant time.

([37]) Based on the Implementation Agreement (as amended), the Target Closing Date is 15 July 2024, but this date is automatically postponed in accordance with Clause 12.1(C) and (D) of the Implementation Agreement, provided that the Legislative Condition has been fulfilled at the latest on 15 July 2024. Such automatic postponement will continue until 30 November 2024 (i.e. the Longstop Date).

(63) The total share capital contribution would amount in total, on the basis of preliminary computations in the signing financial model, to EUR [2 000-2 500] million and would be provided by both the Belgian government and Electrabel on *pari passu* terms in […] yearly instalments from […] to […] to finance the CAPEX of the LTO project.

(64) This share capital contribution (equity injection and the shareholder loan) would be paid back to BE-NUC's shareholders through a series of share capital reduction and be remunerated through the distribution of dividends and shareholder loan interest.

(65) The internal rate of return of the stream of cashflows would amount to 7 %, defined as the nominal post-tax Project internal rate of return.

(66) The split of the EUR [2 000-2 500] million shareholder financing into equity injection and the shareholder loan is not yet known.

(67) Belgium submits that the shareholder funding obligations and the shareholder loan can be considered as *pari passu* financing. In particular, Belgium submits that the interest rate will be an arm's length rate determined by reference to prevailing market rates and any comparable third-party debt financing, so that the shareholder loan will be granted on market terms. Nevertheless, Belgium includes the shareholder funding in the notified measure, as part of the set of sub-measures which could be assessed as one single intervention.

3.3.3.2. Shareholder Support Arrangement

(68) The Shareholder Support Arrangement ('SSA') sets out an arrangement under which Engie will have an obligation to provide financial support to Electrabel, if necessary for Electrabel to meet certain of its payment obligations under the O&M Agreement.

3.3.4. *Two-way contract for difference*

(69) A Remuneration Agreement ('RA') will be concluded between BE-NUC, Luminus and the 'RA Counterparty', which will be an autonomous service with accounting independence within the Belgian State, named 'BE-WATT' (see below section 3.7.3). The objective of the Remuneration Agreement is to address the market price uncertainty and de-risk the project revenues for BE-NUC and Luminus, which should receive sufficient revenues from the operation of the LTO Units to ensure their safe and reliable operation and economic viability, while allowing shareholders to reach the required market-conform financial return. Belgium submits that the RA is set up in a way to maintain the fair functioning of the wholesale electricity market, as all the electricity produced by the LTO Units will be sold on the day-ahead wholesale market and the LTO Units will be remunerated through a two-way contract for difference whose formula contains a market-reference price ('MRP') reflecting the market equilibrium and exposing the plants to market incentives.

(70) As a first part of the RA, a two-way contract for difference ('CfD') will apply between the parties. The CfD will also be made available to Luminus, the other co-owner of the two nuclear reactors (see recital (4)). This means that a predefined indexed target price (the 'strike price') will be guaranteed by the Belgian State. If the 'reference market price' is higher than the strike price, the positive difference will be paid by BE-NUC and Luminus to the Belgian State. If the market price is lower, the negative difference will be paid by the Belgian State to BE-NUC and Luminus. The difference payments become payable on the first power date (the date on which the relevant LTO Unit injects electricity into the high-voltage grid for the first time after its initial legal end date) and will be made in proportion to BE-NUC's and Luminus' share of the power generated by the LTO Units.

(71) The main parameters of the CfD are the market price and the strike price:

(a) The reference market price refers to the day-ahead spot price for a base-load delivery of electricity in the Belgian bidding zone ([38]).

(b) The strike price will be defined by BE-NUC on the basis of a financial model approved by the RA Counterparty to reflect BE-NUC's actual operating, capital and financing costs in respect of the LTO extension as from 21 July 2022 (therefore estimated as the levelized cost of electricity, 'LCOE'). The strike price will be sized to achieve the expected target Internal Rate of Return ('IRR') of 7 % (nominal and post-tax).

(72) In the base case scenario, Belgium assumes that the costs to modernize the LTO Units amount to approximately EUR [2 000-2 500] million, resulting in a 'preliminary strike price' of EUR [80-90] per MWh ([39]).

(73) The actual value of the strike price will be set by BE-NUC on the basis of a financial model approved by the RA Counterparty in the course of 2025, prior to the LTO restart date, based on the cost of extending operation under nuclear safety requirements (the scope of the latter being defined by the Belgian nuclear safety agency), estimated on the basis of submitted quotes by contractors ('*initial strike price*'). The initial strike price will be recalculated as soon as possible after 31 December 2028 ('*True-up date*') to reflect the actual timing to restart, LTO outages, operating, capital and financing cost up to that date (based on the actual invoices) and revised projections of these costs for the remainder of the 10-year prolongation period ('*revised strike price*') ([40]), through a written agreement between BE-NUC and the RA Counterparty. The strike price will be indexed annually by reference to a weighted indexation calculation. After the True-up date, the strike price will in principle be fixed and not be recalculated, except under specific qualifying events ('*re-opener events*') ([41]).

(74) The strike price will be calculated using information from detailed financial models which will be produced and updated by BE-NUC. The financial model (and any updates thereto) is subject to the approval of the RA Counterparty. Where such approval is withheld, BE-NUC and the RA Counterparty may refer the determination of such a financial model issue to an independent expert in accordance with a specified expert determination procedure.

(75) Belgium submits that while the CfD reduces BE-NUC's exposure to market risk and market price variations, it includes risk-sharing mechanisms which should ensure that BE-NUC is still exposed to some basic market risk:

(a) Payments by the RA Counterparty to BE-NUC are only made when the market price is below the strike price, and that BE-NUC will be liable to payments to the RA Counterparty when the market price is higher than the strike price.

(b) The financial model provides only for a reasonable return for BE-NUC: the strike price is sized to achieve a profitability rate ('IRR') of 7 %, in line with industry benchmarks.

([38]) As per clause 5.4 of the RA, the RA Counterparty may, no more than three times during the RA term, propose an amendment of the definition of 'Market Reference Price', which BE-NUC and Luminus may reject if it changes the economic balance or does not preserve the risk allocation and reward between BE-NUC, Luminus, the energy manager and the RA Counterparty. Belgium submits that this allows to respond to changing market and operating circumstances: for instance, outages may become more predictable, and availability patterns better matched by long-term products, after the initial period of LTO works. This provision therefore allows for a better design of the remuneration model, adapted to the actual operations of the plant, if possible, all the while letting its economic balance unchanged.

([39]) This is the strike price obtained in the signing financial model.

([40]) Certain disallowed costs will be excluded from the calculation of the strike price, i.e., costs which are either not related to the LTO extension, caused by a material breach of contractual or regulatory obligations of certain parties related to Engie, or are incurred as a direct result of a LTO operator failure of Electrabel.

([41]) The RA specifies certain *ad hoc* events (including qualifying change in law, force majeure and certain technical events (including e.g. grid/transmission line unavailability, environmental limitations due to natural hazards (such as low cooling pond level, water intake restrictions, earthquake or deluges), labour strikes, fuel conservation directed by any regulatory authority, etc.) which, if they occur, will result in either the strike price being adjusted or in compensatory lump sum payments (in each case in either the RA Counterparty's, or BE-NUC's and Luminus's favour), provided that a *de minimis* threshold of EUR 5 million is exceeded, so that BE-NUC has the same net, after-tax economic return measured through its IRR. Where such compensation is due to BE-NUC and Luminus, it is at the RA Counterparty's discretion as to whether it makes a lump sum payment or requires a strike price adjustment to be implemented by BE-NUC.

(c) BE-NUC will be contractually required to reduce the power output from the LTO Units (subject to technical constraints ([42])) when the electricity price is minus EUR 20 per MWh ([43]) or lower for any period of 24 or more consecutive quarter-hour periods ('settlement units'), i.e., 6 hours. If BE-NUC fails to modulate as required during such periods of negative market prices, it will be penalised: the difference payments for that period will not include the negative price portion of the difference between the market price and the strike price for the volume that should have been modulated. Hence, this 'modulation arrangement' requires decreasing production during consecutive times of negative prices.

(d) Finally, the remuneration agreement includes a pain/gain sharing mechanism ('*Market Price Risk Adjustment' or 'MPRA'*) when market prices turn out to be lower or higher than the strike price. When the reference market price is between the strike price and a defined floor, the target return (in the form of a lower strike price) gradually decreases from 7 % IRR to minimum 6 % IRR; when the market price is between the strike price and a defined ceiling, the target return (in the form of a higher strike price) gradually increases to maximum 8 % IRR. Those lower and higher strike prices are calculated to ensure that those minimum and maximum target IRRs are respected. Belgium argues that this is an incentive for BE-NUC to optimise its cost structure in order to achieve an as low as possible strike price and therefore increase BE-NUC's profitability through the pain/gain sharing mechanism.

(76) As mentioned in recitals (75)(b) and (75)(d), the Belgian State and Electrabel agreed on a target range for the nominal post-tax project IRR between 6 % and 8 % (i.e., a premium of 3-5 % over the estimated average 2023 risk-free rate of approximately 3 %). An independent analysis by Compass Lexecon ([44]) shows that this range is consistent with the theoretically computed premium and the empirical evidence from regulatory practice and public WACC estimates for comparable projects (see Table 3). In particular, the results of this independent analysis show that:

(a) The theoretical cost of capital for utility companies comparable to BE-NUC ranges between 6,2-7,4 % according to the Capital Asset Pricing Model ([45]) (i.e., equivalent to a premium of 3,1-4,3 % over the risk-free rate). Utilities across Europe typically invest in projects exceeding their cost of capital by several percentage points ('hurdle premium'). In particular, the investors in the JV would also require additional reward for non-diversifiable asset-specific risks (e.g., an illiquidity premium of up to 3 %).

(b) The benchmark results show that the rate of return and cost of capital for companies with 'comparable' risk profiles exhibit premia above the risk-free rate in the range from 3 % (e.g., for utilities with a diversified

([42]) For nuclear safety reasons, the modulation of power of a nuclear power unit is regulated by the nuclear safety authority (FANC/AFCN) and subject to technical constraints and limitations: maximum frequency of 30 power modulations per fuel cycle, each modulation must not exceed 50 % of the nominal power and must be limited to 500 MW per LTO Unit, modulation duration must last between 2 and 72 hours, power ramps are limited to 1 % of nominal power per minute, reactors must remain at nominal power for at least 72 hours before and after modulation, etc.

([43]) This threshold has been defined taking into account the technical limits of LTO Units in terms of modulation.

([44]) Memo by Compass Lexecon of 17 May 2024, 'SA.106107 BE – Prolongation of two nuclear reactors – Assessment of Aid Proportionality: Analysis of risk allocation and return on investment'.

([45]) The capital asset pricing model (CAPM) describes the relationship between systematic risk, or the general perils of investing, and expected return for assets, particularly stocks. It is a finance model that establishes a linear relationship between the required return on an investment and risk. Compass Lexecon computed a theoretical WACC based on the unlevered betas of comparable public companies: CEZ, Fortum Oyj, UPM-Kymmene Oyj, Endesa and Iberdrola.

portfolio, that are subject to a RAB remuneration model ([46]) and are largely hedged against market risks) to 5-7 % (e.g., for single nuclear new or refurbished unit/project). Premia over risk-free rate decrease with portfolio diversification, lower exposure to risk (market, operational and construction risks), and the nature of the owner/operator, with incumbent, state-owned or state-funded utilities potentially having lower financial costs.

Table 3

Public WACC estimates for comparable projects

Considered company/project	Remuneration framework	Post-tax rate of return/WACC	Premium over risk-free rate
Vertically integrated American utilities (Georgia Power and Duke)	RAB model	6,36 % – 7,06 %	2,8 % – 4,2 %
State-owned Canadian utility OPG	RAB model	5,6 %	3,5 – 4,3 %
Refurbished Canadian nuclear power station Bruce A	CfD with a strike price based on target IRR	10,6 % – 13,8 %	6,0 – 9,7 %
Hinkley Point C new nuclear power plant (United Kingdom)	CfD with a strike price based on target IRR	9,25 % – 9,75 %	5,8 % – 7,5 %
Hungarian new nuclear power plant Paks II	Market-based remuneration and State support for funding for CAPEX, exposure to market and operational performance risks	7,38 – 8,4 %	3,9 – 5,2 %
Existing French EDF nuclear assets	Mostly exposed to market until 2026, then unknown	7,6 %	4,9 – 6,2 %
Extension of Belgian Tihange 1	Market-based remuneration with a windfall profit tax Exposed to market risks and operational risks	9,3 %	3,1 % – 4,3 %

Source: Memo Compass Lexecon, 17 May 2024, 'SA.106107 BE - Prolongation of two nuclear reactors - Assessment of Aid Proportionality: Analysis of risk allocation and return on investment'

(77) For the reasons mentioned in recital (76), Belgium considers the 6 %-8 % target IRR of the LTO project to be within the (lower end of the) likely range of market-based returns and therefore will not result in overcompensation.

([46]) In the context of electricity and gas infrastructure, RAB (Regulatory Asset Base) remuneration refers to a method used to determine the revenue that infrastructure operators receive for maintaining and operating their infrastructure.

(78) Any proceeds from the CfD will flow into the general State budget but will be subject to separate accounting. They will be used primarily to fund the payments of the RA Counterparty under the CfD. Where the CfD proceeds would exceed the amounts necessary to finance the costs of the CfD, they could then be used to finance the costs of another CfD. Belgium commits that if any remaining CfD proceeds would be used for purposes of distributing them to undertakings, the distribution will be carried out in accordance with Article 19d(2), points (d) and (e) of Regulation (EU) 2024/1747. Belgium commits it will inform the Commission in case CfD proceeds would be distributed to undertakings, and, if need be, notify such a measure.

(79) The counterparty role of the Belgian State in the two-way contract for difference mainly involves the execution and receipt of the various payments to and from BE-NUC and Luminus. Moreover, in that role, the Belgian State must also be able to verify and, if necessary, challenge the various calculations underlying those payments.

(80) Belgium argues that the CfD is an appropriate instrument to tackle the identified market failures and specific risks as mentioned in recitals (23) and (24). Belgium submits that the CfD is appropriate to achieve the following objectives at the least cost, while preserving efficient market signals.

(a) The CfD remuneration is limited to the minimum needed to bridge the funding gap, since the CfD strike price will be defined to reflect BE-NUC's actual operating, capital and financing costs in respect of the LTO extension.

(b) The CfD ensures stable revenues over the LTO timeframe, given the lack of adequate market-based hedging instruments, while maintaining partial market exposure both in the short term (modulation in case of prolonged negative prices) and medium term (maintenance optimisation). The Market Price Risk Adjustment mechanism acts as a pain/gain sharing mechanism incentivising the reduction of costs and the increase of output in times of high market prices. Moreover, the risk of unexpected lower availability caused by non-scheduled outages and additional outages after the True-Up date remains with BE-NUC.

(c) Reduced exposure to the risks of delay and cost overruns in the initial period of LTO works with specific outage patterns, since the design of the CfD includes provisions to allow the realisation of the target IRR also in case of cost overruns and delays, unless due to gross negligence (as defined in the RA) by the operator.

(d) Potential excess remuneration (windfall profits) will be mitigated, through (i) the CfD payback obligation in case the reference price is higher than the strike price, (ii) the strike price revision after the initial start-up phase, and (iii) the lack of a guaranteed return on investment, due to the exposure to operational and technical risks as the CfD payments remain conditional on the operator's actual operational performance and output.

(e) The CfD design formula applies output-based remuneration unless in modulation periods and includes additional incentives to optimize the output of the plant subject to market conditions, ensuring that investors are still exposed to the risks they can efficiently manage, i.e., operational risks and (to some extent) market risks.

(81) Belgium submits that, pursuant to Article 19d(1) of Regulation (EU) 2024/1747 ([47]), it is not obliged to apply a two-way CfD, since this provision imposes the use of mandatory two-way CfDs (or equivalent schemes with the same effects) only in relation to investments in new power-generating facilities. Belgium submits that in circumstances such as those of the LTO Project, where investments are made to prolong the lifetime of existing facilities, the use of two-way CfDs remains a possibility. Belgium submits that other forms of direct financial support schemes have been considered (fixed feed-in premium, one-way CfD and regulated asset base regime) but were not found appropriate for the LTO Project. Belgium submits that the two-way CfD provides the required support at a lower cost to consumers compared to alternative remuneration support mechanisms, such as the Belgian capacity mechanism, and argues that:

([47]) Regulation (EU) 2024/1747 of the European Parliament and of the Council of 13 June 2024 amending Regulations (EU) 2019/942 and (EU) 2019/943 as regards improving the Union's electricity market design, OJ L, 26.6.2024, pp.1-30.

(a) a fixed feed-in premium would pay the same amount for each unit of electricity (regardless of the wholesale price level), leading to potential over- or undercompensation, and imposing an excessive residual market risk on the operator;

(b) a one-way CfD would not require generators to pay back market revenues beyond the strike price, thus allowing for potential over-remuneration; and

(c) a regulated asset base regime ('RAB') for nuclear units is better fit for new investments in nuclear capacity to de-risk the construction period and large capital expenditures.

(82) Belgium refers to Commission's decisional practice, notably in the case of Hinkley Point C Nuclear Power Station in the UK ([48]), suggesting that CfD mechanisms may constitute State aid as they protect beneficiaries from price volatility in the electricity market and therefore grant a selective advantage on the counterparty. In addition, Belgium submits that, although it was not obliged to apply a two-way CfD in the case of the present LTO Project, the characteristics of the two-way CfD are fully aligned with the requirements and design principles foreseen by Regulation (EU) 2024/1747 in Article 19d(2) (see the arguments Belgium provided in recitals (75), (80) and (111) to (113)).

(83) Belgium submitted an independent counterfactual analysis conducted by Compass Lexecon ([49]), which builds the cashflow streams of the project without a CfD and with three different, central electricity price curve projections (the one used for the signing financial model, built in the fourth quarter of the year 2022, and two other, counterfactual price curves, respectively built in the second and third quarters of the year 2023). Depending on the price curve used, the net present value ('NPV') of the project, using a 7 % discount rate (equal to the target IRR), would amount to a range between minus EUR 303 million and EUR 107 million. The positive NPV results from the use of the signing financial model's price curve, which is older than the other two, which yield negative NPVs. In addition, updated central price curves (built during the first quarter of year 2024) were used to further deepen the counterfactual analysis. The most optimistic updated price curve yields an NPV of EUR 21 million, while the two other updated price curves yield negative NPVs of minus EUR 1,1 billion and minus EUR 1 billion. Belgium therefore argues that the CfD is an appropriate instrument, compatible with State aid rules, necessary to guarantee the execution and profitability of the LTO Project, and does not dispute its State aid character.

3.3.5. *Minimum OPEX and capital payment*

(84) If BE-NUC's revenues are not sufficient to cover the costs payable in any month under the O&M Agreement, as well as any other operating, fuel and maintenance CAPEX costs ([50]) required for the operation of the LTO Units, then the RA Counterparty is required to make a shortfall payment to BE-NUC to ensure sufficient cashflow to meet these costs, in order to ensure nuclear safety at all times. The Minimum OPEX and capital payment therefore offers protection against losses from important unexpected unavailability of the LTO Units after the LTO Restart date, in order to ensure the Project's long term economic viability. BE-NUC shall, in that regard, submit an annual reconciliation report. If the amount in this report is less than the aggregate minimum operating costs amounts, then the RA Counterparty will pay to BE-NUC an amount equal to the absolute value of the relevant shortfall. An equivalent payment will be made to Luminus, calculated to ensure proportionate treatment with BE-NUC.

([48]) See recital (296) in the Commission decision of 8 October 2014 in State aid case SA.34947, Support to Hinkley Point C Nuclear Power Station.

([49]) Memo by Compass Lexecon of 17 May 2024, 'SA.106107 BE – Prolongation of two nuclear reactors – Assessment of Aid Proportionality: Analysis of Cash Flows' Structure and Profitability'.

([50]) CAPEX costs include 50 % of the straight-line depreciation of CAPEX from 2026 to 2028 to cover the part of injected capital that cannot be repaid during the scheduled outages.

(85) Belgium submitted an independent counterfactual analysis conducted by Compass Lexecon ([51]), which simulates an unexpected 12-month unavailability event in 2029 affecting both LTO Units. Such an event, which represents the occurrence of an extreme operational risk, would generate significant losses for shareholders. The analysis shows a loss of EUR 832 million for year 2029, decreasing the NPV to minus EUR 512 million and the IRR to 1,7 %.

(86) Belgium submits that the minimum OPEX and capital payments by the Belgian government may constitute State aid, as such payments are intended to cover shortfalls in revenues which would not be covered under normal market conditions (therefore creating a risk of funding gap). The payment of such funds therefore appears to grant BE-NUC a selective advantage on the market.

3.3.6. *Working capital facility*

(87) As second part of the RA, BE-NUC will procure, either from its shareholders or an external party, a working capital facility ('WCF') at the latest on the first LTO restart date to occur.

(88) The WCF serves at funding the need in working capital stemming from the extension of the lifetime of the LTO Units as well as the operation of the LTO Units. BE-NUC will be allowed to draw down the WCF if the difference between its cash inflows and cash outflows is smaller than the estimated operational expenditures of the upcoming spending period defined in the Remuneration Agreement. The amount of the WCF shall be at least the average aggregate estimated operational expenditure for a period of three months.

(89) The terms of the WCF, which shall be procured on market terms at the latest on the first LTO restart date to occur, are not yet known.

(90) In effect, the WCF serves as an intra-year bridge to the annual minimum OPEX and capital payment, acting as a revolving credit facility that would be repaid yearly, if drawn down, by the minimum OPEX and capital payment provided by Belgium.

3.3.7. *SDC Loans*

(91) Likewise, another part of the RA, the Belgian government will grant a loan to both BE-NUC and Luminus as of 1 July 2025 ('SDC Loans').

(92) The SDC Loans are each composed of two different facilities (one per LTO Unit), each formed of two tranches, one of which relates to the shut-down costs of the relevant unit (see recital (41)) incurred by BE-NUC and Luminus from the legal shutdown date until the restart date of the relevant unit and the other which relates to the coverage of operating costs incurred with respect to the relevant unit until 31 December 2028.

(93) The tranche relating to the shutdown period costs shall fund and pay for those costs required to maintain the LTO Units until the restart date. Should shut down period costs be greater than anticipated, the RA Counterparty shall procure that the tranche is resized.

(94) The tranche relating to operating costs shall fund and pay for those costs required to operate the LTO Units until the True-up date (in particular in the context of the anticipation of the restart date from 1 November 2026 to 1 November 2025). It shall be used to cover operating cashflow shortfalls occurring before 31 December 2028. In effect, this means that the SDC Loans will cover for any WCF drawdown prior to December 2028, replacing the need for minimum OPEX and capital payment during this period (see sections 3.3.5 and 3.3.6 above).

([51]) Memo by Compass Lexecon of 17 May 2024, 'SA.106107 BE – Prolongation of two nuclear reactors – Assessment of Aid Proportionality: Analysis of Cash Flows' Structure and Profitability'.

(95) The SDC Loans provided to BE-NUC and Luminus will be sized by reference to their proportionate share in the LTO Units, and consequently their respective share in the shutdown and operating costs.

(96) The terms of the SDC Loans are the following:

(a) Amount:

— Tranche relating to shut-down period costs: at least 98,7877 % (i.e., 89,807 % of 110 %) of BE-NUC's most recent estimate of the total shut-down costs.

— Tranche relating to the operating costs: at least 89,807 % of BE-NUC's most recent estimate of the total operating cashflow shortfalls until 31 December 2028.

(b) Availability period: the amounts drawn under the facilities are due at the later of 31 December 2028 or the date on which an amount equal to BE-NUC's share in the project's capital costs plus BE-NUC's share in fuel costs has been distributed to BE-NUC's shareholders or applied in payment towards loans advanced to BE-NUC by its shareholders or Engie.

(c) The repayment profile: the payments of principal or interest starts in the year when the shareholders' contributions (excluding any return) will have been repaid. The SDC Loans amortisation schedule assumes the repayment of Principal and/or interest is made on a proportionate basis relative to the payments of the IRR.

(d) Interest rate: fixed interest rate of the lower of the Belgian 5-year government bonds (OLO ([52])) rate plus 200 basis points and 6 %.

(e) Collateral: none.

(97) In effect, according to the preliminary computations under the signing financial model submitted to the Commission, the SDC Loans are expected to be drawn down for an aggregated amount of EUR [500-700] million in […] instalments from […] until […], repaid in […] instalments from […] until […], and remunerated through […] interest payments from […] until […]. These computations will be updated in the financial model approved by the RA Counterparty in the course of 2025, prior to the LTO restart date, based on the cost of extending operation under nuclear safety requirements set out by the Belgian nuclear safety agency, estimated on the basis of submitted quotes by contractors.

(98) Belgium considers that the SDC Loans constitute State aid. Belgium submits in this respect:

(a) According to advisers of Engie, Electrabel and the Belgian government, any form of commercial debt financing is not a viable alternative due to the non-bankable nature of nuclear projects.

(b) Even if the banks were not reluctant to provide financing to nuclear assets, the same terms of the SDC Loans may not have been offered by the market. This relates to both the repayment profile (as mentioned above, the amortisation of the SDC Loans would begin after the repayment of the equity contributions and together with the repayment of equity returns) and the interest payable under the SDC Loans (the interest rate and the cap on this interest of 6 %) which might not have been offered by commercial banks. It is however challenging to assess market terms based on market comparisons, since comparable transactions cannot be identified.

(c) The cancellation modalities of the SDC Loans appear to be more favourable than what would normally be granted by lenders operating according to market conditions.

([52]) Euro bonds issued by the Belgian government for the medium, long or very long term (Obligation Linéaire/Lineaire Obligatie).

(d) Finally, since the SDC Loans would be drawn down to avoid minimum OPEX and capital payment, the SDC Loans amount to a repayable minimum OPEX and capital payment which, should the revenues of the LTO Units not allow its repayment, would not be repaid. Absent the SDC Loans, the Belgian government would need to cover cash shortfalls during the shut-down period and the initial period through the minimum OPEX and capital payment which, contrary to the SDC Loans, would not need to be repaid ([53]).

3.3.8. *O&M Agreement*

(99) Under the O&M Agreement, Electrabel shall perform:

(a) 'LTO Services': from the closing date of the transaction, the works and services required to extend the operational life of each LTO Unit by 10 years; and

(b) 'O&M Services': from the end of the initial legal lifetime of each LTO Unit ([54]), the services to operate and maintain the LTO Units, the common systems and common assets to the extent used in connection with the LTO Units (including waste handling services).

(100) Certain services are explicitly excluded from the O&M Agreement, including services, works or activities in respect of decommissioning and dismantling of the LTO Units, which remain under the responsibility of Electrabel.

(101) Pursuant to Article 12.1 of the O&M Agreement and subject to certain adjustments and exceptions, BE-NUC will pay Electrabel 89,807 % (reflecting Luminus holding of 10,193 % of the LTO Units) of all costs incurred in the provision of the LTO services and O&M services plus the relevant margin, being:

(a) [0-5] % for insurance costs and taxes;

(b) [0-5] % for goods and services supplied by Engie group members; and

(c) [10-20] % for all other costs.

(102) Belgium submits that the levels of margins are aligned with those applied under the LTO Partnership Agreement with Luminus (which itself covers a wide range of services including but not limited to O&M). The original agreement, concluded on 26 June 2003 and re-confirmed on 13 December 2023, with a third-party (Luminus) and covering similar services, is a relevant reference to support that the O&M Agreement reflects arm's length costs for nuclear operations. In addition, Belgium argues that the financial risks borne by Electrabel are greater than under the Partnership Agreement with Luminus, since, under the O&M Agreement, the margin of Electrabel will be reduced in case of (non-excusable) cost overruns (i.e., costs not included in the budget as proposed by Electrabel and validated by the parties) and in case of unavailability of the plant beyond a target.

(103) In addition, Belgium submits that the O&M Agreement includes certain cost controls, including rights for BE-NUC to audit Electrabel's calculation of the fees and performance of the services and to request a benchmark review of the prices charged by Electrabel for technical affiliate services.

(104) Finally, as the (sole) operator of the LTO Units and a service provider to BE-NUC under the O&M Agreement, Electrabel will be incentivised to achieve technical and economic performance of the LTO Units. In particular, under the O&M Agreement:

([53]) Belgium has submitted an independent counterfactual analysis conducted by Compass Lexecon, which shows that absent the SDC Loans, the cash outflows from the Belgian state under the minimum OPEX and capital payment would be worth EUR [500-1000] million (compared to a cash inflow of EUR [0-500] million stemming from the interests earned on the SDC loan) which would not be compensated by the increase in the difference amounts earned under the CfD stemming from the lower strike price (made possible by the absence of SDC loan interest payments) worth EUR [500-1000] million. See Memo by Compass Lexecon of 17 May 2024, 'SA.106107 BE – Prolongation of two nuclear reactors – Assessment of Aid Proportionality: Analysis of Cash Flows' Structure and Profitability', Tables 5 and 9.

([54]) 1 July 2025 for Doel 4 and 1 September 2025 for Tihange 3.

(a) Electrabel will be liable to pay liquidated damages if the availability of the LTO Units during a contract year is less than [90-100] % (excluding LTO outages, normal outages and excused events (Article 17.1.A and Article 31.1.A of the O&M Agreement) and imply that the margin obtained by Electrabel for that contract year decreases on a sliding scale from [10-20] % to [0-5] % ([55]), and

(b) in case of cost overruns, penalties will be applicable to Electrabel's margin (up to [50-60] % of the margin on the O&M services and up to [70-80] % of the margin on the LTO services) (Articles 9.9, 12.2 and 12.3 of the O&M Agreement).

(105) As a consequence, Belgium concludes that the O&M Agreement is limited to covering of costs incurred and that the financial conditions of the O&M Agreement are set to reflect market terms. Nevertheless, Belgium includes the O&M Agreement in the notified measure, as part of the set of sub-measures which could be assessed as one single intervention.

3.3.9. *Energy Management Services Agreement ('EMSA')*

(106) Although BE-NUC will be the technical owner of the electricity produced by the LTO Units, the electricity output will be sold by an energy manager. To this purpose, BE-NUC will enter into an Energy Management Services Agreement ('EMSA') with a third party or an Engie entity (Global Energy Management & Sales ('GEMS')).

(107) The Implementation Agreement foresees that the EMSA will be awarded and tendered at the request of the Belgian government. If no successful tender takes place within certain time limits, Electrabel and the Belgian government shall negotiate and find an agreement, which must reflect the EMSA Terms (which are jointly decided by Belgian government and Electrabel). Failing such agreement, the pricing terms will be determined based on market conditions by an independent expert.

(108) The EMSA will stipulate key terms, conditions and risk allocations and will, consequently, stipulate in a detailed manner how the electricity must be sold on the market by the energy manager. The energy manager appointed under the EMSA will only have limited power of decision on how the electricity produced by BE-NUC is sold, within the limits of a predefined Bidding and Imbalance Strategy ('BIS') to be implemented in the EMSA ([56]).

(109) The Bidding and Imbalance Strategy can be reviewed and amended from time to time ([57]). The Belgian government, in its capacity as RA Counterparty, has the final say. More precisely,

(a) the energy manager provides a Bidding and Imbalance Strategy to the JV; the Belgian government has an ongoing right to propose changes to that strategy;

([55]) The margin is set at [10-20] % if availability is equal to or greater than [90-100] %, linearly decreasing to [0-5] % if availability is equal to [60-70] % or lower.

([56]) The Bidding and Imbalance Strategy is defined in the RA as '*a policy, mandate or other instructions (however described) under the EMSA given by BE-NUC to the EMSA Counterparty which may specify any of the following matters: (i) the agreed strategy for the bidding of the Metered Electricity Output under the EMSA in the Day-Ahead market; (ii) the agreed strategy to remediate the deviations of the Metered Electricity Output of the LTO Units on the intraday electricity market; or (iii) any other policy, mandate or instructions as to how the Metered Electricity Output will be commercialised by the EMSA Counterparty, in each case agreed or imposed in accordance with clause 9.3 (Bidding and Imbalance Strategy) from time to time*'.

([57]) Clause 9.3(A) of the RA stipulates that the BIS would need to be reviewed and amended in the context of any change to the Market Reference Price as per Clause 5.4 of the RA.

(b) any change must reflect certain 'BIS Conditions' set out in article 9.3(B) of the RA but, provided the changes reflect those conditions, the Belgian government can unilaterally impose the changes;

(c) if any changes are agreed or imposed by the Belgian government, the JV is obliged to try and ensure that those changes are adopted under the EMSA.

(110) The agreements between the Belgian government and Electrabel foresee that all the electricity produced by the LTO Units will be sold on the day-ahead wholesale market, according to the BIS. This corresponds to the use of the day-ahead market ('DAM') price as market reference price ('MRP') in the CfD design (see recital (71)(a)). The Belgian Federal Commission for Electricity and Gas Regulation ('CREG') provided its view on the choice of DAM price as MRP ([58]). The CREG questioned the choice of the DAM price and proposed as an alternative design the use of long-term products as part of the MRP, stating that the design of the CfD would amount to allocating the full strike price to the plants, thus incentivising a permanent, nominal run of the plants and reducing liquidity in the daily market.

(111) According to Belgium, based on an independent analysis by Compass Lexecon ([59]), the DAM reference price allows for appropriate market risk allocation/hedging, together with the marketing arrangements provided in the BIS, in particular because it is granular and allows matching the MRP with the captured market prices. In addition, the CfD design based on the DAM price as MRP and electricity marketing arrangement fosters sound bidding behaviour. In particular, Belgium submits that selling the electricity on the day-ahead market incentivises sound bidding behaviour for the following reasons:

(a) The DAM confers no discretion on the choice of the purchasers because the volume is offered in an anonymous auction. The auction further concentrates supply and demand to one period which maximises market depth. This anonymity and high market depth mitigates the ability to collude or actively distort the market.

(b) Further, the DAM as Market Reference Price (MRP) benefits from the pay-as-cleared principle (with no disclosure of the ask price) which reduces the likelihood that BE-NUC's bids can distort the market. This holds particularly when considering the alternative: bilateral contracts such as forwards would require BE-NUC to identify and potentially disclose a specific ask price. These disclosed prices could be at risk of market distortions because the disclosed prices would pose a threshold or benchmark among available electricity in the Belgian power market.

(112) Belgium further notes that the DAM price is a suitable reference as it is transparent, robust, and as the DAM is liquid compared to other markets. In addition, Belgium argues that the chosen CfD formula design in combination with specific arrangements (MPRA, modulation arrangement) preserves incentives to operate and participate efficiently in the electricity market by providing incentives for production at times of high market prices and modulation arrangements at times of low prices.

(113) Belgium also submits, based on the memo by Compass Lexecon, that the DAM price is particularly suited as MRP in the initial period of LTO works, notably compared to long-term products, since (i) it reduces the market risk for BE-NUC compared to using forwards as it allows to closely match the specific availability pattern during the initial period of the LTO works (as explained in section 3.2), and (ii) using futures as MRP could induce additional market risks for the plant operator due to the higher risk of unplanned outages in the initial period of the LTO works.

([58]) CREG Letter of 7 March 2024, 'Antwoord op uw brief van 6 februari 2024 met kenmerk 2673', regarding a request by the Belgian government to provide an opinion on the choice of market reference price and marketing strategy.

([59]) Memo of 28 May 2024 by Compass Lexecon, '*Analysis of the market reference price and balancing cost allocation, and comment on CREG's advice*'.

(114) Finally, Belgium submits that the initial choice of the MRP may be revisited by the Belgian government, as RA Counterparty, up to three times over the contract duration, subject to BE-NUC and Luminus agreement, as from the end of the initial period of the LTO works. Any changes to the MRP would likely result in amendments to the BIS to accommodate the incentive of the JV to achieve that revised MRP. The Belgian government intends to base its position on this matter taking into account the advice from the CREG.

(115) Belgium submits that the EMSA does not provide an economic advantage to Electrabel, since the EMSA will in principle be subject to an open, transparent, non-discriminatory and unconditional tender procedure. Belgium argues that, even if no successful tender takes place, the parties will attempt to find an agreement reflecting EMSA Terms. Failing such an agreement, the alignment with market conditions would be ensured through the determination by an independent expert of the pricing terms to be applied. As a consequence, Belgium submits that the awarding and tendering modalities of the EMSA ensure the application of arm's length and market conditions. Nevertheless, Belgium includes the EMSA in the notified measure, as part of the set of sub-measures which could be assessed as one single intervention.

3.3.10. *Administration Services Agreement ('ASA')*

(116) The Administration Services Agreement ('ASA') is an agreement entered into by BE-NUC with Electrabel. The Implementation Agreement provides with regard to the ASA that '*Electrabel shall […] provide a written proposal to the Belgian government* [BEGOV] *describing the key terms and conditions on which Electrabel would be willing to enter into an administration services agreement with NuclearSub* [BE-NUC] *for the provision of the following services to NuclearSub* [BE-NUC] *on arms' length terms: secretarial, accounting, tax, insurance, media relations and communications, legal document management, litigation management and compliance services*'.

(117) Belgium submits that, although the ASA has not been adopted yet, the Belgian government and Electrabel have foreseen in their agreements that the ASA will be concluded on arms' length terms, as mentioned in recital (116), thereby ensuring that it will be aligned on market terms and conditions. Nevertheless, Belgium includes the ASA in the notified measure, as part of the set of sub-measures which could be assessed as one single intervention.

3.3.11. *Indemnification of cost coverage losses in case of no closing*

(118) The closing of the transaction is subject to the satisfaction and/or waiver of the Conditions Precedent ([60]). In principle, the Belgian State and Electrabel will bear 50/50 of the cost coverage losses in case of no closing, except under certain circumstances, where the party responsible will have to bear all costs incurred by the other. Hence, both Electrabel and the Belgian State are 100 % liable if there is no closing of the Transaction due to their own responsibility.

(119) The cost coverage losses are limited to:

([60]) The following Conditions Precedent hold: (i) obtainment of all necessary corporate authorisations for BE-NUC, Synatom and Hedera in respect of their individual obligations under the Transaction Documents to which it is a party; (ii) the satisfaction that all Legislative Changes have been adopted on or by the Target Closing Date, provided that the Legislative Changes enter into force on a date that is not later than Closing (unless explicitly provided otherwise) and that such Legislative Changes have not been revoked or annulled as at the Target Closing Date; (iii) the satisfaction that all Regulatory Approvals have been obtained on or by the Target Closing Date; (iv) the satisfaction that all Pre-Closing Structuring Steps have been completed on or by the Target Closing Date; (v) the Transaction Documents having been entered into by Electrabel and Synatom; the Satisfaction of the PCG Condition and the accession by each of BE-NUC, Synatom and Hedera to the Common Terms Agreement; and (vi) completion of the fuel analysis and specifications, and securing enriched uranium product for the start of the LTO.

(a) Profit losses incurred by an 'Engie indemnified entity' (i.e. Electrabel and each relevant member of the Engie group and BE-NUC) in connection with any outage due to the LTO, that would not have occurred other than to undertake (or as a result of) works in relation to the LTO Units (if the Belgian State has given prior approval of such outage or Electrabel considers that such outage is required). As co-owner of the LTO Units, a similar mechanism applies for Luminus' profit losses under the same conditions.

(b) loss in value from selling Synatom's fuel inventory for an amount less than the market value of such fuel inventory as of 21 July 2022;

(c) costs caused by the demobilisation or reallocation of staff and contractors; and

(d) termination costs in relation to terminating any third-party agreements.

(120) Belgium submits that this cost coverage arrangement is in line with normal market terms in comparable transactions, whereby each party is held liable for costs incurred in relation to (the preparation of) the agreement in case of no closing due to either party. Hence, Belgium considers that there is no economic advantage in this cost coverage arrangement, neither vis-à-vis Electrabel, nor vis-à-vis Luminus. Nevertheless, Belgium includes this cost coverage arrangement in the notified measure, as part of the set of sub-measures which could be assessed as one single intervention.

3.4. **Component 2: Cap on the nuclear operator's liability for long-term storage and final disposal of nuclear waste and spent fuel**

3.4.1. *EU legislative framework*

(121) The legislative framework applicable to radioactive waste and spent fuel in the European Union is grounded *inter alia* on the following two fundamental principles:

(a) First, operators of nuclear installations have the prime responsibility for the safe and responsible management of spent fuel and radioactive waste. They must bear the costs from generation to disposal of all by-products of their processing/reprocessing process, including secondary radioactive waste. This obligation is contained in Article 4(3)(e) of Council Directive 2011/70/Euratom ([61]) which requires that '*the costs for the management of spent fuel and radioactive waste shall be borne by those who generated those materials*'.

(b) Second, Member States have the ultimate responsibility for the responsible and safe management (including disposal) of spent fuel and radioactive waste (Article 4(1) of Council Directive 2011/70/Euratom) and '*shall ensure that […] adequate financial resources be available when needed […] for the management of spent fuel and radioactive waste, taking due account of the responsibility of spent fuel and radioactive waste generators*' (Article 9 of Council Directive 2011/70/Euratom).

(122) In addition, the Euratom Treaty calls on the Community to ensure the establishment of the basic installations necessary for the development of nuclear energy in the Community.

(123) Belgium submits that Electrabel will keep some responsibilities as sole operator of the LTO Units, resulting from (1) European and Belgian legislation, and (2) contractual obligations of the Implementation Agreement, hereby respecting the 'polluter pays' principle.

(124) First, Electrabel will continue to assume all the responsibilities of a licensed operator of a nuclear power plant, including responsibilities regarding operating and maintaining the two nuclear reactors, their decommissioning and dismantling, which is also covered by a guarantee by the mother company Engie, and making the nuclear waste compliant with the contractual transfer criteria (see recital (133)(c)). Therefore, Electrabel remains exposed to extended civil liability and financial guarantee and insurance obligations.

([61]) Council Directive 2011/70/Euratom of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste (OJ L199, 2.8.2011, p. 48).

(a) The main applicable security and safety requirements are provided by European and Belgian legislation complemented with requirements issued by the Belgian nuclear safety authority:

— every reactor must undergo a decennial revision, according to Directive 2009/71/Euratom of 25 June 2009 establishing a Community framework for the nuclear safety of the nuclear installations, as transposed into Belgian Law by the Royal Decree of 30 November 2011. The Royal Decree of 30 November 2011 also imposes safety obligations on the nuclear operator in respect of decommissioning and dismantling; and

— other safety requirements provided in Directive 2011/70/Euratom of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste and Directive 2013/59/Euratom of 5 December 2013 laying down basic safety standards for protection against the dangers arising from exposure to ionizing radiation.

(b) In addition, Electrabel is required to provide information to and comply with instructions from the Belgian National Agency for Radioactive Waste and Enriched Fissile Material (NIRAS/ONDRAF ([62])), pursuant to the Law of 8 August 1980 ([63]) and the Royal Decree of 30 March 1981. They must also separate radioactive waste from other waste.

(c) The Law of 22 July 1985 on civil liability in the field of nuclear energy in Belgium specifies that the nuclear operator is liable for nuclear damage caused by any nuclear accident, unless the accident is the result of an armed conflict. Even in the absence of fault, the operator may be held responsible, up to a maximum of EUR 1,2 billion per accident. Nuclear operators are required to have insurance or a financial guarantee covering their liability in the event of a nuclear accident. The arrangements with the Belgian State also foresee a guarantee and a hold harmless obligation for Electrabel in this respect.

(125) Second, at contractual level, pursuant to Article 25.1.A of the O&M Agreement, Electrabel is responsible (and bound to compensate BE-NUC) in case of '*any material action and/or material failure to act by Electrabel (in its capacity as Nuclear Operator) that would not have been undertaken or committed by a licensed operator of a nuclear power plant, seeking in good faith to perform its contractual, legal and regulatory obligations, and exercising the degree of diligence, skill, care and prudence reasonably expected of a licensed nuclear operator [...]*' ('LTO Operator Failure').

3.4.2. *Current system of waste management and financing in Belgium*

(126) Under the current regulations, the nuclear operator is financially (through the nuclear provision company, Synatom ([64])) and operationally responsible for the decommissioning of the seven nuclear power plants. For the financial part, Electrabel is responsible together with EDF Belgium and Luminus (the 'Contributing Companies') ([65]). The nuclear provisions for spent fuel and decommissioning waste are funded by Electrabel in accordance with the

([62]) Nationale instelling voor radioactief afval en verrijkte splijtstoffen ('NIRAS'); Organisme national des déchets radioactifs et des matières fissiles enrichies ('ONDRAF').

([63]) Law of 8 August 1980 on the budgetary proposals 1979-1980 (Wet van 8 augustus 1980 betreffende de budgettaire voorstellen 1979-1980 / Loi du 8 août 1980 relative aux propositions budgétaires 1979-1980).

([64]) All provisions (decommissioning and spent fuel) are to be managed in a designated company, Synatom. Synatom is a wholly owned daughter company of Electrabel but is a separate legal entity (internalised system with segregated funds within the group) and has two government representatives on the Board. The arrangement with Synatom does not include operational radioactive waste, only waste arising from decommissioning and spent nuclear fuel. The Commission on Nuclear Provisions acts as supervising body.

([65]) The Contributing Companies are the companies, other than the nuclear operator, which have or had a stake in the industrial production of electricity by fission of nuclear fuels: EDF Belgium is 50 % co-owner of the nuclear unit Tihange 1, Luminus is 10,183 % co-owner of the nuclear units of Doel 3, Doel 4, Tihange 2 and Tihange 3.

applicable accounting laws (including control by a statutory auditor) ([66]), are managed by Synatom (on its balance sheet) and are subject to the prudential control of an independent governmental authority, the Nuclear Provision Commission ('CPN/CNV') ([67]). In addition, the nuclear operator is also financially and operationally responsible for the conditioning and management of the radioactive waste and spent fuel, and its long-term storage after its acceptance by NIRAS/ONDRAF until its final disposal.

(127) Established in 1980, NIRAS/ONDRAF is the Belgian waste management agency, responsible for the management of all radioactive waste, today and in the future. NIRAS/ONDRAF manages waste legacy sites in Belgium and holds funds to pay for the management of interim storage, geological and near-surface disposal sites and socio-economic costs. The 'polluter pays' principle holds since the producers of radioactive waste pay a fee for every waste package transferred to NIRAS/ONDRAF. Every owner of a nuclear installation or of nuclear waste should foresee the necessary means to pay for the liability.

(128) A comprehensive inventory report is drawn up every 5 years by NIRAS/ONDRAF for all nuclear waste producers, in which the funds are evaluated. Future reference scenarios are estimated using reference scenarios elaborated by NIRAS/ONDRAF regarding radioactive waste, by Electrabel regarding decommissioning and by Synatom regarding spent nuclear fuel. The net present value of future liabilities must be present in the accounts of Synatom, and every 3 years there is an audit of the methodology, reference scenario, etc. The future liabilities are built up during the exploitation of the reactors with yearly interest supplements. Even after NIRAS/ONDRAF has accepted the waste, the nuclear operator remains liable for any costs incurred by NIRAS/ONDRAF which are not covered by the paid fees. This implies that for a very long period, the nuclear operator could still receive payment requests from NIRAS/ONDRAF. In addition, this also implies that if the nuclear operator no longer exists at that time, the Belgian State bears the responsibility of the full costs ([68]).

(129) Following the CPN/CNV triennial revision decision issued on July 2023, the nuclear provisions, held on the balance sheet of Synatom, for dismantling activities (EUR 8,122 billion) and spent fuel management (EUR 9,070 billion) equalled a total amount of EUR 17,192 billion. In addition to this amount, outside the scope of supervision of the CPN/CNV, a provision of EUR 1,033 billion for operational waste, yet to be transferred to NIRAS/ONDRAF, is held on the balance sheet of Electrabel. This brings the current total amount of provisions related to nuclear liabilities to EUR 18,225 billion.

3.4.3. *Cap on nuclear waste payments ('waste cap')*

(130) In order to reduce uncertainty regarding the cost of nuclear waste and spent fuel in the future, the 'Phoenix Law' (see section 3.7.2) introduces a cap on the liability of producers of radioactive waste resulting from the production of electricity through nuclear energy.

([66]) The provisions are made in compliance with international accounting standards IAS 37, which requires a liability to be measured at '*the best estimate of the expenditure required to settle the present obligation*', which is '*the amount that an entity would rationally pay to settle the obligation at the end of the reporting period or to transfer it to a third party at that time*'.

([67]) Commission des Provisions Nucléaires ('CPN') / Commissie Nucleaire Voorzieningen ('CNV').

([68]) Today, the Belgian State already manages the nuclear liabilities of former waste producers (Eurochemic, the Nuclear Research Center (SCK CEN), Institute for Radioelements (IRE)).

(131) The 'waste cap' is a transfer of certain financial liabilities from the nuclear operator (Electrabel) to the Belgian State against the payment of a lump sum amount. The liabilities transferred are the liabilities in relation to the production, detention or ownership of conditioned radioactive waste and spent fuel of all seven Belgian nuclear units, subject to and after compliance of such radioactive waste and spent fuel with the relevant contractual transfer criteria. The conditioned radioactive waste and spent fuel are distributed in three types ([69]):

(a) category A-waste (short-lived waste with a low or intermediate level of radio activity);

(b) category B-waste (long-lived waste with a low or intermediate level of radio activity); and

(c) category C-waste (short- and long-lived waste with a high level of radio activity) and spent fuel.

(132) This radiological classification into three categories has been used historically by NIRAS/ONDRAF and is defined in a manner consistent with the International Atomic Energy Agency ('IAEA') classification ([70]). This radiological classification is contractually established by NIRAS/ONDRAF with the various producers. The producers classify their historical, current and future waste according to this classification in their (preliminary) reference inventory that they must submit to NIRAS/ONDRAF. The producers thereby assume that their waste will either be stored in a yet-to-be-built storage facility in Dessel for category A waste or in a hypothetical single geological storage facility for category B and C waste and spent nuclear fuel.

(133) The cap system works according to the following principles:

(a) *Capped Amounts*: A lumpsum payment, including a risk premium and indexed at 3 % per year as of 31 December 2022 ([71]), has been set for each category of radioactive waste meeting the contractual transfer criteria, amounting to a total amount of EUR 15 billion ('Capped Amounts'):

— category A waste: EUR 3,5 billion, paid on the LTO restart date, i.e. when the Doel 4 and Tihange 3 nuclear power plants produce again electricity on an industrial scale;

— category B: EUR 1 billion, paid at the closing of the agreement between the Belgian State and Electrabel;

— category C: EUR 10,5 billion, paid at the closing of the agreement between the Belgian State and Electrabel.

([69]) A category X waste, i.e. future types of waste (of category A or B) that have not yet been identified today in the reference inventory, is also foreseen. In such case the parties shall seek to agree on new contractual transfer criteria, the categorisation (A or B) and the corresponding volume credit of such category X-waste. The principle is generally that waste in this category should be treated in line with the most appropriate existing category, using the volume credit for that category. In case the Parties cannot agree, an expert panel will decide on the matter.

([70]) IAEA/AIEA, Safety Standards Series No. GSG-1 General Safety Guides, Vienna, 2009.

([71]) The lumpsum payment is reduced by any included NIRAS/ONDRAF costs paid by the nuclear operator or Synatom to NIRAS/ONDRAF with regard to the Capped Nuclear Waste and Spent Fuel Liabilities for Category A, B and C Waste, all between 31 December 2022 and the date on which the Capped Amounts are paid.

(b) *Volume credits*: The capped (lumpsum) amount per category corresponds to a volume credit for predetermined volumes (established for category A waste in equivalent cubic metres, for category B waste in equivalent volume credits and for category C in metres of gallery length of the reference geological disposal facility used to estimate the corresponding nuclear provisions). Belgium submits that this system provides an incentive for the nuclear operator to minimize the production of nuclear waste.

(c) *Waste transfer criteria*: For each type of nuclear waste package, contractual transfer criteria ('CTC') have been established, which define the criteria that each waste package must meet for the financial responsibility to be transferred to the public entity Hedera (see section 3.4.4) ([72]). The responsibility (and associated costs) for bringing radioactive waste in line with the contractual transfer criteria remains with the nuclear operator. In case the contractual transfer criteria are not met, the nuclear operator remains liable for the waste package. The contractual transfer criteria generally include an obligation to condition the waste before it is transferred to NIRAS/ONDRAF.

(d) *Volume adjustment fees*: When the volume credit of a waste category has been fully used, an additional amount must be paid to the public fund Hedera (see section 3.4.4) for each additional volume credit needed. This is known as the 'volume adjustment fee'. The amount of the volume adjustment fee is expressed in 2022 nominal value and will be indexed at the same rate as the Capped Amounts (i.e., 3 % per year as of 31 December 2022). The Engie Parent Company Guarantee secures among others the payment of the volume adjustment fees of Electrabel. Radioactive waste and spent fuel generated during the extension of operation of the two nuclear reactors will be invoiced to BE-NUC and Luminus (pro rata to their ownership share in the LTO Units) on the basis of the volume adjustment fee ([73]).

(134) Belgium submits that the volumes underlying the Capped Amounts are based on the waste inventory used for the last CPN/CNV revision of the nuclear provisions in 2022 and are the current best estimate of the volume of conditioned nuclear waste and spent fuel produced (and to be produced) by the seven nuclear power plants in a no-LTO scenario. For each waste package a conversion factor is determined to accommodate optimization in the waste production during decommissioning. To properly reflect the risk that waste packages may need post-conditioning after transfer to the Belgian State, the rate of consumption of the waste credit is not solely linked to its physical volume and therefore some waste packages will consume more of the volume credit of a waste category than others. This is an incentive for the nuclear operator to produce nuclear waste packages bearing a minimal risk for the Belgian State. In the event of an overestimation of volumes and of the Capped Amounts, the Belgian State retains the full amount, and no reimbursement will be made to the nuclear operator.

(135) Belgium submits that the Capped Amounts, mentioned in recital (133)(a), are the result of applying a risk premium to the existing nuclear provisions that are based on the current waste inventory, and the industrial reference scenario of NIRAS/ONDRAF and the nuclear operator. Therefore, the lumpsum payment only grants a limited volume credit per waste category. Section 3.4.5 provides more details about the establishment of the Capped Amounts and calculation of the risk premium.

([72]) The contractual transfer criteria have been agreed between the relevant experts and are based on the current best practices. For category A, the contractual transfer criteria are based on the safety report of the category A disposal facility in Dessel. For category B, C and spent fuel, the criteria are based on the principle that all waste should be stable in order to allow for the safe long-term storage of such waste and that the conditioning will be done in a way that the waste can always be made compliant with potential future acceptation criteria that are specific for that type of waste.

([73]) If the volume of a certain 'waste stream' within a waste category turns out to be greater than estimated, it may be offset by the volume of a 'waste family' in the same category that turns out to be less than estimated. As all waste packages have an individual credit, the production of one additional 'expensive' waste package can be offset by producing fewer 'cheap' waste packages, and vice versa. However, no offset may be made between different categories of waste.

(136) The amounts of the volume adjustment fees are determined in the Phoenix Law (see section 3.7.2). The amounts are established as the arithmetic average between (i) the capped amount of the waste category divided by the number of volume credits of that category and (ii) the marginal cost of one additional volume credit. Belgium submits that, hereby, the waste producer is not paying twice for costs that are already covered by the Capped Amounts, while providing incentives to produce as little additional waste as possible and covering the risks related to the long-term management of additional waste.

(137) Belgium submits that the waste transfer deal mitigates the risks for both, the Belgian State and Engie.

(a) The Belgian State mitigates its residual liability in case of insolvency of a waste producer. The Belgian State (through Hedera, see section 3.4.4) receives the Capped Amounts already upfront 2024 and 2025, instead of receiving waste tariffs paid to NIRAS/ONDRAF gradually (and mainly) during the decommissioning phase (when the waste is transferred to NIRAS/ONDRAF) and after 2050 for the spent fuel. Therefore, in case of insolvency of the nuclear operator before all waste or spent fuel has been transferred, the Belgian State has already secured the money related to the waste disposal. Hereby, the Belgian State can ensure that the adequate financial resources are available when needed for the implementation of its National Programme for the Management of Spent Fuel and Radioactive Waste. Possible increases of the waste tariffs, due to e.g., changes in industrial reference scenario, that are currently passed on to the waste producers, are covered through the risk premium.

(b) For the nuclear operator, the waste cap mechanism mitigates the risk of being charged additional amounts decades after the nuclear operations and their commercial revenues have stopped, and it mitigates the uncertainties related to the additional charges.

3.4.4. *Management of the nuclear waste fund by Hedera*

(138) Since the nuclear operator, after payment in full and final of a lumpsum amount (although under certain conditions) will be exempt from and will no longer be financially liable for the obligations transferred regarding the management of radioactive waste and nuclear spent fuel, the Belgian State must organise itself for those obligations and resources in the very long term.

(139) Hedera is established as a new public institution sui generis to manage assets dedicated to the financing of the Belgian State's long-term commitments. The amounts received must be invested, to generate the desired return to pay the costs for waste management when they are due. The fixed amounts will also have to be sufficiently ringfenced from the general budget of the Belgian State, so that the amount is only used to pay for the costs for the long-term storage and final storage and cannot be used for other purposes or to absorb any future budget deficits.

3.4.5. *Establishment of the Capped Amounts*

(140) The computation of the EUR 15 billion of Capped Amounts is based on the current nuclear provisions of the nuclear operator (the base amount) and a risk premium.

3.4.5.1. Base amount

(141) Belgium submits that the base amount of nuclear provisions of the nuclear operator includes already margins for contingencies, uncertainties and other risks that may arise in relation to dismantling, radioactive waste management and spent fuel management. Contingency margins relating to the disposal of waste are determined by NIRAS/ONDRAF and built into its nuclear waste tariffs. The nuclear operator also estimates appropriate margins for each cost category in its nuclear provisions.

(142) The nuclear provisions for managing spent fuel cover all of the costs linked to the base scenario, including on-site storage, transportation, conditioning, storage and geological disposal. Their present value is calculated based on the following principles:

(a) Storage costs: the costs of building and operating additional dry storage facilities and operating existing dry and wet storage facilities, along with the costs of the procurement of containers.

(b) Conditioning facilities: radioactive spent fuel that has not been reprocessed is to be conditioned, which requires conditioning facilities to be built according to NIRAS/ONDRAF' approved criteria.

(c) The cost of disposing fuel in deep geological repositories is estimated using the fee rate established by NIRAS/ONDRAF based on a total disposal facility cost of EUR 12 billion based on a probabilistic model (AACE Cost Estimate Classification).

(d) The long-term obligation is calculated using estimated internal and external costs assessed based on offers received from third parties.

(e) The baseline scenario includes NIRAS/ONDRAF latest scenario, with geological storage starting in 2070 and ending in 2135.

(143) The nominal discount rate used by the CPN/CNV is 3 % (including an inflation rate of 2 %), based on the opinion of the CPN/CNV of 7 March 2023 ([74]). Belgium submits that a long-term discount rate of 1 % in real terms can be considered prudent, since it is in line with current actuarial practices, such as the EIOPA curve ([75]), and more conservative than those previously applied in similar financial transfers ([76]).

(144) For the various phases, margins for contingencies, reviewed by CPN/CNV, are included.

(145) The present value of the obligation to manage nuclear waste produced by the decommissioning activities are determined based on the following principles and inputs:

(a) waste tariffs for category A and category B dismantling waste are determined using the waste tariff established by NIRAS/ONDRAF and include the margins recommended by NIRAS/ONDRAF for waste reclassification risk given the uncertainty over the acceptation by NIRAS/ONDRAF;

(b) for the various phases, margins for contingencies, reviewed by the CPN/CNV, are included;

(c) an inflation rate of 2 % is applied until the last waste package is transferred to NIRAS/ONDRAF in order to determine the value of the future obligations;

(d) the nominal discount rate used by the CPN/CNV is 3 % (including an inflation rate of 2 %).

(146) The nuclear waste tariffs of NIRAS/ONDRAF are based on an industrial reference scenario:

(a) Category A waste: the surface disposal facility in Dessel;

(b) Category B waste, category C waste and spent fuel: the long-term disposal assumption assumes that the waste will be buried in a hypothetical deep geological repository at a depth of 400 m in a clay host formation at a site yet to be determined in Belgium.

([74]) Advice by the CPN/CNV to the Minister of Energy of 7 March 2023, pp.4-6 ('*Advies van de Commissie voor Nucleaire Voorzieningen aan de Minister van Energie betreffende de overdracht van de financiële verantwoordelijkheid van ENGIE aan de Belgische staat van het beheer van het radioactief afval en de verbruikte splijtstof van de zeven Belgische kerncentrales*').

([75]) The EIOPA curve, or the EIOPA risk-free interest rate term structure, is a set of discount rates provided by the European Insurance and Occupational Pensions Authority (EIOPA). These rates are used primarily by insurance companies within the European Economic Area (EEA) to value their liabilities under the Solvency II regulatory framework.

([76]) Belgium refers in this respect to the average annual rate of 1,97 % (on top of inflation) applied in the German nuclear waste transfer deal. See recital (24)(b) in Commission decision of 16 June 2017 in case SA.45296 (2017/N) – Germany – Transfer of Radioactive Waste and Spent Nuclear Fuel Liabilities in Germany.

(147) The net present value of the future liabilities regarding decommissioning and radioactive waste management must be present in the accounts of Synatom as nuclear provision company. The discount factor applied to these liabilities decreased from 5 % in 2005 to 3,5 % at the end of 2018 to progressively bring it in line with the long-term risk-free interest rate based on the rate of government bonds (OLO) and AAA-rated corporate bonds ([77]). The discount factor affects the amount that nuclear operators must set aside today to cover future decommissioning and waste management costs: a higher discount rate reduces the present value of future liabilities, thereby reducing the amount that needs to be provisioned currently, while a lower discount rate increases the present value, requiring higher current provisions. As of 2019, the CPN/CNV decided to further decrease the discount rate and to implement a separate approach for spent nuclear fuel and nuclear waste/decommissioning funds. At the end of 2021 the discount factor was 3,25 % for spent nuclear fuel and 2,5 % for nuclear waste/decommissioning.

(148) The discount rate established in the context of the 2022 triennial revision is important since it establishes the long-term discount factor and hereby influences the amount of provisions to be transferred by the nuclear operator to the Belgian state. In this respect, the CPN/CNV considers in its advice of 7 March 2023 that:

(a) So far, the discount rate, the methodology and the costs and the provisions for dismantling and the management of radioactive waste and spent fuel were reviewed every 3 years, and the provisions adjusted accordingly by Synatom. After transfer of the liabilities, such revision is not possible any longer.

(b) A study by the Bank of England shows that the very long-term interest rate has been on a downward trend since the 14th century until now.

(149) Considering the arguments in recital (148), the CPN/CNV proposed to keep the discount rate for dismantling activities at 2,5 %, while adjusting the discount factor for nuclear waste/decommissioning and spent fuel liabilities, applying a two-step approach, consisting in applying a discount factor based on the actual 30-year OLO rate of 3,17 % for the first 30 years, and applying a discount factor of 2,17 % based on the risk-free rate for the 30 years thereafter. The CPN/CNV argues that this methodology is balanced and allows the cash flows to be actualised over a long period at a lower interest rate. The remaining period with the risk-free interest rate must correspond to the main cash flows for the construction of the deep repository of radioactive waste of category B and category C, including spent fuel recognised as waste in the reference scenario of NIRAS/ONDRAF.

(150) The CPN/CNV also refers to additional risks regarding the transfer of nuclear waste liabilities that the Belgian government would need to consider in the negotiations with Engie on the transfer of waste liabilities:

(a) There is a risk that the anticipated overnight costs are underestimated and, therefore, contingencies are insufficient ([78]).

(b) The difference between the inflation assumed in the CPN/CNV discount rate and the actual construction inflation: construction inflation (as estimated e.g., on the basis of the ABEX index) is higher than the 2 % inflation target of the European Central Bank ([79]) assumed in the discount rate.

([77]) The CPN/CNV follows hereby the analysis by the National bank of Belgium and the Federal Debt Agency, who make their analysis of the very long-term discount rate in the context of the triennial review based on the real 30-year interest rate of the AAA countries in the eurozone, to which a constant inflation of 2,00 % on an annual basis and a term premium of 0,30 % are added, and also based on the real OLO rate.

([78]) The CPN/CNV refers in this respect to recent published studies (Budzier et al 2019, Flyvbjerg et al, 2023), showing that overnight costs of nuclear projects can increase by up to 100-200 %. These cost overruns are based on planned budgets (final business case) and actual cost figures (at the time the project was completed).

([79]) The ECB's primary objective is to preserve the purchasing power of the euro by making sure that inflation remains low, stable and predictable. The ECB's Governing Council, after concluding its strategy review in July 2021, considers that price stability is best maintained by aiming for 2 % inflation over the medium term.

(c) Investment risk: in a scenario where inflation is lower than the 2 % inflation target and a return of 2 % cannot be achieved, a shortage of funds may arise (a low probability scenario).

(151) The capped nuclear liabilities that are transferred to the Belgian State were identified and the corresponding existing provisions allocated, as part of the Capped Amounts. Table 4 shows the allocation of the EUR 18,225 billion existing provisions between Electrabel (EUR 8,410 billion) and the Belgian government (EUR 9,815 billion), according to the waste cap agreement.

Table 4

Allocation of the nuclear provisions according to the waste cap agreement

(EUR billion)	Liabilities retained by Electrabel	Liabilities transferred to Belgian State	Total
Dismantling activities (incl. nuclear waste management)	6,727	1,395	8,122
Spent fuel management	1,683	7,387	9,070
Operational waste	-	1,033	1,033
Total	8,410	9,815	18,225

Source: Belgian authorities

(152) The Capped Amounts were determined after taking into consideration every step of the management of the nuclear waste package and spent fuel after their transfer to the Belgian State, with the support of NIRAS/ONDRAF (for the industrial scenario) and the advice of the CPN/CNV (for the discount rate) (see Figure 1, Figure 2 and Figure 3).

Figure 1

Allocation of capped nuclear liabilities for category A and B waste transfer

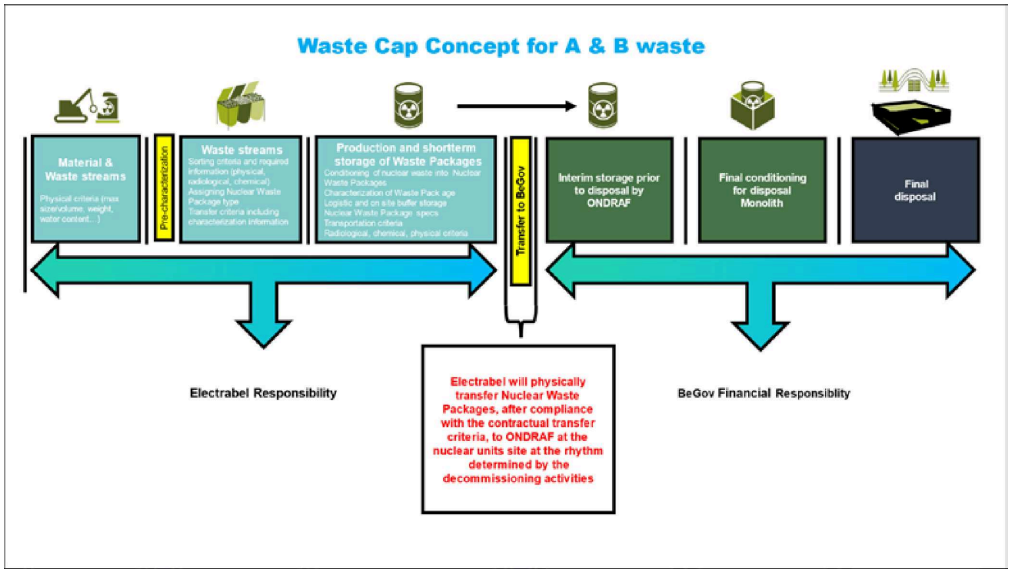


Figure 2

Allocation of capped nuclear liabilities for spent nuclear fuel transfer

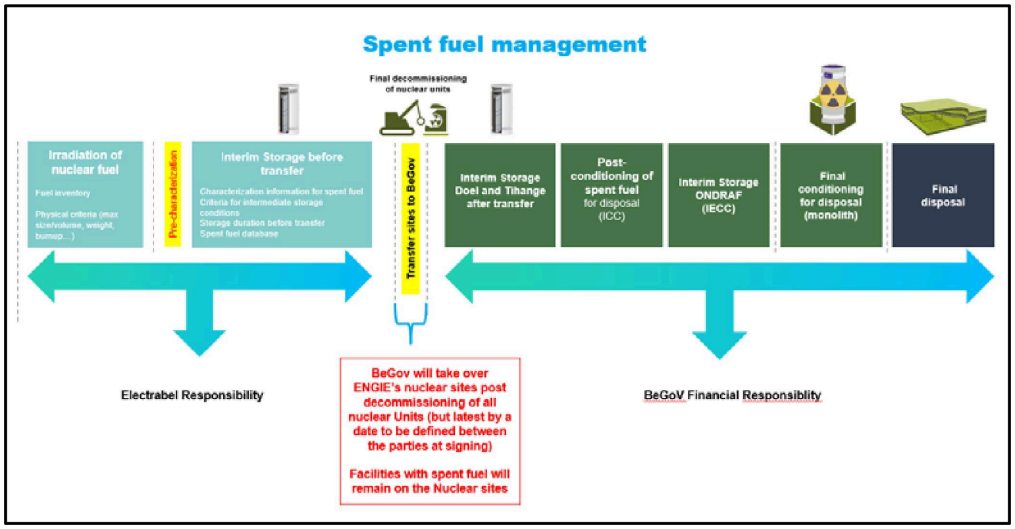
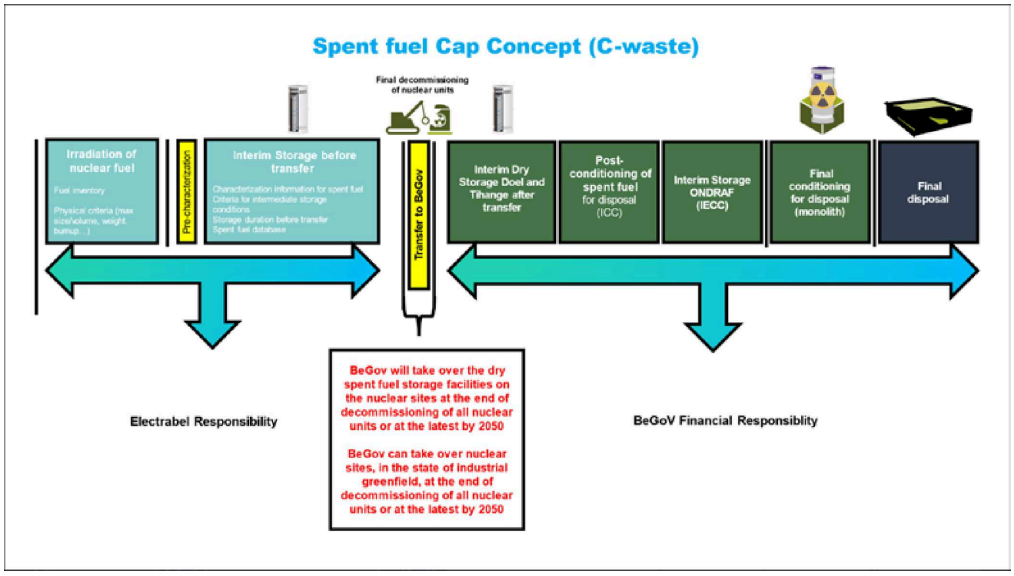


Figure 3

Allocation of capped nuclear liabilities for category C waste transfer



3.4.5.2. Risk premium

(153) Belgium submits that, although the nuclear provisions already contain different layers of contingencies and margins meant to cover the industrial reference scenarios approved by the CPN/CNV, to the base amount of EUR 9,815 billion a significant additional risk premium of EUR 5,185 billion, has been added to cover remaining uncertainties.

(154) Belgium submits that the determination of the risk premium considered a technical analysis made by NIRAS/ONDRAF, read together with the CPN/CNV's opinions on provisions. In particular, NIRAS/ONDRAF issued a technical note documenting an analysis of the uncertainties and risks associated with the transfer of financial responsibility for the management of radioactive waste and spent fuel from the seven Belgian nuclear power plants to the Belgian State ([80]). The analysis concerns various components of the transferred liabilities to estimate the cost of 'less likely than not' scenarios, i.e., costs that had not been included in the base amount and therefore were considered to calculate the risk premium. The NIRAS/ONDRAF technical note's findings have identified certain risks which have been dealt with and reflected in the risk premium:

(a) The overnight estimated cost (50th percentile) of the geological disposal installation at a depth of 400 m currently valued in the 2022 CPN/CNV's triennial review, including contingencies, amounts to EUR 12 billion (for all waste producers, of which nuclear waste constitutes approximately 55 %) and is considered in the base amount. The risk premium covers approximately 55 % of the estimated cost increase at the 70th percentile. In addition, based on the NIRAS/ONDRAF Technical Note, the risk premium covers the additional costs related to a different disposal site at a depth of 600 m (instead of the 400 m currently envisaged in the reference program). This assessment led to a combined additional risk margin of approximately EUR 4 billion.

(b) The overnight cost of operating and maintaining the storage facilities at the Belgoprocess site ([81]), of the operation of the Spent Fuel Storage Facilities after 2050 and of building additional facilities as currently valued in the 2022 CPN/CNV's triennial review, including contingencies for cost overruns. An additional margin of approximately EUR 0,5 billion was added to cover additional contingencies for longer operating periods and the risks identified by NIRAS/ONDRAF that might not be covered by the contingencies in the base amount.

(c) With respect to category A waste and related risks:

— The overnight cost of the surface disposal installation was valued in the 2022 CPN/CNV's triennial review at EUR 2,604 billion. The nuclear waste is expected to occupy approximately 60 % of the surface disposal. NIRAS/ONDRAF identified potential additional costs: since the reference scenario for surface disposal assumes that all category A waste is eligible for surface disposal, NIRAS/ONDRAF identified uncertainties relating to the eligibility, which might lead to the risk of additional costs related to the adequate prior handling of waste. As mentioned in recital (133)(c), Electrabel has to meet a strict set of CTC before the waste is eligible to be transferred, mitigating the risk of additional costs for the Belgian State after transfer of the nuclear waste. The CTC were set considering the anticipated evolution of the acceptance criteria for this disposal as the project progresses. To cover the risks relating to uncertainties associated with the anticipated evolution of the acceptance criteria, the industrial risks and the potential costs of making the waste compliant with the disposal acceptance criteria, an additional premium of EUR 0,9 billion was added to the base amount.

(d) Although the CPN/CNV concluded its 2022 triennial revision with a reduction in decommissioning provisions of EUR 0,642 billion ([82]), the Belgian government adopted a prudent approach and kept in an amount in the risk premium corresponding to Category A waste after transfer.

(e) Other industrial risks identified by NIRAS/ONDRAF were reduced by requiring Electrabel:

— to support the potential cost of a new storage building for thin shell containers ('TSC') that would be required to transfer category B waste;

([80]) NIRAS/ONDRAF's Technical Note (confidential) of March 2023, '*Note technique documentant une analyse des incertitudes et des risques associés au transfert de la responsabilité financière de la gestion des déchets radioactifs et du combustible usé des sept centrales nucléaires belges d'Engie à l'état belge*'.

([81]) Belgoprocess is responsible for the centralised processing and storage of radioactive waste and the dismantling of nuclear installations in Belgium.

([82]) See 2022 Annual Report of the CPN/CNV, p.19.

— to deliver all nuclear waste in a conditioned and inert form which would require to swiftly develop all the conditioning techniques required to transfer all the waste to the Belgian government in conditioned and/or inert form; and

— to transfer all spent fuel in dry storage casks, to build a new spent fuel storage facility and to decommission the existing wet storage building. As this cost was partly included in the nuclear provisions, it led to a reduction of the risk premium by EUR 0,5 billion.

(155) The total amount of the transferred liabilities therefore equals (i) the base amount of EUR 9,815 billion and (ii) a risk premium of EUR 5,185 billion, amounting to EUR 15 billion in total. This led to the lumpsum amounts of EUR 3,5 billion for category A waste and EUR 11,5 billion for the category B and C waste and spent fuel. The cost for category B and C waste was split up based on their respective part of the inventory: EUR 1 billion for category B waste and EUR 10,5 billion for category C waste and spent fuel.

(156) For the reasons mentioned in recitals (141) to (146) and (153) to (155), Belgium considers that the waste cap is sized to cover realistically the expected costs, including an adequate risk premium. In addition, Belgium argues that the risk premium of 52,83 % exceeds the risk premium of 35,47 % applied in the case of the German waste deal and exceeds the range of 34-43 % that was submitted by Germany as a plausible range in the context of the German waste deal ([83]).

3.4.5.3. Payment of the Capped Amounts

(157) In order to implement the waste cap, the Law of 12 July 2022 has been amended as follows:

(a) First, the provisions for operational waste held by the nuclear operator and the Contributing Companies will be transferred to Synatom and be submitted to the control of the CPN/CNV, as is already the case for the provisions for decommissioning and spent fuel.

(b) Second, the definition of decommissioning costs and spent fuel management costs will be modified to exclude and distinguish them from the capped nuclear and spent fuel liabilities. This means that Synatom is no longer required to establish provisions for the capped nuclear waste and spent fuel liabilities. These provisions will be established within Hedera.

(158) The Capped Amount of EUR 15 billion will be paid (after indexation) by Synatom to Hedera. On 31 December 2022, out of the EUR 15 billion, EUR 8,782 billion has already been provisioned within Synatom. The remaining EUR 6,218 billion consists of (i) the operational waste provisions that are currently on the balance sheet of the nuclear operator (and the Contributing Companies) and (ii) the risk premium. This delta will be transferred to Synatom by the nuclear operator and the Contributing Companies, the same way as if it were a shortfall in the provisions.

(159) The amounts that are already within Synatom have been contributed by the nuclear operator and the Contributing Companies in the past years. Therefore, from a financial point of view, both the nuclear operator and the Contributing Companies 'pay' for their share in the Capped Amounts. The residual financial liability of both the Contributing Companies and the nuclear operator in case of a shortfall of money will be limited to the uncapped liabilities (including the decommissioning provisions for the nuclear units, making the waste packages compliant with the contractual transfer criteria).

([83]) See recitals (19) and (28) in State aid case SA.45296 (2017/N) - Germany - Transfer of Radioactive Waste and Spent Fuel Liabilities in Germany.

(160) Belgium considers that the transferred liabilities regarding nuclear waste do not provide an economic advantage to Electrabel and the Contributing Companies, since it considers that the transferred Capped Amounts adequately reflect the risk of subsequent cost fluctuations taken over by the State, and that the set-up of the risk transfer is such that a private investor would have accepted to bear it. Nevertheless, Belgium includes the transfer of nuclear waste and spent fuel liabilities in the notified measure, as part of the set of sub-measures which could be assessed as one single intervention.

3.4.6. *Decommissioning liabilities*

(161) At the end of the O&M Agreement, the LTO Units will be in a decommissioning and dismantling phase. The provisions for the decommissioning of all the Belgian nuclear power plants and the management of spent nuclear fuel are regulated by the Law of 11 April 2003 ([84]). The main principles are (i) the incorporation of the CPN/CNV, an independent governmental entity that has advisory and supervisory power of the establishment and management of the nuclear provisions, and (ii) the designation of Synatom as the 'nuclear provisioning company'. This means that the nuclear provisions in relation to the decommissioning and dismantling of the Belgian nuclear power plants and the nuclear fuel used in these plants are established on the balance sheet of Synatom and no longer as provisions for environmental liabilities on the balance sheet of the nuclear operator and the (other) co-owners of the nuclear power plants, as was the case prior to 2003. The nuclear operator and the Contributing Companies then transferred the countervalue of their provisions to Synatom.

(162) The Law of 12 July 2022 has confirmed and enhanced CPN/CNV's supervisory powers and replaced the Law of 11 April 2003 with regard to the nuclear provisioning. Under the current mechanism, Synatom establishes the decommissioning provisions in order to cover, for each nuclear unit, the full discounted amount of the decommissioning costs at the time of the programmed decommissioning of the relevant nuclear unit. Synatom establishes the spent fuel provisions as well. Every year Synatom increases the spent fuel provisions in the pro rata of the amounts of spent fuel produced in the relevant year. In accordance with the law, every three years the CPN/CNV carries out an audit of the application and appropriateness of the calculation methods used to establish nuclear provisions.

(163) The decommissioning and dismantling of the whole nuclear park in Belgium are and remain a legal obligation of solely the nuclear operator, and the waste cap agreement (see section 3.4.3) does not affect the decommissioning obligations of the nuclear operator, which include the obligation to condition the waste into nuclear waste packages compliant with the CTC. Therefore, the existing decommissioning and dismantling liabilities for both the non-LTO and LTO Units remain with Electrabel. Under the law on nuclear provisioning of 12 July 2022, companies other than a nuclear operator that have or have had a share in the industrial production of electricity by fission of nuclear fuels, contribute to the dismantling costs. The contribution of such companies is governed in a contract between the nuclear operator and the contributing company.

(164) The EUR 8,410 billion mentioned in Table 4, corresponds to the IAS 37 provision for the environmental liabilities relating to the decommissioning nuclear liabilities which will remain with Electrabel. The provision covers (i) the costs for the decommissioning of the whole nuclear park and (ii) the costs of making the waste (both the decommissioning and the operational waste of the whole nuclear park) and spent fuel (of the whole nuclear park) compliant with the relevant CTC to be transferred in line with the Implementation Agreement. The amount of the provision fluctuates and depends on the likelihood of the cost and the consumption of the provisions. In contrast to the nuclear waste provision, the decommissioning provision made by Electrabel is not capped, nor is it a fixed amount. Therefore, if the actual costs exceed the provision, the additional cost will need to be paid by Electrabel and the Contributing Companies. The same goes for the case when the countervalues of these provisions are lower than the provisions (e.g., in case of unsuccessful investments).

([84]) Law of 11 April 2003, regarding 'Provisions for the dismantling of nuclear power plants and the management of fissile materials irradiated in these plants'.

(165) BE-NUC does not bear any decommissioning liability, except for two exceptions where the Belgian State will be liable for any direct or indirect increase in decommissioning liabilities:

(a) in relation to the nuclear operations other than the nuclear units Doel 4 and Tihange 3 (non-LTO Units) if and to the extent that they demonstrably result from the LTO Project ([85]), and

(b) in relation to nuclear operations at Doel 4 and Tihange 3 (LTO Units), to the extent that they demonstrably result from the LTO Project or from circumstances occurring after the LTO restart date in respect of the first LTO Unit to achieve such date ([86]).

(166) The burden and risk of proof for the increased decommissioning costs linked to the LTO Project lies with Electrabel, as the nuclear operator.

(167) These LTO decommissioning and dismantling liabilities ('additional decommissioning liabilities resulting from the LTO Project'), if proven by Electrabel, will be borne by the Belgian State by the means of a one shot (full and final) lump sum payment on the closing date of the transaction. Like the nuclear waste provision, the decommissioning provision has been calculated by Synatom, based on its industrial scenario for the decommissioning and dismantling (based on a no LTO-scenario), including margins for contingencies, uncertainties, and other risks that may arise in accordance with applicable accounting standards (IAS 37) (same assumptions as submitted to the CPN/CNV for the 2022 revision of its nuclear provisions). This calculation is also subject to the CPN/CNV's triennial review. The methodology aims at coming to a realistic estimate of expected decommissioning costs and to ensure sufficient provisioning.

(168) The Belgian State and Electrabel should agree on the amount within a set timeframe, and if they fail to do so, the matter will be submitted to the CPN/CNV for decision. Since the Belgian government and Electrabel failed to agree on the amount within the set timeframe, the matter was submitted to the CPN/CNV for decision (in accordance with Article 16.4.E of the IA) and is pending there. The payment made by the Belgian State to the nuclear operator will be transferred to Synatom and used to increase the nuclear provisions within Synatom.

(169) If the LTO does not progress as intended, Electrabel and the Belgian State can reduce the LTO decommissioning and dismantling liabilities, and the Belgian State will be reimbursed accordingly by Electrabel. However, LTO decommissioning and dismantling liabilities cannot be increased in case the costs are higher than the payment made by the Belgian State. If at the time of decommissioning and dismantling, the provisions itself or the

([85]) Concrete examples of such additional costs include but are not limited to e.g. the postponement of certain operational steps part of the post-operational period of the non-LTO Units (transfers of fuel elements between the deactivation pools and the spent fuel storage facilities), which are optimised at site level and must be undertaken under an integrated schedule. Due to the LTO of the Doel 4 and Tihange 3 units, the ongoing post-operational period of the nearby units Doel 3 and Tihange 2 will be extended. In turn, the post-operational period of the next units on the decommissioning schedule (Doel 1&2 and Tihange 1) will be lengthened; the lengthening of the dismantling duration of the Tihange 2 unit: the water and waste treatment facilities that are needed for the operation of Tihange 3 are part of the Tihange 2 unit. Whereas the dismantling of the reactor building can be realised in parallel with the operation of the water and waste treatment facilities, no nuclear auxiliary building can be dismantled. The operation of the water and waste treatment facilities, and therefore the dismantling duration of the Tihange 2 unit, has to be lengthened until the end of the post-operational period of Tihange 3.

([86]) Concrete examples of such additional costs include but are not limited to e.g. common site services (e.g. site security, militaries/police, fire brigade, etc.) and shared infrastructures will have to be kept up and running in post-operational phase for one unit in the Doel and Tihange sites respectively, while it was previously foreseen for several units; project costs of the post-operational phase of the LTO Units will also be impacted by the reduction in the number of units concerned (e.g. project management, procurement efficiency, commercial advantages, etc.).

countervalue of the provisions are too low to cover the costs, Electrabel, EDF Belgium and Luminus (the Contributing Companies, see footnote 65) will be obliged to pay for the shortfall. Electrabel and the Contributing Companies will pay their share of the amount respectively of the increase in the provisions directly to Synatom. The Contributing Companies will agree with the nuclear operator on the detailed terms and conditions of this contribution. BE-NUC will not pay for any increase in the decommissioning provisions.

(170) The provisions for the radioactive operational waste (i.e., radioactive waste that is produced because of the operation of a nuclear power plant but not yet conditioned into nuclear waste package) are currently not governed by the Law of 12 July 2022 as they are not considered as waste stemming from decommissioning activities. Therefore, they are not part of the nuclear provisions managed by Synatom. Costs related to the operational waste and spent fuel produced by the LTO Units during the LTO Period will be paid by the co-owners of the LTO Units (BE-NUC and Luminus): this includes the costs for making the operational waste compliant with the CTC and a volume adjustment fee for these additional volumes. Electrabel and the Contributing Companies (to the extent they have agreed to cover for their share of these costs) will establish provisions for radioactive operational waste in accordance with the applicable accounting rules.

(171) Belgium submits that the (potential) payment for decommissioning and dismantling liabilities by the Belgian government is only intended to cover the risks of increased decommissioning costs that would result from (among others) regulatory or technical circumstances, such as the modification of buildings or equipment. Insofar as the payment only covers extra decommissioning cost due to the LTO, it does not cover any operating costs relating to day-to-day management or usual activities and do not have distortive effects. Nevertheless, Belgium includes the additional decommissioning liabilities resulting from the LTO Project in the notified measure, as part of the set of sub-measures which could be assessed as one single intervention.

3.4.7. *Impact on risk profile and release of non-European assets*

(172) Belgium acknowledges that the payment of the cap has a positive impact on the risk profile of the nuclear operator, since a significant part of its nuclear liabilities will be covered by the cap. Moreover, these liabilities also include costs to be borne over a very long period of time. This long term inherently leads to uncertainties, which are therefore covered by the payment of the cap. Belgium submits that there are nevertheless risks remaining for the nuclear operator, such as for instance (i) decommissioning costs that could be higher than the current provisions or the final value of the assets constituting the value of the provisions, (ii) volume risk if final volumes of nuclear waste and spent fuel turn out to be higher than the volume credit, (iii) repayment of loans to Synatom, and (iv) other costs and liabilities associated with the operation of a nuclear power plant. Belgium submits that this different risk profile justifies and requires a revision of the package of measures to ensure the safety and supervision of the nuclear operator's financial situation.

(173) Belgium submits that the lumpsum payment of EUR 15 billion to Hedera justifies the release of Electrabel's non-European assets from Electrabel's perimeter (and the accompanying monitoring of the CPN/CNV). In addition, Engie, as the French parent company of Electrabel, will ensure that at the time of closing the agreement between the Belgian State and Electrabel, at least EUR 4 billion of assets (equity value as of 30 June 2023) will remain in Electrabel.

(174) In addition, Belgium submits that Engie grants an unlimited and non-cancellable parent company guarantee on request for (i) Electrabel's decommissioning obligations (which also includes the risk that the value of the provisions is insufficient), (ii) volume risk under the cap and (iii) the repayment of (current or future) loans with Synatom. This parent company guarantee is based on the principle of 'pay first, discuss later'. The Law of 12 July 2022 strengthening the framework applicable to provisions established for the decommissioning of nuclear power

stations and spent fuel management and partially repealing and amending the Law of 11 April 2003 on provisions for the decommissioning of nuclear power stations and for the management of fissile material irradiated in those nuclear power plants is amended in order to provide a legal basis for the obligation to provide this parent company guarantee. In addition, the French parent company also provides shareholder support to Electrabel to enable Electrabel to honour its payment obligations as a nuclear operator under the O&M Agreement and a guarantee under the cash pooling scheme in the group.

(175) Belgium submits that the thresholds for capital decisions will be considerably lowered. At present, the CPN/CNV must give its prior approval for capital decisions of EUR 750 million, which will be lowered to EUR 150 million, EUR 200 million or EUR 250 million (depending on the repayment degree of the loans) ([87]). In addition, Electrabel will also have to provide the CPN/CNV with an update of the valuation of European assets to enable the CPN/CNV to better assess the impact of the proposed capital decision.

(176) Belgium submits that the release of non-EU assets of Electrabel does not grant Electrabel a selective economic advantage. As the waste cap modifies the risk profile of the nuclear operator, it justifies and requires an adjustment of the existing security package, i.e., the removal of Electrabel's non-European assets from the Electrabel perimeter (and the associated supervision of the CPN/CNV). Nevertheless, Belgium includes the release of non-EU assets of Electrabel in the notified measure, as part of the set of sub-measures which could be assessed as part of one single intervention.

3.5. **Component 3: Legal protections**

(177) The agreement between the Belgian State and Engie also includes provisions on legal protections (a.o. Clause 19 of the Implementation Agreement), which define the risk-sharing in the event of future legislative changes. These provisions are also mentioned in Chapter 4 of the Phoenix Law (see section 3.7.2) concerning the security of supply of energy and the reform of the nuclear energy sector. Chapter 4 of the before-mentioned law does not establish a compensation system but provides the legal basis for concluding the contracts to protect against changes in the law. The relationship between the parties will therefore be governed solely by the provisions of the Implementation Agreement.

(178) These provisions concluded with Engie and Electrabel, as part of the broader transaction, provide, inter alia, that if the Federal Government or the Federal Parliament adopts new regulations specifically concerning nuclear operators in Belgium or Electrabel's nuclear activities and having a negative impact on the material terms of the transaction, the Belgian State will indemnify Engie (or one of the Engie group companies) for the direct losses it actually incurs. This also includes the payments Engie has to make to Luminus in the context of the indemnification. In accordance with Belgian law, the claimant must prove its claim and the amount of indemnification will be determined by a court or an arbitration procedure. Belgian courts are competent, but there is a reciprocal arbitration option for UNICTRAL arbitration.

(179) This provision does not apply if the legal amendment results from the transposition of European or international law, unless if the Federal Government or the Federal Parliament has actively promoted such legislation at another level (international, supranational, European regional, municipal, etc.) or has actively promoted a judicial decision.

([87]) Concretely, this means that previously Electrabel could decide to distribute dividends of EUR 749 999 999,99 without requesting prior approval, and that such approval will now be required from EUR 150 000 000 (or EUR 200 000 000 or EUR 250 000 000 depending on the degree of repayment of the loans).

(180) Belgium submits that the Commission's decisional practice suggests that protections against change in law can constitute State aid. Belgium refers in this respect to Commission decision regarding the lifetime extension of three other nuclear reactors in Belgium, in which the Commission examined the indemnification clauses contained in the agreements concluded between the Belgian State and the owners of nuclear power plants. As a consequence, Belgium concludes that the legal protections agreement between the Belgian State and Engie could imply the granting of a selective economic advantage to Engie.

3.6. **Beneficiaries**

(181) The ultimate beneficiaries of the notified measure are (1) Engie, as parent company of Electrabel, which is the sole operator and co-owner of the LTO Units (89,807 %) and as direct party to the Implementation Agreement concluded with the Belgian government, and (2) EDF S.A. ('EDF'), as ultimate parent company of Luminus, which is co-owner of the LTO Units (10,193 %) and part of the Contributing Companies and as parent company of EDF Belgium, as part of the Contributing Companies.

(182) Regarding Component 1 of the notified measure, Electrabel and Luminus, are counterparties of the State in the two-way CfD and benefit from the SDC Loans, and are therefore direct beneficiaries of these sub-measures. Regarding the other sub-measures under Component 1, which provide support for the operation and maintenance of the LTO Units, Electrabel, is a direct beneficiary as nuclear operator, shareholder in the JV with the Belgian State and co-owner of the LTO Units, while Luminus is an indirect beneficiary as co-owner of the LTO Units. Luminus benefits from the reduction of operational risks through the access to the WCF for the nuclear operator, the provision of the shareholder loan, and the set-up of the ASA and EMSA, without itself being direct beneficiary of these sub-measures.

(183) Regarding Component 2 of the notified measure, the transfer of nuclear waste liabilities and the agreement on decommissioning liabilities benefit the nuclear operator, Electrabel, as well as Luminus and EDF Belgium in their role as Contributing Companies, who are, together with the nuclear operator, financially responsible for the nuclear waste and decommissioning liabilities.

(184) Regarding Component 3 of the notified measure, the legal protections provide that unilateral measures adopted by the Belgian State specifically affecting or applying to the operators of the nuclear units in Belgium and adversely modifying the material terms of the transaction would trigger a right to indemnification. Therefore, the direct beneficiaries are the operator (and co-owner) of the nuclear reactors in Belgium, Electrabel, BE-NUC and any affected entity of the Engie group, while the indirect beneficiary is Luminus, as co-owner of the LTO Units.

3.7. **National legal basis and transparency**

(185) The lifetime extension of the two nuclear reactors and related support mechanisms which are part of the agreement with Engie and Electrabel (LTO Project) require a number of legislative changes. The different legislative changes related to different parts of the LTO Project are described in the sections below.

(186) The federal State is the granting authority for the measure addressed in the current decision.

3.7.1. *Amendment of the Nuclear Phase-Out law*

(187) As mentioned in recital (4), in 2003, Belgium decided to gradually phase out the production of electricity through nuclear power. Following the Nuclear Phase-Out law, the seven nuclear reactors in Belgium would have to shut down 40 years after the start of their industrial electricity production and no new nuclear plants could be built. As mentioned in recital (4) and footnote 5, the Nuclear Phase-Out law has been modified three times in order to allow for the lifetime extension of Tihange 1 (Law of 18 December 2013), Doel 1 and Doel 2 (Laws of 28 June 2015 and 11 October 2022).

(188) The 10-year lifetime extension of Doel 4 and Tihange 3 requires another modification of the Nuclear Phase-Out law. In accordance with Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment, Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora and Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conversation of wild birds, an environmental impact assessment is required and has been made.

(189) The modifications to the Nuclear Phase-Out law are limited to allow for the extended operation of the two LTO Units. The start of the 10-year lifetime extension is the 'LTO Restart Date' of the LTO Unit concerned as defined in the agreement between Engie and the Belgian State.

(190) These modifications have been implemented by the 'Law amending the Nuclear Phase-Out Law' ([88]), which modifies articles 2 and 4 of the Nuclear Phase-Out Law. The Law amending the Nuclear Phase-Out Law has been approved by the Parliament in plenary session on 18 April 2024 and has been signed by the King on 26 April 2024. It has been published in the Belgian Official Gazette on 5 June 2024.

3.7.2. *'Phoenix Law'*

(191) The different elements of the LTO Project are implemented through a separate 'Law to guarantee security of supply in the energy sector and reforming the nuclear energy sector' ([89]), also referred to as 'Phoenix Law'. The Phoenix Law includes the following chapters:

(a) the first chapter includes a list of definitions of concepts used throughout the Law;

(b) the second chapter implements the cap mechanism and allows for the release of the non-European Assets; it is a transposition of the articles 16.1 and 16.2 and Schedule 4 of the Implementation Agreement;

(c) the third and fourth chapters provide for the legal basis to conclude the Remuneration Agreement and the legal protections' provisions of the Implementation Agreement respectively;

(d) the fifth and sixth chapters modify the Gas Law ([90]) and Electricity Law ([91]) respectively ([92]);

(e) the seventh chapter states that the cap mechanism as set out in chapter 2 is an exception to the unlimited liability of the waste producer and that the Phoenix Law prevails over article 179 of the NIRAS/ONDRAF Law ([93]);

([88]) Law amending the law of 31 January 2003 on the phasing-out of nuclear energy for industrial electricity production purposes (*Wet tot wijziging van de wet van 31 januari 2003 houdende de geleidelijke uitstap uit kernenergie voor industriële elektriciteitsproductie/Loi modifiant la loi du 31 janvier 2003 sur la sortie progressive de l'énergie nucléaire à des fins de production industrielle d'électricité*).

([89]) Wet houdende de verzekering van de bevoorradingszekerheid op het gebied van energie en de hervorming van de sector van de nucleaire energie. Loi portant la garantie de la sécurité d'approvisionnement dans le domaine de l'énergie et la réforme du secteur de l'énergie nucléaire.

([90]) Law of 12 April 1965 on the transport of gaseous products and others through pipelines (Wet van 12 april 1965 betreffende het vervoer van gasachtige produkten en andere door middle van leidingen / Loi du 12 avril 1965 relative au transport de produits gazeux et autres par canalisations).

([91]) Law of 29 April 1999 on the organisation of the electricity market (Wet van 29 april 1999 betreffende de organisatie van de elektriciteitsmarkt / Loi du 29 avril 1999 relative à l'organisation du marché d'électricité).

([92]) These modifications are limited to the express transposition of the 'public body exception' of the Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC and Directive (EU) 2019/944 of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU.

([93]) Law of 8 August 1980 on the budgetary proposals 1979-1980 (Wet van 8 augustus 1980 betreffende de budgettaire voorstellen 1979-1980 / Loi du 8 août 1980 relative aux propositions budgétaires 1979-1980).

(f) the eight chapter modifies the Law on nuclear provisions of 11 April 2003 ([94]). These modifications include (i) the implementation of the cap mechanism (i.e. Synatom will no longer be required to establish provisions for the capped nuclear waste and spent fuel liabilities), (ii) enhancing of the control on nuclear provisions, (iii) the impact of a possible annulment of the B&C-cap, (iv) the legal basis for the LTO dyssynergies payment; (v) the obligation for Engie to provide the parent company guarantee ('PCG') for decommissioning liabilities, volume adjustment fees and the Synatom loans, as well as the PCG for the cash pooling entities, and (vi) the obligation to include an accelerated repayment clause in all intragroup loans;

(g) the nineth chapter provides for the legal basis for the Belgian State to take the participation in BE-NUC;

(h) the tenth chapter deals with the entry into force of the Phoenix Law ([95]).

(192) The Phoenix Law has been approved by the Parliament in plenary session on 18 April 2024 and signed by the King on 26 April 2024. It has been published in the Belgian Official Gazette on 5 June 2024.

3.7.3. *Laws on Belgian government structure*

(193) The Belgian State will establish two new public entities that will take up certain responsibilities in relation to the LTO Project.

(a) an autonomous service with accounting independence, named 'BE-WATT' ([96]), has been incorporated by the 'BE-WATT Law' ([97]) to become the Belgian government's shareholder in BE-NUC and the counterparty of the Remuneration Agreement; and

(b) a new sui generis public institution with legal personality, Hedera, has been incorporated by the 'Hedera Law' ([98]) to take over the financial responsibility for the capped nuclear waste and spent fuel liabilities and manage the capped amounts.

(194) The BE-WATT Law and the Hedera Law have been approved by the Parliament in plenary session on 18 April 2024 and signed by the King on 26 April 2024. They have been published in the Belgian Official Gazette on 5 June 2024.

3.7.4. *Modification Royal Decree Authorisations*

([94]) Law of 12 July 2022 enhancing the framework applicable on the provisions established for the dismantling of the nuclear power plants and for the management of spent fuel and partially repealing and modifying the law of 11 April 2003 on the provisions established for the dismantling of the nuclear power plants and of the management of the fuel irradiated in these nuclear power plants (Wet van 12 juli 2022 tot versterking van het kader dat van toepassing is op de voorzieningen aangelegd voor de ontmanteling van de kerncentrales en voor het beheer van verbruikte splijtstof en tot gedeeltelijke opheffing en wijziging van de wet van 11 april 2003 betreffende de voorzieningen aangelegd voor de ontmanteling van de kerncentrales en voor het beheer van splijtstoffen bestraald in deze kerncentrales / Loi du 12 juillet 2022 renforçant le cadre applicable aux provisions constituées pour le démantèlement des centrales nucléaires et de la gestion du combustible usé et abrogeant partiellement et modifiant la loi du 11 avril 2003 sur les provisions constituées pour le démantèlement des centrales nucléaires et de la gestion de matières fissiles irradiées dans ces centrales nucléaires).

([95]) The Phoenix Law will enter into force on closing of the transaction. However, there are three exceptions: (i) the provisions in relation to the competences of the Commission on Nuclear Provisions with regard to the LTO dyssynergies will enter into force retroactively as from 13 December 2023 (signing of the Implementation Agreement), (ii) the incorporation of the provisions for operational waste within Synatom will enter into force at the date of the grant of the A-cap and (iii) the legal basis for the participation in BE-NUC and the obligation to conclude new removal contracts will enter into force on the tenth day after publication in the Belgian Official Gazette.

([96]) Administratieve diensten met boekhoudkundige autonomie / Service Administratif à Comptabilité Autonome ('ADBA/SACA').

([97]) 'Law on the creation, organisation and operation of the administrative service with autonomous accounting, called BE-WATT and various provisions relating to the exchange of information'.

([98]) Law on the creation, organisation and operation of a public institution whose purpose is to take over the financial responsibility for certain nuclear liabilities.

(195) The Royal Decree Authorisations regulates the authorisation of installations that condition nuclear waste. This Royal Decree will be modified to allow the authorisation of conditioning installations that condition nuclear waste in accordance with the contractual transfer criteria. A separate category will be introduced for authorisations for conditioning installations that condition in accordance with contractual transfer criteria.

(196) The Royal Decree Authorisations has been adopted on 11 July 2024 and has been published in the Belgian Official Gazette on 15 July 2024 ([99]).

3.7.5. *Royal Decree on Contractual Transfer Criteria*

(197) The Royal Decree on Contractual Transfer Criteria ('CTC') will determine the contractual transfer criteria and the categorisation of the waste package, as well as the way they consume the volume credit.

(198) The Royal Decree on CTC has been adopted on 11 July 2024 and has been published in the Belgian Official Gazette on 15 July 2024 ([100]).

3.8. **Budget and financing**

(199) The total funding requirement of the LTO Project will be financed via the general State budget, including the potential paybacks from the two-sided CfD.

(200) Belgium estimates that the CAPEX costs of the LTO Project amount to EUR [2 000-2 500] million, and the total operating costs over the lifetime to be EUR [7 000-7 500] million.

(201) The net impact on the Belgian State budget is twofold: first, through the capital contribution of EUR 24,7 million to the JV (see recital (52)) ([101]), and, second, through the net cost of measures payable by the RA Counterparty. Belgium submits that the expected budget spending depends not only on costs projections, but also on energy market price/revenues projections, because the LTO Project will be funded by a combination of market revenues, CfD difference payments, minimum OPEX and capital payments, and SDC Loans.

(a) Under the base case projection of the signing financial model, over the lifetime of the project the RA Counterparty will receive a total net nominal amount of EUR [0-500] million.

(b) However, if electricity prices were to evolve according to a lower projection, the cost of the measure to the Belgian government would increase by EUR [4 000-4 500] million due to higher CfD payments. In case of an unexpected event whereby both nuclear plants would be unavailable, the RA Counterparty would also be exposed to providing additional support of EUR [500-1 000] million per year of unavailability. In a negative scenario of low electricity prices and a 12-month unavailability event, the RA Counterparty would have to provide a total net (nominal) amount of EUR [4 000-4 500] million over the project lifetime, i.e., the budget of the measure would be close to [40-50] % of total capital and operating costs.

([99]) 'Arrêté royal modifiant l'arrêté royal du 18 novembre 2002 réglant l'agrément d'équipements destinés à l'entreposage, au traitement et au conditionnement de déchets radioactifs' / 'Koninklijk besluit tot wijziging van het koninklijk besluit van 18 november 2002 houdende regeling van de erkenning van uitrustingen bestemd voor de opslag, verwerking en conditionering van radioactief afval'.

([100]) 'Arrêté royal relatif à la répartition des déchets radioactifs et du combustible nucléaire usé, aux unités et méthodes de consommation des crédits de volume et aux critères de transfert contractuels' / 'Koninklijk besluit inzake de indeling van het radioactief afval en de verbruikte kernbrandstof, de meeteenheden en de wijze van verbruik van de volumekredieten, en de contractuele overdrachtscriteria'.

([101]) The Belgian State will also provide the equity injection and shareholder loan (see section 3.3.3) and the SDC Loans (see section 3.3.7). As described under the referred sections, those sources of funding will be reimbursed to the Belgian State with interest and do not constitute a net cost.

4. ASSESSMENT OF THE MEASURE

4.1. Existence of aid

(202) Under Article 107(1) TFEU, any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods, in so far as it affects trade between Member States, is incompatible with the internal market.

(203) To conclude whether State aid is present in this case, the Commission must assess whether all cumulative criteria of Article 107(1) TFEU are met for the measures under assessment.

4.1.1. *A single intervention comprising multiple sub-measures*

(204) As mentioned in recital (29), it was the Belgian State who took the initiative in March 2022 to start negotiating the LTO Project. As mentioned in recitals (30) to (33), these negotiations led to the conclusion of a 'Heads of Terms' agreement in June 2023, comprising the business model, long-term storage and disposal of nuclear waste, and legal protections. This Heads of Terms agreement led to a more complete set of definitive agreements in December 2023. As mentioned in recital (37), all these parts of the measure aimed together at the lifetime extension of the LTO Units. Therefore, all components of the notified measure, as detailed in sections 3.3, 3.4 and 3.5, were planned together, have the same objective and are established by the same agreement, namely the Implementation Agreement (see recital (35)), the same legislative act, namely the Phoenix Law concerning the security of supply of energy and the reform of the nuclear energy sector (see section 3.7.2), and are all granted by the same granting authority, namely the Belgian State.

(205) In addition, the lifetime extension of the two nuclear reactors, and hence the LTO Project, was initiated by the Belgian government, and Engie's and Electrabel's participation to the agreement was conditional upon obtaining an appropriate level of remuneration, a guarantee against legal changes concerning electricity production from nuclear sources, and additional de-risking as regards the cost of nuclear waste and decommissioning of the nuclear reactors (see recitals (5) and (6)). Therefore, each of the three components of the notified measure constituted a necessary condition to Engie and Electrabel's participation in the extension of the LTO Units' lifetime.

(206) Furthermore, even before the final agreement was signed in December 2023, Electrabel had to kick-off certain development activities as early as 2023 in order to have the nuclear reactors back online by the LTO restart target date of 1 November 2025 (see recital (39)). To this end, Engie and the Belgian government concluded Heads of Terms on a potential Joint Development Agreement ('JDA') in March 2023, which they eventually agreed upon on 29 June 2023, and amended on 21 July by the JDA+ and on 13 December 2023 by the JDA++ (see recitals (33) to (35)). The JDA++ stipulates that Electrabel and the Belgian State would both cover 50 % of the costs of the development activities (e.g., feasibility studies, but no physical intervention or start of works by Engie), while the full cost of those works would be borne by Belgium should the lifetime of the nuclear reactors eventually not be extended.

(207) Where consecutive interventions are so closely linked to each other, especially having regard to their chronology, their purpose and the circumstances of the undertaking at the time of those interventions, that they are inseparable, they can be considered as a 'single intervention' ([102]). For instance, a series of State interventions which take place in relation to the same undertaking in a relatively short period of time, are linked to each other, or were all planned or foreseeable at the time of the first intervention, may be assessed as one intervention.

([102]) Judgment of the General Court of 15 September 1998, *BP Chemicals v Commission*, T-11/95, EU:T:1998:199, paragraphs 170 and 171.

(208) The Commission observes that all sub-measures of Component 1 of the notified measure (the JV, JDA++, the CfD, the SDC Loans, WCF, MOCP, shareholder loan) are closely linked, since they all have as primary purpose the de-risking of the lifetime extension and the provision of stable revenues to the LTO Units (through the pre-funding of certain development activities, a guaranteed level of remuneration and the participation by the Belgian State in the LTO project through the set-up of a JV (BE-NUC) (described in detail in section 3.3)), and therefore are all related to the enabling of the lifetime extension as such. All the sub-measures of Component 1 can therefore be seen as one single intervention. All sub-measures of Component 2 (described in detail in section 3.4) consider the transfer of liabilities related to nuclear waste, spent fuel and decommissioning, which are related to the nuclear provisions managed by Synatom64, as subsidiary of Electrabel. Hence, also the sub-measures of Component 2 can therefore be seen as one single intervention. In addition, all the financial provisions provided under Component 1, the agreements related to nuclear waste and decommissioning in Component 2, and the agreement regarding legal protections in Component 3 (described in detail in section 3.5) are all related to the same purpose and event, namely the lifetime extension of the two nuclear reactors (LTO Project). The waste and decommissioning agreements were part of the requests by Engie to agree on the lifetime extension and are therefore inherent parts to the conclusion of the overall deal (see recital (6)). In addition, both the waste cap in Component 2 and the legal protection measures in Component 3 modify the risk profile of the nuclear operator (see recital (57)), hereby also affecting the financial conditions of the sub-measures in Component 1. Therefore, the three components of the notified measure are closely linked and all part of the same single intervention, the LTO Project. The three components are interdependent and have mutually enhancing effects for the performance of the agreement on the lifetime extension.

(209) The Commission therefore considers that the three components of the notified measure (Component 1, Component 2 and Component 3) should be examined together as one single intervention.

(210) As mentioned in recital (37), Belgium agrees that the three components of the notified measure (Component 1, Component 2 and Component 3), including the several sub-measures, can be considered as part of one single intervention.

4.1.2. *Imputability to the State and financing through State resources*

(211) For measures to be categorised as aid within the meaning of Article 107(1) TFEU, they must be granted directly or indirectly through State resources. It is established case-law ([103]) that measures financed through compulsory charges imposed by the legislation of the Member State, managed and apportioned in accordance with the provisions of that legislation, may be regarded as State resources within the meaning of Article 107(1) TFEU, even if they are managed by private or public entities separate from the public authorities. This means that both advantages which are granted directly by the State and those granted by a public or private body designated or established by the State are included in the concept of State resources within the meaning of Article 107(1) TFEU.

(212) Furthermore, it is not necessary to establish, in all cases, that there has been a transfer of State resources to assess the measure as State aid within the meaning of Article 107(1) TFEU ([104]).

([103]) Judgments of 2 July 1974, *Italy v Commission*, 173/73, EU:C:1974:71, paragraph 35, and of 19 December 2013, *Association Vent De Colère! and Others*, C-262/12, EU:C:2013:851, paragraph 25.

([104]) Judgments of 16 May 2002, *France v Commission*, C-482/99, EU:C:2002:294, paragraph 36, of 30 May 2013, *Doux Élevage and Coopérative agricole* UKL-ARREE, C-677/11, EU:C:2013:348, paragraph 34, of 28 March 2019, *Germany v Commission*, C 405/16 P, EU:C:2019:268, paragraph 55, and of 20 September 2019, *FVE Holýšov I and Others v Commission*, T-217/17, EU:T:2019:633, paragraph 105.

(213) Since (i) the combination of sub-measures of the LTO Project as described in section 3 has been decided by the Belgian State (in agreement with Engie) at the time of signing the Implementation Agreement on 13 December 2023, (ii) the LTO Project also involves the creation of a partly State-owned entity (BE-NUC), and (iii) the granting authority is the Belgian State, the three components of the notified measure are imputable to the Belgian State.

(214) The LTO Project involves a number of sub-measures involving a transfer of State resources to the benefit of a newly set-up JV owned by the State and Electrabel (BE-NUC). In particular, a State-backed CfD, allowing the JV to receive a complementary remuneration in case market prices would lead to a shortfall in revenues from operation, exposes the State to a transfer of State resources to the benefit of the JV.

(215) Therefore, the LTO Project involves State resources and is imputable to the State.

4.1.3. *Economic advantage conferred on certain undertakings or the production of certain goods (selective advantage)*

(216) An advantage, within the meaning of Article 107(1) TFEU, is any economic benefit, which an undertaking would not have obtained under normal market conditions, i.e., in the absence of State intervention ([105]).

(217) The LTO Project, including the three components of the notified measure, targets the lifetime extension of two nuclear power plants with a view to offering electricity in the energy market and hereby contributing to security of supply. The measure will provide the main beneficiaries, Electrabel and Luminus, with a specific advantage which is not made available to other energy operators in similar legal and factual situations, having regard to the objective and the effects of the measure, namely, to provide financing and stable revenues to extend the lifetime of two nuclear reactors and to guarantee security of electricity supply in Belgium, which it would not have obtained under normal market conditions and without a specific agreement regarding the various components of the measure as set out in section 3. This advantage is selective in that it favours the owners and the operator of the LTO Units, that are in a comparable factual and legal situation to other generation capacity providers that do not have the opportunity to operate nuclear plants in Belgium, but that can also contribute to security of supply (such as gas plants, demand response operators, storage providers).

(218) In addition, many of the individual sub-measures that are part of the LTO Project, confer a selective economic advantage to Electrabel and/or Luminus (and to a lesser extent to the Contributing Companies where relevant). For instance, the RA, including a two-way CfD, establishes a fixed revenue stream for the production of electricity from nuclear sources, hereby shielding the owners of the plants, Electrabel and Luminus, from market risks. The State also provides a shareholder loan, SDC Loans and a minimum OPEX and capital payment to cover for the start-up costs of the LTO Units and their potential lack of profitability. These loans and agreements are not available to other competitors and thus confer a selective economic advantage to Electrabel and Luminus.

(219) Therefore, since the CfD confers a selective economic advantage to the beneficiaries, the LTO Project confers a selective economic advantage to its beneficiaries.

(220) As mentioned in recital (82), Belgium agrees that CfD mechanisms may constitute State aid as they protect beneficiaries from price volatility in the electricity market and grant a selective advantage on the counterparty.

4.1.4. *Distortion of competition and trade within the Union*

([105]) Judgment of the Court of Justice of 11 July 1996, SFEI and Others, C-39/94, EU:C:1996:285, paragraph 60; Judgment of the Court of Justice of 29 April 1999, Spain v Commission, C-342/96, EU:C:1999:210, paragraph 41.

(221) The electricity market has been liberalised and electricity producers are engaged in trade between Member States so that an advantage granted to the producers of nuclear electricity is likely to distort competition and affect trade between Member States. Electricity from nuclear sources is generally sold on the internal market for electricity where it enters in competition with all sources of electricity, including those in other Member States. In addition, the Belgian electricity market is highly interconnected in the Core Capacity Calculation region.

(222) Therefore, the advantage granted to Electrabel and Luminus through the LTO Project is likely to distort competition and affect trade between Member States.

4.1.5. *Conclusion on the existence of aid under Article 107(1) TFEU*

(223) For the reasons mentioned in sections 4.1.1, 4.1.2, 4.1.3 and 4.1.4, the Commission considers that Component 1, Component 2 and Component 3 of the notified measure, together the LTO Project or single intervention, constitute State aid within the meaning of Article 107(1) TFEU. The Commission notes that Belgium does not dispute the State aid character of the CfD, the MOCP, the SDC Loans, and the legal protections (see sections 3.3.4, 3.3.5, 3.3.7, and 3.5). Regarding the other components of the measure to support the LTO Project, Belgium does not consider them as State aid, but has included them in the notified measure, as part of the set of sub-measures which could be assessed as one single intervention (see sections 3.3.1, 3.3.2, 3.3.3, 3.3.6, 3.3.8, 3.3.9, 3.3.10, 3.3.11, and 3.4).

4.2. **Legality of the aid**

(224) The measure was notified to the Commission on 21 June 2024 and has not been implemented before the target closing date of the transaction (30 November 2024 is the current Longstop Date in the Implementation Agreement, and no actual works – other than the preparatory works that are part of the development activities under the JDA++ - will be executed before that date). The implementation is furthermore made conditional upon the Commission approval of the notified measure (State aid approval is part of the conditions precedent to the agreement). Therefore, the Belgian authorities have fulfilled the notification and standstill obligations under Article 108(3) TFEU.

4.3. **Compatibility of the measure with Article 107(3)(c) TFEU**

(225) Article 107(3)(c) TFEU provides that the Commission may declare compatible '*aid to facilitate the development of certain economic activities or of certain economic areas, where such aid does not adversely affect trading conditions to an extent contrary to the common interest*'. Therefore, compatible aid under that provision of the Treaty must contribute to the development of certain economic activity. Furthermore, the aid should not distort competition in a way contrary to the common interest. The Commission must thus verify:

(a) Whether the aid measure facilitates the development of an economic activity by:

— identifying the economic activity supported by the aid; and

— showing that the aid effectively facilitates the development of the economic activity,

— without that activity breaching any relevant Union rules.

(b) Whether the aid measure cannot unduly affect trading conditions to an extent contrary to the common interest by:

— identifying the market(s) affected by the aid;

— identifying the positive effects of the aid measure on the internal market;

— assessing how the aid measure minimises the distortions on competition and trade by evaluating the necessity of the aid, its appropriateness and its proportionality;

— identifying the outstanding distortions of trading conditions that cannot be avoided (despite the aid being necessary, appropriate, proportionate); and

(c) weighing up the positive effects of the aid with the negative effects on competition and trade in the internal market.

4.3.1. *Positive condition: development of an economic activity*

(226) Under Article 107(3)(c) TFEU, the measure must contribute to the development of certain economic activities ([106]).

4.3.1.1. Contribution to the development of an economic activity

(227) The objective of the LTO Project is to ensure the continuation of nuclear power generation in Belgium for a prolonged period of 10 years, hereby contributing to security of supply in Belgium, and securing the financing of nuclear waste and spent nuclear fuel in the long term.

(228) The Court of Justice has established that Article 107(3)(c) TFEU may be applied to investments in nuclear power generation ([107]), so that the LTO Project contributes to the development of an economic activity in Belgium.

(229) The Commission therefore considers that the LTO Project facilitates the development of certain economic activities, namely the generation of nuclear based energy, as required by Article 107(3), point (c), TFEU.

4.3.1.2. Incentive effect

(230) State aid can only be considered to facilitate an economic activity if it has an incentive effect. An incentive effect occurs when the aid induces the beneficiary to change its behaviour towards the development of an economic activity pursued by the aid, and if this change in behaviour would not otherwise occur without the aid. In analogy with point 29 of the Guidelines on State aid for climate, environmental protection and energy ('CEEAG') ([108]) the Commission considers that *'in cases where the beneficiary starts implementing a project before applying for aid, any aid granted in respect of that project will, in principle, not be considered compatible with the internal market'*.

(231) The support provided by the Belgian State through the LTO Project targets directly the lifetime extension of nuclear capacity in Belgium. Belgium argues that Engie had already announced its plans to leave the nuclear sector in Belgium and adapted its communication and strategy accordingly (see recital (5)).

(232) Belgium submits that the financial support mechanisms under Component 1 of the notified measure (e.g. two-way contract for difference, SDC Loans, MOCP, shareholder loans, etc.) are necessary to allow Electrabel to de-risk the LTO Project and to cover its investment costs, including a reasonable profit (see recitals (75) and (80)). On top of the financial reassurance regarding the profitability of electricity generation from nuclear, Electrabel also required reassurance regarding the cost of nuclear waste and spent nuclear fuel (Component 2), before being willing to discuss the LTO Project with Belgium, as well as an agreement on legal protections (Component 3) in case of a change in the laws concerning nuclear power generation (see recital (6)).

([106]) Judgement of 22 September 2022, *Austria v Commission*, C-594/18 P EU:C:2020:742, paragraphs 20 and 24.
([107]) Judgement of 22 September 2022, *Austria v Commission*, C-594/18 P EU:C:2020:742, paragraph 63.
([108]) Communication from the Commission – Guidelines on State aid for climate, environmental protection and energy 2022 (OJ C 80, 18.2.2022, p. 1).

(233) Belgium argues that the different components of the notified measure brings sufficient incentives for the change of behaviour of an investor who would not make investments in the lifetime extension of nuclear generation capacity if no State aid were provided, and that investments in existing nuclear capacity without State support is unlikely profitable due to the uncertainty of developments on the electricity market (see recitals (25) and (83)).

(234) Belgium submits that the development activities undertaken as a result of the conclusion of the JDA++ before closing of the transaction, are merely preparatory works and feasibility studies, and that no actual works will be undertaken before the formal closing of the transaction (see recital (39)).

(235) The Commission considers that the fact that the nuclear operator has to cease their operation activities after the 10-year lifetime extension, as a result of the Belgian decision to phase out nuclear electricity generation, creates a high level of uncertainty relating to revenues from nuclear energy generation and financing of future waste management costs and may put at risk its financial solidity. The Commission considers that:

(a) Engie and Electrabel prepared for the decommissioning of Doel 4 and Tihange 3 and were not aiming at a lifetime extension of these LTO Units, taking into account the Nuclear Phase-Out law which obliged nuclear plants in Belgium to shut down after 40 years (see recital (5)). The Belgian government announced its decision to change its energy policy by requesting the extension of the operation of two of the seven nuclear reactors for 10 years. Engie had not prepared for the prolongation, nor was willing to undertake the risks, without State support (see recital (6)). Therefore, the reassurance provided by the Belgian State in the form of the creation of a JV and the conclusion of a two-way CfD made it re-consider its position.

(b) In addition, the sub-measure whereby the Belgian State will fully cover any additional costs resulting from the decommissioning of the LTO Units further incentivises the LTO Project because it removes additional costs related to decommissioning (see recital (165)).

(c) The immediate payment of a lumpsum amount (including a risk premium) eliminates for Electrabel a large part of the uncertainty attached to potential cost overruns related to nuclear waste and spent fuel. Only if the actual volume of nuclear waste is higher than expected, a volume adjustment fee will have to be paid (see recital (133)(d)). However, the payment of potential volume adjustment fees in the future is smaller and less risky than the future payment of the total amount. By transferring the spent fuel and radioactive waste management liabilities to the State and inciting Electrabel to pay in cash EUR 15 billion, the sub-measure removes an uncertainty that otherwise would hinder both the securing of the current available funds and the funding of responsible and safe spent fuel and radioactive waste management solutions.

(d) The risks associated with the necessary investments in the LTO Project are reduced by the creation of the JV and the provision of various remuneration mechanisms mentioned in section 3.3; these remuneration mechanisms also ensure that the required revenues from the lifetime extension will be obtained and that a profitable investment is made.

(e) The agreement on risk sharing in case of legislative changes is required for lowering the amount of aid necessary to bring the lifetime extension forward by reducing certain risks of changes in Belgian law that are considered to be beyond the control of the operator.

(f) Finally, the Commission has verified that the development activities as listed in Schedule 1 of the JDA++ (see footnote 32), are merely preparatory works (to meet the expectations from the safety authority) and do not include actual works on the lifetime extension of the LTO Units.

(236) At this stage, and notably in light of the counterfactual analysis referred to under recitals (83), (85) and (98)(d), the Commission therefore considers that it is plausible that the notified measure has an incentive effect on Engie and Electrabel to continue the operation of the two LTO Units and to transfer their financial and management liabilities in relation with waste management in exchange of immediate payment of a substantial amount of money, allowing to financially secure the funds available and to ensure that responsible and safe spent fuel and radioactive waste management solutions can be financed.

4.3.1.3. No breach of any relevant provision of Union law

(237) In its ruling in the Hinkley Point C case ([109]), the Court of Justice clarified that *'State aid which contravenes provisions or general principles of EU law cannot be declared compatible with the internal market'*. For nuclear energy specifically, the Court of Justice clarified that for the sector '*covered by the Euratom Treaty, State aid for an economic activity falling within that sector that is shown upon examination to contravene rules of EU law on the environment cannot be declared compatible with the internal market pursuant to that provision*'.

(238) The Court also clarified that investments in nuclear energy for security of supply reasons are aligned with Article 194 TFEU ([110]). That reasoning is fully applicable to the measure at stake, since Belgium has opted to continue including nuclear energy in its energy mix to address future resource adequacy issues and security of supply concerns (see the Phoenix Law in section 3.7.2 and recitals (23)(c) and (26)). According the CJEU case law ([111]), the principle of protection of the environment, the precautionary principle, the 'polluter pays' principle and the principle of sustainability cannot be regarded as precluding, in all circumstances, the grant of State aid for the construction or operation of a nuclear power plant.

(239) Moreover, the Court of Justice highlighted that secondary legislation, such as Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment ([112]), under which certain projects are subject to an environmental impact assessment, applies to nuclear power stations and other nuclear reactors ([113]).

(240) The Belgian authorities submit that the LTO Project was preceded by an environmental impact assessment with cross-border consultations, conducted in compliance with EU secondary legislation requirements (see recital (24)(d)).

(241) Furthermore, the LTO Project was communicated to the Commission and the Belgian authorities notified it pursuant to Article 41 of the Euratom Treaty.

([109]) Judgement of 22 September 2022, *Austria v Commission*, C-594/18 P EU:C:2020:742, paragraphs 44 and 45.
([110]) Judgement of 22 September 2022, *Austria v Commission*, C-594/18 P EU:C:2020:742, paragraphs 48 and 49.
([111]) Judgement of 22 September 2022, *Austria v Commission*, C-594/18 P EU:C:2020:742, paragraph 49.
([112]) Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment, OJ L 26, 28.1.2012, p.1
([113]) Judgement of 22 September 2022, *Austria v Commission*, C-594/18 P EU:C:2020:742, paragraph 43.

(242) Regarding the potential need to execute construction works by Electrabel in order to bring the LTO Project in line with requirements imposed by the safety authority, according to the case-law, *'when the Commission applies the State aid procedure, it is required, in accordance with the general scheme of the Treaty, to ensure that provisions governing State aid are applied consistently with specific provisions other than those relating to State aid and, therefore, to assess the compatibility of the aid in question with those specific provisions. However, such an obligation is imposed on the Commission only where the aspects of aid are so inextricably linked to the object of the aid that it is impossible to evaluate them separately. […] By contrast, if the aspect at issue can be separated from the object of the aid, the Commission is not required to assess its compatibility with provisions other than those relating to State aid in the context of the procedure provided for in Article 108 TFEU'* ([114]). The General Court confirmed in its judgment relating to State aid for the nuclear power plant PAKS II that the Commission is not required to verify that any aspect of an aid measure or any element relating to an aid, in the absence of an inextricable link, is in compliance with Union law ([115]). In the respective case, the General Court further observed that *'[t]he carrying out of a public procurement procedure and the possible use of another undertaking for the construction of the reactors would alter neither the object of the aid […] nor the beneficiary of the aid […]'* ([116]).

(243) The Commission considers that the compatibility assessment of the notified measure could be affected by a possible incompliance with Directive 2014/25/EU if it produced additional distortion of competition and trade on the electricity market (market on which the beneficiaries are active). The Commission notes that Directive 2014/25/EU is of relevance as regards the direct award of (potential) construction works for the LTO Units to specific undertakings.

(244) In the present case, even if Electrabel would subcontract all or part of the (potential) construction works related to the LTO Project which could be subject to public procurement regulation (of which Belgium is not convinced, see footnote 25), the Commission considers that there is no 'indissoluble link' between the aid and public procurement aspects, because it is possible to evaluate them separately. The notified measure supports the lifetime extension of the two nuclear reactors independently of how the future contractor(s) is(are) chosen. The implementation of the notified aid also does not depend on the exact application of public procurement rules. Indeed, a possible inobservance of public procurement rules might only lead to distortive effects on the market of nuclear construction works and not on the market for electricity. The operation of the LTO Units and the conditions for marketing the electricity are therefore separable from the public procurement aspects regarding the refurbishment works of the nuclear reactors. It is therefore possible for the Commission to assess the measure without evaluating the public procurement aspects of the refurbishment works since such aspects are not inextricably linked to either the economic activity promoted by the aid or its modalities.

(245) Regarding the transfer of liabilities concerning nuclear waste and spent nuclear fuel, the agreement is in line with the provisions in Council Directive 2011/70/Euratom. The Euratom Treaty and its secondary legislation put the prime responsibility for ensuring the responsible and safe management of spent fuel and radioactive waste and the financing thereof on the operators of nuclear installations in line with the principle set out in Article 4(3) of Directive 2011/70/Euratom. However, the State has the ultimate responsibility for the responsible and safe management of radioactive waste and spent fuel and for ensuring that adequate financial resources are available for such management. The Belgian authorities have demonstrated that the measure aims at securing the financing of spent fuel and nuclear waste management as a prerequisite for the responsible and safe management of these materials.

([114]) See Judgment of 3 December 2014, *Castelnou Energía*, Case T-57/11, EU:T:2014:1021, paragraphs 181-184 with further references. See also Judgement of 30 November 2022, *Austria v Commission*, T-101/18 EU:T:2022:728, paragraph 30; and Judgment of 31 January 2021, C-284/21 P, *Commission v. Braesch e.a.*, EU:C:2023:58, paragraph 97.

([115]) Judgement of 30 November 2022, *Austria v Commission*, T-101/18, EU:T:2022:728, paragraph 32.

([116]) Judgement of 30 November 2022, *Austria v Commission*, T-101/18 EU:T:2022:728, paragraph 37. The reasoning concerning the need of 'indissoluble link' for the Commission to assess the compatibility of EU Law of certain aid modalities has been endorsed by the Court of Justice in *Braesch*. See Judgment of 31 January 2023 in case C-284/21 P - *Commission v Braesch and Others*, paragraphs 96-99

(246) As regards the design of the two-way CfD, the Commission considers that the principles set out in Article 19d(2) of Regulation (EU) 2024/1747 apply to all new two-way CfDs, as of entry into force of the Regulation. This includes instances where a Member State, without having the obligation to do so under Regulation (EU) 2024/1747, decides to introduce a two-way CfD in relation to investments aiming to prolong the lifetime of existing facilities, as in the case of the LTO Project. In this context, the Belgian authorities have not demonstrated compliance with the design principles in Article 19d(2) of the Regulation, as explained in more detail in recitals (366)-(367) and (290)-(291).

(247) Belgium submits that any proceeds from the CfD will flow into the general budget (subject to separate accounting) and will be used primarily to fund the payments of the RA counterparty under the CfD for the LTO Units. Where the CfD proceeds would exceed the amounts necessary to finance the costs of the CfD for the LTO Units, they could be used to finance the costs of another CfD. Belgium commits that if any remaining CfD proceeds would be used for purposes of distributing them to undertakings, the distribution will be carried out in accordance with Article 19d(2), points (d) and (e) of Regulation (EU) 2024/1747. Belgium will inform the Commission upfront in case CfD proceeds would be distributed to undertakings and, if need be, notify such a measure (see recital (78)). Through this commitment, the Commission considers that the Belgian authorities provided further assurances regarding compliance with the principles set out in Article 19d(2), points (d) and (e) of Regulation (EU) 2024/1747.

(248) With respect to compliance of the JV with the EU Merger Regulation, it appears from the submissions by the Belgian State and Engie that the planned JV cannot be considered full-functional within the meaning of Article 3 of the Merger Regulation. Therefore, it follows that the notified measure is not notifiable to the European Commission as regards its compliance with the EU Merger Regulation.

(249) As regards the financing of the measure, the Belgian authorities explained that the costs related to the LTO Project are covered by the State budget where required. Benefits of the project would also flow to the State budget (see section 3.8). There are no resources hypothecated to the measure and therefore the measure does not infringe Article 30 and Article 110 TFEU.

(250) For the reasons mentioned in this section, the Commission cannot conclude, at this stage, that the proposed measure does not infringe relevant provisions of EU law.

4.3.1.4. Conclusion

(251) For the reasons mentioned in section 4.3.1.3, the Commission cannot conclude, at this stage, that the LTO Project fulfils the first (positive) condition of the compatibility assessment, i.e., that the aid facilitates the development of an economic activity.

4.3.2. *Negative condition: the aid cannot unduly affect trading conditions to an extent contrary to the common interest*

4.3.2.1. Identification of the market(s) affected by the aid

(252) The measure was designed based on security of supply concerns covering the Belgian market (see section 2.3.1). At the same time, it has been established that the Belgian market is well interconnected in the Core Capacity Calculation region (see recital (221)).

(253) The markets for the assessment of the measure at stake are therefore the electricity market in Belgium and the electricity market in the Core Capacity Calculation region.

4.3.2.2. Identification of the positive effects of the aid measure on the internal market

(254) The lifetime extension of the two nuclear reactors, expected to represent 12-16 % of electricity generation in Belgium (see Table 2), allows to continue nuclear-based electricity generation and therefore maintain the necessary generation at the supply side in line with the specific energy mix chosen by Belgium. Together with the capacity procured through the capacity mechanism, keeping the two youngest nuclear reactors for another 10 years in the market is needed to address the continuously rising demand for electricity in Belgium, as shown in the latest resource adequacy assessment of the Belgian TSO (see recitals (17) to (19)). The LTO Project therefore has positive effects on the market as it will help to address the resource adequacy concerns and contribute to security of supply in Belgium.

(255) Since the Core Capacity Calculation region is well interconnected, these positive effects would likely benefit the neighbouring Member States importing electricity from Belgium. By ensuring secure supplies when phasing out the most polluting fuels and reduce the dependency on gas (see recitals (19) and (29)), nuclear generation also contributes to achieving Union decarbonisation objectives.

4.3.2.3. Necessity for State intervention

(256) Considering the different options to achieve its policy objectives set out in section 2.3 and using its right to choose between different energy sources under Article 194 TFEU, Belgium has concluded that the 10-year lifetime extension of two nuclear reactors is a necessary component to facilitate the development of the economic activity detailed in section 4.3.1.1 and the contribution to security of supply.

(257) The Belgian authorities argue that the lifetime extension of the two nuclear reactors is unlikely to take place absent State support, including an appropriate remuneration model (Component 1), an agreement on the transfer of nuclear waste and spent fuel liabilities (Component 2) and the legal protection provisions (Component 3).

(258) Belgium refers in this respect to the several market failures and specific risks for the nuclear operator, which hamper the investments in nuclear energy in the near future (see section 2.3.2). Belgium also submits that the Belgian capacity mechanism is not an appropriate financing mechanism for nuclear energy capacity in Belgium, in particular given the short timeframe in which the lifetime extension has been decided, the additional uncertainties and market failures related to investments in nuclear energy compared to other technologies, the specific characteristics of the capacity mechanism, which has yearly auctions with an uncertain outcome, and a timing that is incompatible with the timing of the LTO Project (see recitals (22) to (27)). In addition, Belgium submits that the notified measure, including the package of sub-measures, was necessary to convince Engie to start negotiations on the lifetime extension of the LTO Units, since Engie had already taken the decision to abandon all nuclear activities in Belgium (see recital (6)).

(259) The Commission has recognised the existence of several market failures, preventing energy producers (including producers of nuclear energy) to invest in additional electricity generation capacity (see recital (23)). In contrast to the objectives of capacity mechanisms and investments in other types of energy sources such as renewables, nuclear energy projects face additional risks in relation to (i) the complexity of nuclear technologies (technical risks) and related market and investment risks, (ii) the cost of waste management and decommissioning, and (iii) the regulatory and political environment (see recital (24)) ([117]).

([117]) See for instance Commission Decision (EU) 2015/658 of 8 October 2014 on the aid measure SA.34947 (2013/C) (ex 2013/N) which the United Kingdom is planning to implement for support to the Hinkley Point C nuclear power station; Commission Decision (EU) 2017/1516 final of 17 March 2017 on the aid scheme SA.39487 (2016/NN) Belgium – Lifetime extension of the nuclear power plants Tihange 1, Doel 1 and Doel 2; State aid case SA.45296 (2017/N) - Germany - Transfer of Radioactive Waste and Spent Fuel Liabilities in Germany.

(260) The Commission will assess in sections 4.3.2.3.1, 4.3.2.3.2 and 4.3.2.3.3 below whether the various components of the single intervention in the present case, namely Component 1, Component 2 and Component 3 of the notified measure, including their several sub-measures, are necessary.

4.3.2.3.1. Need for Component 1

(261) Regarding the market and investment risk mentioned by Belgium, the Commission has recognised in previous decisions that investments in new nuclear energy projects are subject to significant risk given the combination of high upfront capital costs, long construction times and a long period of operation to recover the investment costs. The Commission also recognised the lack of market-based financial instruments, as well as other types of contracts, to hedge against such substantial risk constitutes a market failure which is specific to few technologies among which nuclear energy ([118]). However, this concerned investments in new nuclear energy plants. In contrast, the present case covers investments in the lifetime extension of two existing nuclear operators.

(262) The Commission notes in this respect that in 2015, the 10-year prolongation of Doel 1, Doel 2 and Tihange 1, has taken place without additional support, except for legal protections against the risk of political hold-up.

(263) The Commission therefore considers the question of whether investment in the lifetime extension of the two nuclear reactors would not have come forward in the absence of aid. The need for all sub-measures included in Component 1 of the notified measure is assessed in sections 4.3.2.3.1.1, 4.3.2.3.1.2, 4.3.2.3.1.3 and 4.3.2.3.1.4 below.

(264) Regarding Belgium's argument that the funding gap of the LTO Units cannot be adequately resolved through participation in the capacity mechanism (see recitals (26) and (27)), the Commission recognises that the uncertain outcome of the CM auctions and the timing of the auctions is not compatible with Belgium's plan to have the LTO restart taking place on 1 November 2025. In particular, the government only announced in March 2022 their plan to extend the lifetime of two nuclear reactors and to keep nuclear power as part of Belgium's energy mix for the next 10 years, and only by July 2023 a binding Framework Agreement was concluded, which was finalised through the Implementation Agreement in December 2023 (see recitals (29), (34) and (35)). By that time, already three CM auctions had taken place (see recital (18)).

4.3.2.3.1.1. JDA++

(265) As mentioned in recital (39), due to the strict timing of the LTO restart and the fact that the decision by the Belgian government was only taken in March 2022, certain development activities had to be undertaken by Electrabel for the LTO being able to start on 1 November 2025, and this before the conclusion of the Implementation Agreement in December 2023 and the final closing of the transaction (foreseen at the latest by 30 November 2024, see footnote 37). The anticipation and remuneration of certain development activities to be undertaken by Electrabel were laid down in the JDA+ in July 2023 (amended by the JDA++ in December 2023). The JDA++ was therefore necessary, in order for Electrabel and the Belgian government to have clarity on the scope of the activities to be undertaken in order to meet the expectations of the safety authority regarding the LTO, and to conclude on the funding of these activities.

(266) The Commission therefore considers, at this stage, that the conclusion of the JDA++, before the closing of the final transaction and the start of the actual works, was necessary.

([118]) See recitals (382)-(383) in the Commission decision in case SA.34947.

4.3.2.3.1.2. JV and remuneration mechanisms

(267) Component 1 of the notified measure consists of several remuneration mechanisms which make sure that the LTO Project will generate sufficient revenues and obtain an appropriate level of profitability (target IRR of 7 % with a 6 % lower bound and an 8 % higher bound): equity injection by the shareholders of the JV, shareholder loan, two-way CfD, minimum OPEX and capital payments, WCF, SDC Loans and O&M Agreement (see sections 3.3.2, 3.3.3, 3.3.4, 3.3.5, 3.3.6, 3.3.7, and 3.3.8).

(268) Belgium submits that all the sub-measures mentioned in recital (267) serve a specific purpose and are therefore all needed to address the market failures (in particular the market and investment risks) mentioned under section 2.3.2.

(a) The CfD mechanism allows to reduce the wholesale market price risk for the JV by bridging the difference between the market price and the strike price, thereby bringing a stable stream of revenues from nuclear electricity production.

(b) The RA also foresees a shortfall payment paid by the Belgian state should BE-NUC's revenues not be sufficient to cover the costs payable in any month under the O&M Agreement, as well as any other operating, fuel and maintenance CAPEX costs required for the operation of the LTO Units (see section 3.3.5). This annual payment is financed during the year by a working capital facility procured on market terms (see section 3.3.6). In addition, the Belgian government will provide to BE-NUC and Luminus a loan to avoid disbursement under the WCF (see section 3.3.7). These sub-measures address the operational performance and liquidity risks of the LTO Project.

(c) The remaining funding and solvency risk is covered by the Belgian government's participation through the JV, since commercial banks are unwilling to get exposed to nuclear assets.

(d) The introduction of a shareholder loan in addition to the equity injection follows from financial and transactional considerations, since it reduces transaction costs and grants more flexibility in the design of drawdown and repayment schedules and optimises the financial structure with respect to taxable income.

(e) The O&M Agreement allows securing the coverage of all operating and maintenance costs at any time.

(269) To further prove the need of the remuneration mechanisms, Belgium submitted several counterfactual scenarios that show that a funding gap is very likely:

(a) as regards the CfD, a counterfactual analysis has been submitted by Belgium (see recital (83)), which shows that absent a CfD, the NPV of the project would change dramatically depending on the electricity price curve used for the revenue projections. The three initial central price curves, built in the fourth quarter of the year 2022 and second and third quarters of the year 2023, show NPVs ranging from EUR 303 million to EUR 107 million with a 7 % discount rate (equal to the target IRR), with the only positive NPV stemming from the oldest price curve. Additional analysis was conducted with three updated central price curves built during the first quarter of the year 2024, showing NPVs ranging from minus EUR 1,1 billion to EUR 21 million. This means that the price curve used in the signing financial model may be optimistic and that, absent a CfD, it is likely that the NPV may turn out negative (i.e., the LTO Project has a funding gap). The fact that the most recent electricity price curves yield very slightly positive to very negative NPVs reinforces the likelihood of a funding gap in the absence of the aid.

(b) as regards the minimum OPEX and capital payment, a counterfactual analysis has been submitted by Belgium (see recital (85)), which shows that an unexpected 12-month unavailability event affecting both LTO Units in 2029 would generate a loss of EUR 832 million for year 2029, decreasing the NPV to minus EUR 512 million and the IRR to 1,7 %. Severe operational risks would thus generate a large impact on the profitability of the LTO Units, which may prevent a market player from investing in them. However, an unavailability event affecting both LTO Units for a year is an extreme, low-probability scenario, which warrants further analysis as to the need for the minimum OPEX and capital payment.

(c) as regards the SDC Loans, which in effect is a way of financing the minimum OPEX and capital payment, as they cover this feature's expenses before 31 December 2028 (see recital (94)), their need is linked to that of the minimum OPEX and capital payment.

(270) The Commission has recognised the existence of certain market failures that require State intervention regarding nuclear power development ([119]). Those market failures in relation to investment in new nuclear power generating sources can be observed in all markets and remain a concern also for the LTO Project, even though it merely concerns a lifetime extension. As mentioned in recital (5), Engie was planning to leave the nuclear energy sector in Belgium and therefore had not foreseen the required (safety) works, necessary to bring the two LTO Units in line with environmental and safety requirements.

(271) The counterfactual analysis described in recital (83) shows that, without the CfD, a negative NPV is very likely, as the NPV of the project, using a 7 % discount rate (equal to the target IRR) would amount to a range between minus EUR 303 million and EUR 107 million, the positive NPV resulting from the use of the signing financial model's price curve, which is older than the other two price curves, each resulting in a negative NPV. The Commission therefore considers that Belgium provided tangible and quantifiable elements on the need of the CfD. However, the counterfactual analysis provided by Belgium as regards the minimum OPEX and capital payment (see recital (85)) shows that, should an extreme, low-probability unavailability event occur, the profitability of the plants would be severely diminished, as well as the project's IRR, but the low likeliness of such an event warrants further analysis as to the need of this feature, to which the need of the SDC Loans is linked. Therefore, the Commission considers that further investigations are required on the need of Component 1 of the notified measure.

(272) In addition, no conclusive argument has been provided by Belgium to support that the creation of a JV to which the Belgian Government will be a shareholder is necessary, on top of the remuneration mechanisms.

(273) Therefore, the Commission raises doubts on the need to have the full package of remuneration mechanisms, in particular the need for the establishment of the JV, minimum OPEX and capital payment, and SDC Loans.

4.3.2.3.1.3. ASA and EMSA

(274) The Commission considers that the conclusion of an agreement on administrative practices and on the sales of energy is a requirement for the LTO Project to be operational in practice. The Commission therefore considers, at this stage, that the ASA and EMSA are necessary.

4.3.2.3.1.4. Indemnification of cost coverage losses in case of no closing

(275) The Commission considers it a standard practice, as part of an agreement between two parties, to agree on terms in case of no closing of the transaction. The Commission therefore considers, at this stage, that the indemnification of cost coverage losses in case of no closing is necessary.

([119]) Commission Decision (EU) 2015/658 of 8 October 2014 on the aid measure SA.34947 (2013/C) (ex 2013/N) which the United Kingdom is planning to implement for support to the Hinkley Point C nuclear power station (recitals (382)-(385)).

4.3.2.3.2. Need for Component 2

(276) Regarding the risks related to the uncertain costs of nuclear waste management and decommissioning, the Commission considers that these are dealt with by the transfer of liabilities regarding radioactive waste and spent fuel, as well as the transfer of additional decommissioning liabilities resulting from the LTO Project. Belgium submits that the waste cap aims at ensuring the responsible and safe management of spent fuel and radioactive waste, since the transfer will secure the financing of nuclear waste and increase the safety level for interim storage and final disposal of these materials. In addition, as mentioned in recital (171), Belgium submits that the additional decommissioning liabilities resulting from the LTO Project only cover the extra costs due to the LTO Project, do not cover any operating costs relating to day-to-day management or usual activities and are therefore not distortive.

(277) As pointed out by the Commission in previous decisions regarding the transfer of nuclear waste liabilities in Germany ([120]) and the UK ([121]), the management of radioactive waste is characterized by long timelines, which may therefore require some form of State intervention. Moreover, the need for State intervention as to the responsible and safe management of radioactive waste is enshrined in Article 4(1) of Directive 2011/70/Euratom, which provides for the ultimate responsibility of the State in this regard. The transfer of the liabilities for radioactive waste management and decommissioning serves the objective to secure the financing of spent fuel and radioactive waste management as a prerequisite for the responsible and safe management of these materials. In addition, Engie was not planning to keep its nuclear activities in Belgium (see recitals (5) and (30)) and only agreed to start negotiations on the lifetime extension when there was an agreement on the financial arrangements but also on the transfer of nuclear waste liabilities (see recital (33)). Regarding the transfer of additional decommissioning liabilities resulting from the LTO Project in particular, since this transfer only covers the additional costs resulting from the LTO Project while the regular decommissioning and dismantling liabilities stay with the nuclear operator, and since it was the Belgian government, not Engie or Electrabel requesting the lifetime extension, the Commission considers this transfer of liabilities also needed in case proven by Electrabel. Finally, the Commission does not object the release of Electrabel's non-European assets from Electrabel's perimeter given that Engie will ensure that at least EUR 4 billion of assets will remain in Electrabel. The Commission therefore considers, at this stage, that Component 2 of the notified measure is necessary.

4.3.2.3.3. Need for Component 3

(278) Regarding the regulatory and political risks, the Commission considers that, while all technologies can in principle suffer from a political 'hold-up', given the controversial nature of nuclear technology, nuclear projects can be expected to suffer more ([122]). In particular, Belgium has changed already a few times its political course regarding nuclear energy during the last 25 years (see recitals (4) and (29)). The Commission therefore considers, at this stage, that these risks are efficiently dealt with through the legal protections measure (see section 3.5) and that the legal protections are needed in the case of nuclear, as also recognised by the Commission in the decision in case SA.39487 ([123]).

4.3.2.3.4. Conclusion on necessity of the aid

(279) For the reasons mentioned in sections 4.3.2.3.2 and 4.3.2.3.3 respectively, the Commission concludes that the transfer of nuclear waste and spent fuel liabilities, as well as the transfer of decommissioning liabilities when caused by the LTO Project under Component 2 and the legal protections under Component 3 are necessary.

([120]) See State aid case SA.45296 (2017/N) - Germany - Transfer of Radioactive Waste and Spent Fuel Liabilities in Germany.
([121]) See State aid case SA.34962 (2015/N) - United Kingdom - Waste Transfer Contract for New Nuclear Power Plants.
([122]) See also recitals (384)-(385) in the Commission decision in case SA.34947.
([123]) See footnote 6.

(280) With respect to the financial support mechanisms under Component 1 of the notified measure, the Commission recognises (i) the need for the nuclear operator and owners of the nuclear reactors to have a stable source of revenues, given the uncertainties related to the electricity market price, (ii) the need to have an O&M Agreement in place, as well as management services to deal with administrative matters and sales of energy, and (iii) the need to have an agreement concerning the coverage of costs in case of no closing of the Transaction. However, regarding the set of remuneration mechanisms in section 4.3.2.3.1.2, the Commission is currently unable to conclude that additional sub-measures on top of the two-way CfD are necessary, in particular the creation of a JV to which the Belgian Government will be a shareholder, the minimum OPEX and capital payment and the SDC Loans. Therefore, the Commission has, at this stage, doubts on the necessity of the aid.

4.3.2.4. Appropriateness

(281) As explained in section 2.3.2, there are a number of market failures arising from mainly (i) an uncertain energy market and investment climate, (ii) uncertain costs related to the management and disposal of spent fuel and nuclear waste, and (iii) exposure to political decisions, which prevent the nuclear operator from obtaining revenue certainty so that the lifetime extension of the LTO Units is profitable.

(282) As mentioned in recital (25), Belgium submits that because of the identified market failures mentioned in recital (23) and the specific risks related to nuclear energy mentioned in recital (24), a separate support mechanism is required for nuclear energy. As mentioned in recital (81), Belgium submits that other forms of direct financial support schemes have been considered (fixed feed-in premium, one-way CfD and regulated asset base regime) but were not found appropriate for the LTO Project.

(283) As clarified in recital (28), Belgium submits that the three components of the notified measure are required to address these market failures and risks. According to Belgium, the CfD and other remuneration mechanisms (Component 1) are appropriate to guarantee stable revenues to the nuclear operator while avoiding windfall profits, the waste cap and related sub-measures (Component 2) are appropriate to guarantee that the required funds will be available to finance responsible and safe spent fuel and radioactive waste management solutions, while the legal protections (Component 3) are appropriate to guarantee protection against changes in public opinion and policymakers' stance towards nuclear energy.

(284) The Commission will assess in sections 4.3.2.4.1, 4.3.2.4.2 and 4.3.2.4.3 below whether the various components of the single intervention in the present case, namely Component 1, Component 2 and Component 3 of the notified measure, including their several sub-measures, are appropriate.

4.3.2.4.1. Appropriateness of Component 1

4.3.2.4.1.1. JDA++

(285) As mentioned in recital (39), given the short time period before the LTO restart and the need to start with the development activities, the Commission considers the conclusion of an agreement, prior to the final closing of the transaction, as an appropriate instrument to make sure that the necessary development activities are undertaken in time by Electrabel.

4.3.2.4.1.2. JV and remuneration mechanisms

(286) Regarding the revenue support provided through the two-way CfD, Belgium submits that the two-way CfD is the most appropriate option to address the market failures and to provide revenue certainty while avoiding excessive remuneration of the nuclear operator (see recital (80)). Alternative support mechanisms have been examined by the Belgian authorities. According to the Belgian authorities, those alternatives (participation in the CM, fixed feed-in premium, one-way CfD, regulated asset base regime) were considered as less appropriate (see recitals (26) and (81)).

(287) In addition, Belgium submits that the funding risks associated with unhedged increases in the cost of capital and additional capital needs are mitigated by way of the SDC Loans, the minimum OPEX and capital payments and the WCF. The SDC Loans cover the fixed costs until 31 December 2028 (True-Up Date) while the LTO Units are idle during shut down periods, and the amounts required to avoid minimum OPEX and capital payments over the 3-year period from the restart date of the LTO Units (1 November 2025). The minimum OPEX and capital payments mechanism and the WCF ensure the coverage of revenue shortfalls annually and provides a 50 % protection on CAPEX depreciation every three years after the LTO Restart Date, in order to balance the unavailability impact to more extreme events that last for more than one year. Absent the SDC Loans, WCF and minimum OPEX and capital payment, additional equity contributions would be necessary. In case of a single unavailability event, the returns to the shareholders would then be effectively wiped out, exposing them to insolvency risks and a funding gap thus questioning the viability of the investment. The equity injection by the government through the JV further reduces the insolvency risk and the shareholders loans are appropriate for financial optimisation reasons. The O&M Agreement is appropriate to cover the operation and maintenance costs at any time. Therefore, Belgium concludes that the package of remuneration mechanisms is appropriate to ensure that the extension of the operating lifetime of the LTO Units is realised.

(288) The Belgian authorities claim that the support mechanisms reduce the market risk for the beneficiary, but that some market exposure is kept through the Market Price Risk Adjustment mechanism (see recital (75)(d)).

(289) The Commission considers that the package of remuneration mechanisms is indeed well designed so as to reduce as much as possible any market and operational risks but has doubts as to whether a higher degree of risk to the beneficiaries would not have been more appropriate, in particular with respect to the CfD design and the minimum OPEX and capital payment. More specifically, by taking away important market risks, certain incentives of competitive behaviour may have been hampered.

(290) The Commission considers that the CfD formula featured in the RA essentially consists in a fixed revenue per MWh produced, based on the strike price and the actual output of electricity produced. Under this CfD design, the generator has the incentive to maximize the output produced, regardless of market signals. This leads to a risk of distortions of market operations (i) with regard to intertemporal substitutability of production (e.g., the operator has no incentive to plan maintenance when the prices are the lowest) and (ii) when prices drop below the marginal cost of operating the plant where under this CfD formula, the operator would continue producing. In addition, despite the inclusion of a pain/gain sharing mechanism, the simulated effects of this mechanism are small in practice. Therefore, they do not change the conclusion that the CfD design currently does not seem to provide the right incentives to react to market signals.

(291) The Commission therefore concludes, at this stage, that the current 2-way CfD design corresponds to the granting of a fixed remuneration per MWh of electricity actually produced and lacks appropriate incentives to react to market circumstances and to schedule maintenance in the most efficient way. On this basis, the Commission considers that the CfD does not fulfil the design criteria set out in Article 19d(2), points (a) and (b) of Regulation (EU) 2024/1747.

(292) The current remuneration model foresees penalties only when it fails to reduce the power output of the LTO Units when the electricity price is minus EUR 20 per MWh or lower for more than 6 hours (modulation arrangement) (see recital (75)(c)). The Commission considers that this implies that State aid will be provided at times of negative prices. In analogy with point 123 of the CEEAG and in line with existing case practice ([124]), the aid must be designed

([124]) See e.g. Commission Decision of 21.12.2021, C(2022) 9900 final, State Aid SA.102084 (2022/N) Germany EEG 2023 (OJ C 61, 17.02.2023, p. 3).

to prevent any undue distortion to the efficient functioning of markets and preserve efficient operating incentives and price signals. The Commission considers that providing support at times of negative prices does not correspond to an efficient operation of the market. Belgium has not yet provided justifications for the modulation arrangement.

(293) Finally, the DAM price is used as market reference price in the CfD design, which is questioned by the CREG, which would be more in favour of a long-term product as part of the MRP as the design of the CfD would amount to allocating the full strike price to the plants, thus incentivising a permanent, nominal run of the plants and reducing liquidity in the daily market. The Commission agrees that the use of a long-term product as market reference price could be more appropriate in order to provide the right incentives to dispatch the production units. This would also ensure that there are incentives for the generator to hedge on the forward market.

(294) For the reasons mentioned in recitals (290) to (293), the Commission has doubts that the CfD remuneration formula and its implementation clauses, as currently proposed in the remuneration agreement, are appropriate.

(295) In addition, the Commission notes that in the past, the lifetime extension of Doel 1, Doel 2 and Tihange 1 took place without such an extensive participation by the State and without additional financial support.

(296) With respect to the combination of several remuneration mechanisms that come on top of the CfD, the Commission considers that they can only be deemed appropriate insofar as they do not lead to undue, additional distortions of trade and competition.

(297) The Belgian government's involvement in the JV's equity implies partial ownership of the LTO Units by Belgium, which may lead to operational decisions that a private market player would not take. The Commission considers that the consistency of such form of aid with that of the CfD, whose purpose is to shelter the LTO Units from market forces while keeping a fair share of market incentives, remains to be demonstrated.

(298) In addition, the minimum OPEX and capital payment, covered by the SDC Loans, further reduces the risk borne by the operator of the LTO Units to an extent that needs to be further assessed by the Commission. As described in section 3.3.5, this feature is awarded by the Belgian government to cover for shut-down period costs and operational cashflow shortfalls that may arise, in a way akin to a potentially unlimited grant. This would shelter BE-NUC from any operational risks (e.g., unavailability of the LTO plants resulting in generation losses, as the counterfactual analysis described under recital (85) assesses). In addition, the minimum OPEX and capital payment provides a 50 % protection on CAPEX depreciation every three years after the LTO Restart Date, whose appropriateness remains to be assessed. In addition, the SDC Loans, which are granted by the Belgian state, would cover cashflow shortfalls during the initial period only, and would only be repaid when the shareholders' contributions will have been repaid. The signing financial model submitted to the Commission shows that share capital reduction and dividend distributions precede or overlap with the SDC Loans repayment. This means that the SDC Loans sit, in effect, at the bottom of the waterfall distribution of cashflows and may not be reimbursed should

cash inflows be insufficient. This is even clearer when considering the shareholder loans, which are granted by the Belgian state as well as by Electrabel. Contrary to the SDC Loans, those loans are repaid prior to the share capital reduction and the distribution of dividends in the signing financial model. This asymmetry of treatment between those two kinds of loan shows that the purpose of the SDC Loans might be to absorb potential losses and eventually be defaulted upon, at the cost of the Belgian state. The consistency of the minimum OPEX and capital payment and SDC Loans with the CfD therefore remains to be demonstrated.

(299) In summary, the Commission considers, at this stage, that the CfD design is not appropriate to guarantee the required revenues stream to make the LTO Project profitable without distorting the market, and that the package of remuneration mechanisms might take away a too big share of the market and operational risks.

4.3.2.4.1.3. ASA and EMSA

(300) The Commission considers that the conclusion of an agreement on administrative practices (ASA) and on the sales of energy (EMSA) is required for the LTO Project to be operational in practice.

(301) Regarding the EMSA, the Commission considers it appropriate to appoint an agent, who will, on behalf of BE-NUC, sell the electricity produced by the LTO Units on the wholesale market, under the condition that the agent will act fully independently and not in the interest of Electrabel (see section 4.3.3.2 for further details). However, the Commission does not consider it appropriate to only sell the electricity on the day-ahead wholesale market. Electricity should also be sold on other markets than the day-ahead market to respect the principles of Article 19d(2) point (a) of Regulation 2024/1747.

(302) The Commission therefore considers, at this stage, that the ASA is appropriate. However, the Commission considers, at this stage, that the EMSA might not be appropriate to preserve incentives for the power-generating facility to operate and participate efficiently in the energy markets.

4.3.2.4.1.4. Indemnification of cost coverage losses in case of no closing

(303) The Commission considers it a standard practice, as part of an agreement between two parties, to agree on terms in case of no closing of the transaction. The Commission therefore considers, at this stage, that the indemnification of cost coverage losses in case of no closing is appropriate.

4.3.2.4.2. Appropriateness of Component 2

(304) Regarding the transfer of liabilities regarding radioactive waste and spent fuel, as mentioned in recital (277), the management of radioactive waste is characterized by long timelines, which may therefore require some form of State intervention, and the ultimate responsibility of the State regarding responsible and safe management of radioactive waste is enshrined in Article 4(1) of Directive 2011/70/Euratom (see recital (121)(b)). The Commission therefore considers that, although the State is to a certain extent already responsible for the final disposal of spent fuel and radioactive waste as well as the management of the final repository, the current setup, as described in section 3.4.2, is not an appropriate means for Belgium to facilitate the development of the economic activity in question as it does not secure the funds for the management of radioactive waste and spent fuel in the hands of the State. The Commission has also not identified any alternative measure that would allow Belgium to achieve these objectives equally well. Regarding the transfer of additional decommissioning liabilities resulting from the LTO

Project, as mentioned in recitals (171) and (276), this transfer only covers the additional costs resulting from the LTO Project (if proven by Electrabel) while the regular decommissioning and dismantling liabilities stay with the nuclear operator. In addition, it was the Belgian government, not Engie/Electrabel, requesting the lifetime extension. Therefore, the Commission considers this transfer of additional liabilities also appropriate in case proven by Electrabel. Finally, the transfer of nuclear waste liabilities to the Hedera fund justifies the release of Electrabel's non-European assets from Electrabel's perimeter and can therefore be considered appropriate.

(305) The Commission therefore considers, at this stage, that Component 2 of the notified measure, seems appropriate to address the market failure related to the uncertain costs of waste management and decommissioning.

4.3.2.4.3. Appropriateness of Component 3

(306) Regarding the legal protections, as explained in recital (278), the Commission considers that nuclear technology is particularly subject to a political hold-up, and therefore considers a legal protections agreement appropriate to address the market failure related to political and regulatory risk, as also recognised by the Commission in the decision in case SA.39487 ([125]).

4.3.2.4.4. Conclusion on appropriateness

(307) Although Component 2 and Component 3 of the notified measure, appear to be appropriate, it is unclear to the Commission, at this stage, whether Component 1 of the notified measure, in particular the CfD design, and the combination of sub-measures including the CfD, the JV's equity structure, the minimum OPEX and capital payment and SDC Loans, is appropriate.

(308) Therefore, the Commission has doubts as to whether the corresponding setup and combination of sub-measures is appropriate to ensure the development of the LTO Project, whereas, in the past, a less interventionist approach appears to have been sufficient for enabling the investment in nuclear energy. In addition, an alternative CfD design might be able to achieve the same objectives with less aid or distortions to competition. Therefore, the Commission has, at this stage, doubts on the appropriateness of the aid.

4.3.2.5. Proportionality

(309) To assess the proportionality of a measure, the Commission must verify that the measure is limited to the minimum that enables the successful completion of the LTO Project for the attainment of the objective pursued.

(310) The Commission will assess in sections 4.3.2.5.1, 4.3.2.5.2 and 4.3.2.5.3 below whether the various components of the single intervention in the present case, namely Component 1, Component 2 and Component 3 of the notified measure, including their several sub-measures, are proportionate.

4.3.2.5.1. Proportionality of Component 1

4.3.2.5.1.1. JDA++

(311) According to the JDA++, the Belgian government will pre-fund Electrabel's costs and expenses for the development activities until closing of the transaction. After that date, Electrabel will fund its own costs and expenses for the

([125]) See also recital (103) in the Commission decision in case SA.39487.

development activities until the amount of Electrabel's funding equals the amount pre-funded by the Belgian government. After that, Electrabel and the Belgian government will equally share these costs, as equal shareholder of BE-NUC. In addition, the JDA++ also foresees in equal risk-sharing.

(312) Belgium submits that the JDA++ clauses are in line with market terms and conditions. The pre-funding of the development costs made in the context of the LTO Project can be considered as the compensation for preparatory studies and assessments (development activities) commissioned by the Belgian government from Electrabel before the actual start of works. The costs and expenses incurred in relation to the JDA++ are on an arm's length and value for money basis. In addition, the JDA++ does not result in relieving Electrabel of the costs that it should normally bear.

(313) The Commission considers that the costs and expenses incurred by Electrabel for the purpose of doing the development activities for the LTO restart, are equally shared between the government and Engie and are based on actual expenses made by Electrabel. Therefore, the Commission considers the terms of the JDA++ regarding pre-funding of the costs of development activities to be proportionate.

4.3.2.5.1.2. JV and remuneration mechanisms

(314) As mentioned in section 3.3.4, a remuneration agreement will be concluded between BE-NUC and the RA Counterparty, which will be a Belgian government owned and controlled entity at all times. As part of the RA, a two-way CfD will apply between the parties. As mentioned in recital (73) the strike price will be evaluated at several moments:

(a) In 2025, an 'initial strike price' will be set, based on the cost of extending operations under nuclear safety requirements set out by the Belgian safety agency (FANC/AFCN);

(b) In 2028, the strike price will be updated and fixed (and indexed) to reflect the actual final cost (based on the actual invoices) and cover the period to 2035 ('revised strike price');

(c) Thereafter, the strike is in principle fixed and cannot be changed any longer except under specific qualifying events ('re-opener events').

(315) The Commission will assess the methodology for setting the strike price, including by checking the parameters fed into the financial model which determines the strike price level.

(316) As mentioned in recital (72), in the base case scenario of the financial model which underlies the Implementation Agreement signed on 13 December 2023, Belgium assumes that the costs to modernize the two reactors amount to EUR [2 000-2 500] million of capital expenditures, which would result in a strike price of EUR [80-90] per MWh to ensure an internal rate of return of 7 % over the lifetime of the LTO Units. Belgium submits that the strike price will be set at the level that allows BE-NUC to obtain an IRR of 7 %. In other terms, discounting the free cash flows at a post-tax rate of 7 % would result in a net present value (NPV) of zero, showing that proportionality of the IRR. For the reasons mentioned in recitals (75) and (76), Belgium submits that this profitability rate is in line with industry benchmarks, namely the IRR of 7 % corresponds to a premium of 4 % above the risk-free rate of approximately 3 %.

(317) Belgium therefore submits that the aid amount is limited to the minimum needed to bridge the funding gap, since in a hypothetical counterfactual scenario in the absence of the aid the shareholders of the LTO Project would be exposed to potential losses in case of lower electricity prices or unexpectedly low availability of the LTO Units. Moreover, the CfD mechanism reduces the revenue risks associated with uncertain future electricity prices, and not only bridges the potential funding gap, but also limits potential windfall profits. Moreover, Belgium submits that the remuneration agreement includes a pain/gain sharing mechanism ('Market Price Risk Adjustment') through which Engie shows solidarity with the Belgian state when market prices turn out to be lower or higher than expected in the base case scenario. At lower prices, the guaranteed return (in the form of a lower strike price) drops from 7 % to 6 %, while at higher prices, the guaranteed return (in the form of a higher strike price) rises to 8 % (see recital (75)(d)).

(318) The Commission considers that the level of post-tax IRR is calculated within the signing financial model, which incorporates all the financing sub-measures of Component 1, including the CfD. The strike price of the CfD, the remuneration and schedule of the different loans and the remuneration and reduction of the capital all by design lead to an IRR of 7 %. The independent benchmark conducted by Compass Lexecon considers that this level amounts to a premium of 3 to 5 % above the risk-free rate, which is among the lowest in the sample of comparable projects and companies in the benchmark. As a result, the target IRR of 7 % (and its threshold range of 6 % to 8 %) sits at the lower end of the investor's requirements for comparable projects. Indeed, within the benchmark, only RAB models yield lower premia. As a result, the Commission considers that an IRR of 7 % may be proportionate. However, the proportionality of the remuneration measures is intrinsically linked to their nature, whose appropriateness remains to be assessed, as the lower the risk borne by the investors, the lower their IRR should be. Therefore, the Commission cannot conclude on the proportionality of the package of remuneration mechanisms without having first decided on their appropriateness, and thus reserves its formal opinion on this matter.

(319) As regards the JV, the Commission remarks that its two shareholders, namely the Belgian Government and Electrabel, will exercise their rights on an equal footing: costs and revenues will be equally shared, as will the governance of the JV (for example, the Belgian government and Electrabel shall appoint the same number of directors at the JV board of directors, the chairperson of the board of directors and the chief financial officer of the JV shall be Belgian government directors at all time, while the chief executive officer of the JV shall be an Electrabel director at all time). The JV can therefore be considered proportionate.

(320) Regarding the MOCP (see section 3.3.5), this mechanism in effect provides a backstop to the JV as any revenue shortfall stemming from a lack of electricity generation occurring during the initial period and the run-phase period would be covered by payment of the Belgian State, thus financially sheltering the JV, and therefore Electrabel, from any operational risk. The fact that the payment of the MOCP would only occur during the run-phase period, as the SDC Loans would be drawn down instead during the initial period, does not appear to detract from that conclusion. The Commission has therefore doubts that the MOCP is proportionate.

(321) Regarding the SDC Loans (see section 3.3.7), Belgium submits that, until 2028, the SDC Loans cover the costs during the period when the LTO Units are not scheduled to generate net income, and are repayable to the Belgian government, which ensures that the aid is minimalized. From 2028, the minimum OPEX and capital payment provide revenue shortfall protection (not activated unless there is an unexpected unavailability event that could not be covered by BE-NUC's revenues, reducing the funding (liquidity) risks by boosting the free cash flows). However, the Commission notes that the Remuneration Agreement provides that the SDC Loans are repayable only once the date on which an amount equal to BE-NUC's share in the project's capital costs plus BE-NUC's share in fuel costs has been distributed to BE-NUC's shareholders or applied in payment towards loans advanced to BE-NUC by its

shareholders or Engie or, if this occurs before 31 December 2028, on 31 December 2028. This means in practice that the SDC Loans constitute a line of financing junior to all other loans, as well as to the JV's equity, and that they may well not be repaid at the end of the LTO period should the electricity generation not be large enough, thus bearing substantial risk that the interest rate, set at the lower of the OLO (five year) rate in Belgium plus 200 basis points and 6 %, may not reflect. The Commission therefore has doubts that the SDC Loans are proportionate.

(322) As described under section 3.3.6, the WCF serves as an intra-year bridge to the MOCP. Belgium submits that this WCF will be procured on market terms. This remains however to be assessed when Belgium submits those terms, or the method used to reach them. The Commission therefore considers that the proportionality of the WCF is not demonstrated.

(323) As regards the shareholder loans, the Commission notes that the loan provided by the Belgian government will be granted on market terms and that Belgium submits that the eventual interest rate will in any case be offset by the setting of the CfD in order to ensure that the overall project yields the target IRR of 7 %. While the mention that the Belgian government's shareholder loan will be granted on market terms may indicate that this loan is proportionate, this remains to be thoroughly assessed when Belgium submits those terms, or the method used to reach them. The Commission therefore considers that the proportionality of the shareholder loans is not demonstrated.

(324) As regards the O&M agreement, the Commission acknowledges that the implementation of a competitive bidding process may not be appropriate given the sensitivity and specific nature of the LTO Units. In the absence of such a process, the operations and maintenance agreement's proportionality may be assessed through the level of margin earned by Electrabel by executing the agreement, which should be set on market terms. Belgium submits that the O&M Agreement reflects arm's length costs for nuclear operations. As mentioned in recital (102), Belgium submits that the levels of margins are aligned with those applied under the LTO Partnership Agreement with Luminus (which itself covers a wide range of services including but not limited to O&M), which is a relevant reference agreement since it covers similar services. The Commission therefore considers that the terms of the O&M Agreement are proportionate.

4.3.2.5.1.3. ASA and EMSA

(325) As mentioned in section 3.3.10, Belgium submits that the ASA has not been adopted yet. However, the ASA will be concluded on arms' length terms, thereby ensuring that this sub-measure will be aligned on market terms and conditions. The Commission therefore considers, at this stage, that the ASA is proportionate.

(326) As mentioned in recital (107), Belgium submits that the EMSA will in principle by subject to a competitive tender procedure. According to the EMSA, Engie's trading platform (GEMS) is allowed to participate in the tender. However, if no successful tender takes place, the parties will attempt to find an agreement with GEMS or an independent expert.

(327) In analogy with point 49 CEEAG, a detailed assessment of the proportionality of a measure is not required in case the aid/selection of a beneficiary is determined through a competitive bidding process. The CEEAG defines a bidding process as competitive when '*it is open, clear, transparent and non-discriminatory, based on objective criteria, defined ex ante in accordance with the objective of the measure and minimising the risk of strategic bidding, and when the expected number of bidders is sufficient to ensure effective competition*'. Therefore, if Belgium will organise a competitive bidding process in order to determine the agent who will sell the electricity, the EMSA can be considered proportionate. However, in case no successful tender can be organised, the Commission considers that an independent company or Special Purpose Vehicle ('SPV') should take care of the marketing of the electricity produced by the LTO Units. A further assessment is provided in section 4.3.3.2.

(328) As a consequence of the CfD remuneration mechanism described in section 4.3.2.3.1.2, the Commission considers that the removal of all market and operational risks with respect to the CfD design will give the incentive to offer the full capacity of the LTO Units on the day-ahead market at the lowest price allowed, as the actual remuneration will be at the strike price (adjusted for MRPA). This marketing strategy may in turn have distortive effects on the operation of the generator contrary to Article 19d(2), point (b) of Regulation (EU) 2024/1747, should the volumes not be offered at their marginal costs, therefore potentially distorting the optimal dispatch of production units.

(329) Therefore, the Commission currently has doubts on the proportionality of the EMSA and the envisaged marketing strategy for the sale of the electricity produced by the LTO Units.

4.3.2.5.1.4. Indemnification of cost coverage losses in case of no closing

(330) As mentioned in recital (118), the Belgian State and Electrabel will bear 50/50 of the cost coverage losses in case of no closing, except under certain circumstances, where the party responsible will have to bear all costs incurred by the other. The Commission considers the equal sharing of the cost coverage losses in case of no closing and the full liability for both Electrabel and the Belgian State if there is no closing of the Transaction due to their own responsibility, as proportionate.

4.3.2.5.1.5. Conclusion

(331) While some parts of the Component 1 appear to be concluded at market terms and can considered to be proportionate (JDA++, JV, O&M Agreement, ASA, indemnification of cost coverage losses in case of no closing), the Commission has doubts that other parts of Component 1 are proportionate. In particular, the Commission has doubts that the MOCP, SDC Loans and WCF are proportionate. In addition, the strike price of the CfD will be set so as to reach the target rate of return of 7 %, on top of the other remuneration mechanisms, which interact with each other. Therefore, the proportionality of the CfD cannot be assessed without consideration for the other remuneration mechanisms, whose appropriateness is in doubt. The Commission therefore considers that the CfD, terms of the SDC Loans, WCF and MOCP still raise questions regarding proportionality. In addition, the Commission currently also raises doubts on the proportionality of the EMSA, since it is not sure that a competitive tender will be applied regarding the sale of electricity produced by the LTO Units.

4.3.2.5.2. Proportionality of Component 2

(332) In order to determine whether the transfer of nuclear waste and spent fuel liabilities is proportionate, the Commission has verified whether the terms at which the transfer of nuclear waste and spent fuel liabilities takes place are defined in such a way that the risk of cost overruns affecting the State and the related uncertainty are reduced as much as possible. Due to the nature of radioactive waste management and the remaining uncertainty as to the site selection and the costs of disposal, this might not go as far as to entirely exclude any possibility of cost overruns.

(333) Belgium submits that the Commission has already pointed out in previous cases (see recital (277)), that radioactive waste management is characterised by long timelines, which may require some form of state intervention. Belgium also submits that the need for state intervention to ensure responsible and safe management of radioactive waste is enshrined in Article 4(1) of Directive 2011/70/Euratom, which provides for the ultimate responsibility of the State in this regard, as well as in the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management. Belgium argues that the State's ultimate responsibility in this area may, in certain circumstances, justify immediate action by the State, particularly to avoid the risk of a heavier future burden on the State if no action is taken.

(334) Belgium further submits that in the Euratom Recommendation 2006/851, the Commission stressed the importance of applying the 'polluter pays principle' during the decommissioning of nuclear facilities, including the management of spent fuel and radioactive waste. As indicated in Recital (14) and Article 3(3) of that Recommendation, this implies that operators should set aside adequate financial resources for the cost of managing spent fuel and radioactive waste during the productive life of those facilities. Belgium argues that this cost is set by the CPN/CNV.

(335) Belgium submits that the waste cap mechanism respects the 'polluter pays' principle, in line with similar mechanisms in the EU, accepted by the Commission (in particular the UK and German mechanism, see footnotes 121 and 120 respectively). Belgium argues that:

(a) the nuclear operator remains responsible for decommissioning obligations and activities to bring radioactive waste and spent nuclear fuel in line with the transfer criteria; the State bears no financial or other responsibility for the pre-transfer management part, which is done by the nuclear operator (see recitals (130) and (163));

(b) the nuclear operator bears the volume risk if more waste is produced than agreed upon, through the volume adjustment fee (see recital (133)(d)), while no refund is provided if less waste is created;

(c) the transfer of financial responsibility only concerns the part of the management that is already carried out by the State, a public institution (NIRAS/ONDRAF) or its subsidiary (Belgoprocess ([126]));

(d) a risk premium has been included in the lump sums to cover uncertainties for which, in accordance with IAS 37 (International Accounting Standards), no provisions had yet to be made (see recitals (135) and (158));

(e) the waste cap system, whereby the payment of the lump sums is immediately rather than over a period of several decades, ensures that the financial resources are available and well invested in Hedera, and reduces the risks related to insolvency of Electrabel, hereby complying with recital (24) of Directive 2011/70/Euratom ([127]) (see recital (128)). By transferring the nuclear provisions built up by the nuclear operators to a government-owned fund with a significant additional risk premium, the agreement with Engie addresses the risk of a possible insolvency of the operators that could occur in the future, i.e. before the final disposal of radioactive waste becomes operational (see section 3.4.4).

(336) Belgium concludes that through the design of the waste cap mechanism, the requirements referred to in Articles 4(3)(e) and 5(1)(f) of Directive 2011/70/Euratom are met. At the same time, the Belgian State is also better equipped for its obligation under Article 9 of the same Directive, since it will, through the upfront lump sum payment of the Capped Amounts already have the financial resources at its disposal and will no longer depend on the existence of a private nuclear operator in a distant future. In addition, since the nuclear operator and Contributing Companies make these payments upfront, the waste cap mechanism adequately considers the responsibility of the producers of spent fuel and radioactive waste, as required by Article 9 of the Directive.

(337) The Commission considers the following aspects to be relevant in this respect:

(a) The Commission notes that the State is protected from the financial consequences of an insolvency affecting the nuclear operator. By requiring an immediate cash payment, including a risk premium, such insolvency would no longer force the State to use public funds to pay for radioactive waste management (see recital (137)(a)).

(b) The Commission notes that the Belgian State benefits in case the costs end up being lower than the lumpsum payment of EUR 15 billion (see recital (133)(a)), and that the residual risk of cost overruns going beyond the aggregate amount of EUR 15 billion to which the State is exposed, is limited because of the cap on the volume (see recital (133)(b)) and the fact that the a volume adjustment fee has to be paid in case the agreed upon volume is exceeded (see recital (133)(d)).

([126]) In Belgium, radioactive waste is processed centrally by Belgoprocess.

([127]) Each Member State has an ethical duty to ensure that future generations are not unduly affected by the spent fuel and radioactive waste nor by the radioactive waste.

(c) The Commission also notes that the existing provisions (which are the basis for the calculation of the lumpsum payment) were certified by international accountancy firms as being compliant with international accounting rules (see recital (126)).

(d) The Commission notes that due to the phase-out of nuclear electricity production by 2035, the overall amount of spent fuel and radioactive waste to be stored and disposed of in Belgium is in principle known, which removes an uncertainty related to the dimension of the necessary waste facilities.

(e) The Commission notes that on top of the base amount, a risk premium (52,83 % of the base amount) has been added, based on a technical analysis made by NIRAS/ONDRAF. This risk premium takes into account (i) the uncertainty and variability regarding the cost of geological disposal (at higher depth) and the cost of storage at Belgoprocess, (ii) the uncertainty regarding the adequate conditioning and prior handling of the waste (despite the existence of CTC), and (iii) prudence regarding proposed reductions in decommissioning provisions against the advice by the CPN/CNV.

(338) On the basis of the elements set out in recital (135), the Commission considers that the base amount of the Waste Cap is based on the provisions that have been calculated based on the current waste inventory, i.e., the industrial reference scenario of NIRAS/ONDRAF and Electrabel, which has been established before the discussions on the LTO and in accordance with the applicable accounting laws (IAS 37), including control by a statutory auditor.

(339) As mentioned in recital (133)(c), for each type of nuclear waste package, contractual transfer criteria have been established, defining the conditions each waste package must meet to be duly transferred to the Belgian State, and in case they are not met, the nuclear operator remains liable for the waste package.

(340) The Commission therefore considers that the calculation of the base amount is based on the best numbers available, meant to realistically estimate the expected costs. In addition, the amount is capped upfront, so that the volume risk remains with Electrabel, even after the transfer of nuclear waste liabilities, and the transfer only takes place after fulfilment of strict contractual waste criteria. The uncertainties regarding the waste disposal sites have also been considered in the risk premium that is added to the base amount.

(341) This said, although the Commission agrees on the overall methodology to start from a base amount, based on the current provisions for nuclear waste and spent fuel, on top of which a risk premium is added (which is in line with the methodology followed in the German waste transfer case SA.45296), the Commission questions the use of the discount rate, which has only been revised slightly downwards after the triennial revision of 2022, potentially not reflecting the very long-term risks related to a complete transfer of all waste liabilities to the Belgian State, whereby no further revisions by the CPN/CNV in the future are possible. In addition, the Commission considers that the advice of the CPN/CNV to use a two-step approach and have a much lower discount rate for the longer term (after 30 years) has not been taken into account by the Belgian government (see recitals (147) to (149)). Since the volume adjustment fee is also determined by the amount of the current provisions (see recital (136)), its value is also affected by the discount rate applied to establish the current amount of the provisions.

(342) Regarding the additional risks identified by the CPN/CNV (see recital (150)), it is currently unclear that these additional risks have been appropriately considered in the setting of the risk premium.

(343) Regarding the transfer of additional decommissioning liabilities resulting from the LTO Project, the Commission notes that this transfer of liabilities is limited to the increase in provisions caused by the LTO Project, and that currently Engie and the Belgian government have not yet decided on the exact amount (see recital (168)). Therefore, the Commission is currently not able to assess the proportionality of this sub-measure.

(344) The transfer of nuclear waste liabilities to the Hedera fund justifies the release of Electrabel's non-European assets from Electrabel's perimeter (and the accompanying monitoring of the CPN/CNV), given that Engie will ensure that at least EUR 4 billion of assets (value of the shares) will remain in Electrabel (see recital (173)). The Commission considers this release proportionate since Engie grants an unlimited and non-cancellable parent company guarantee covering (i) Electrabel's decommissioning obligations (which also includes the risk that the value of the provisions is insufficient), (ii) volume risk under the cap and (iii) the repayment of (current or future) loans with Synatom (see recital (174)).

(345) On the basis of the elements set out in this section, the Commission cannot conclude at this stage that the methodologies used for setting the lumpsum payment of EUR 15 billion ensure that the State aid involved and the residual risk of cost overruns is minimized. In addition, the amount for the transfer of additional decommissioning liabilities resulting from the LTO Project has not yet been established. The Commission therefore has doubts, at this stage, that Component 2 of the notified measure is proportionate.

4.3.2.5.3. Proportionality of Component 3

(346) The provisions on legal protections concluded with Engie provide that the Belgian State will indemnify Engie for the direct losses it actually incurs, whenever new regulations concerning nuclear operators in Belgium or Electrabel's nuclear activities are adopted which have a negative impact on the terms of the transaction.

(347) In the event of a unilateral act by the Belgian State resulting in the premature shutdown of the Doel 4 and Tihange 3 nuclear reactors or the modification of the economic parameters set out in the agreements, the owners of the nuclear power stations can activate compensation clauses included in the agreements and apply to a court or an arbitral tribunal for compensation (see recital (178)). The claimant must prove its claim and the amount of compensation is not determined by the Belgian State or by the owners of the nuclear reactors, but by a third party.

(348) The procedure before a court or an arbitral tribunal to determine the amount of damage to be compensated should ensure that the amount of aid is kept to a minimum and therefore proportionate.

4.3.2.5.4. Conclusion on proportionality

(349) As mentioned in recital (331), the Commission considers that the CfD, terms of the SDC Loans, WCF and MOCP raise questions regarding proportionality. In addition, the Commission also raises doubts on the proportionality of the EMSA, since it is not sure that a competitive tender will be applied regarding the sale of electricity produced by the LTO Units. In addition, as mentioned in recital (345), the Commission has doubts on the proportionality of the lumpsum payment for the transfer of nuclear waste and spent fuel liabilities. Finally, as mentioned in recital (343), no decision has been taken yet regarding the transfer of decommissioning liabilities, so that the Commission, at this stage, cannot conclude on its proportionality. Therefore, the Commission has, at this stage, doubts on the proportionality of the aid.

4.3.2.6. Cumulative effect of the three aid components

(350) Sections 4.3.2.3, 4.3.2.4 and 4.3.2.5 have assessed the need, appropriateness and proportionality of the three components of the notified measure constituting the LTO Project individually. As set out in section 4.1.1, the Commission considers these three components of the notified measure as part of a single intervention. Therefore, it also assesses the cumulative effect of the three components of the notified measure taken together with respect to the need, appropriateness and proportionality of the aid.

(351) The Commission considers in this respect that Component 2 and Component 3 of the notified measure may have a cumulative effect vis-à-vis Component 1. The agreement on the transfer of nuclear waste/spent fuel and decommissioning of the LTO Units, and the legal protections in case of a change in law concerning nuclear energy, affects the risk profile of the nuclear operator (see section 3.4.7), which may in turn affect the financial parameters of the sub-measures in Component 1. The Commission notes nevertheless that this de-risking through Component 2 takes place on a longer timespan than merely the lifetime extension of the two LTO Units: while Component 1 and Component 3 mainly apply during the time of the 10-year lifetime extension of the two nuclear reactors, Component 2 will have also effect at the time of decommissioning of the LTO Units and many years thereafter, until the nuclear waste has been disposed and stored.

(352) So far, Belgium has not yet provided the required evidence to show that the further de-risking of the LTO Project through Component 2 and Component 3, has been considered in the setting of the parameters of the financial arrangements in Component 1. Although the Commission considers the cumulation of the three components of the notified measure appropriate and necessary, it has, at this stage, doubts that the combination of Component 1, Component 2 and Component 3 of the notified measure is proportionate.

4.3.2.7. Identifying the outstanding distortions of trading conditions that cannot be avoided

(353) In light of the considerations set out in sections 4.3.2.3, 4.3.2.4 and 4.3.2.5, the Commission has doubts as to whether the notified measure is designed to avoid undue negative effects on competition and trade.

(354) In any event, the Commission cannot exclude at this stage that the notified measure may have outstanding distortions that cannot be avoided and which the Commission would have to balance with the positive effects of the measure on the supported economic activities.

4.3.3. *Avoidance of undue negative effects on competition and trade and balancing test*

(355) For the aid to be compatible with the internal market, the negative effects of the aid measure in terms of distortions of competition and impact on trade between Member States must be limited and outweighed by the positive effects. It is important to minimise its potential negative effects on competition and trade.

(356) The Commission acknowledges the high level of interconnection of the Belgian market and the security of supply concerns due to the (partial) phase out of nuclear energy in Belgium and closure of thermal plants in its neighbouring countries (see recitals (17) and (29)). Hence, the LTO Project will affect both the national and the regional electricity markets.

(357) In order to analyse the market impact, the Commission will examine the impact on competition caused by choosing the incumbent and sole operator of the two LTO Units, Electrabel, and the second company (in terms of market shares) on the Belgian electricity market, Luminus, as main beneficiaries of the notified measure.

4.3.3.1. Choice of Electrabel as nuclear operator

(358) Regarding the selection of Electrabel as main beneficiary of the LTO Project, it should be noted that Electrabel was chosen without a tender, a selection process, or a public call for expression of interest. Therefore, it is not clear whether other potential operators have actually been considered, raising the question of whether Electrabel would be the most efficient operator and on what technical or economic grounds Electrabel was selected.

(359) Belgium argues that Electrabel has always been the only operator of nuclear power plants in Belgium and therefore has the required experience with the operation of the Belgian existing nuclear power plants (Pressured Water Reactor type). Therefore, according to Belgium, there is no alternative operator who would be a more suitable entity to act as the operator of the nuclear plants.

(360) The Commission observes that in other recent cases concerning the construction of new nuclear reactors (e.g., PAKS II ([128])), the beneficiary of the aid regarding the operation of the plants was not selected through a tender.

(361) Given Electrabel's strong position in the Belgian electricity market, both in terms of electricity generation (see recital (11)) as in electricity supply (see recital (15)), the selection of Electrabel as main beneficiary of the aid raises doubts regarding a potential distortion of the market structure. Indeed, Electrabel, a fully owned subsidiary of Engie, has been the former incumbent on the Belgian electricity market before its liberalisation in 1996. Today, in terms of electricity generation and supply, Electrabel still has a high market share in the Belgian electricity market that remains highly concentrated (see recital (14)).

(362) The Commission acknowledges the arguments put forward by Belgium to support the choice the Belgian authorities eventually made regarding the prolongation of the operation of the two nuclear reactors. On the other hand, there have been no tender or consultation allowing competitors to express their interest for the lifetime extension of the two nuclear reactors and there is thus no overview of all potential alternatives.

(363) However, since the support is granted for a limited period of time and only supports the continued operation of the two nuclear plants and no new investments, the Commission considers the selection of Electrabel, without a tender, as no potential distortion of the market structure.

4.3.3.2. Position of the beneficiaries in the Belgian market

(364) On the basis of the market shares described in section 2.2.1, Electrabel's market power in the power generation market can at least be regarded as significant in view of the volume of production and diversity of generation resources. The generation market remains highly concentrated as the two biggest players Electrabel and Luminus together hold more than 80 % of the market in terms of production volume (see recitals (13)(a) and (13)(b)) and capacity (see recitals (11)(a) and (11)(b)). As described in section 2.2.2, Electrabel's significant market position on the electricity generation market also remains high in the retail electricity market in Belgium.

(365) According to the Belgian authorities, the clauses in the agreements do not have any potential negative effects on competition and trade between Member States, given that they merely provide for the continuation of the production of nuclear energy. In particular, Belgium argues in this respect:

(a) The chosen CfD formula applies an output-based remuneration unless in modulation periods and includes additional incentives (through the MPRA) to optimize the output of the plant subject to market conditions, hereby preserving the right incentives to operate and participate efficiently in the electricity market (see recitals (75) and (80)). The 'modulation arrangement' requires decreasing production during consecutive times of negative prices (see recital (75)(c)).

(b) The electricity expected to be produced by the LTO Units will be sold on the day-ahead market (DAM). The prevention of distortive effects on bidding behaviour in the day-ahead, intraday, ancillary services and balancing markets is ensured through a bidding and imbalance strategy (BIS) that will be agreed-upon between BE-NUC and the Belgian government as RA Counterparty and implemented in the Energy Management Service Agreement (EMSA) (see section 3.3.9). Selling on the DAM incentivises sound bidding behaviour for the reasons mentioned in recital (111).

([128]) Commission Decision of 6 March 2017 in case SA. SA.38454 - 2015/C (ex 2015/N), on the measure which Hungary is planning to implement for supporting the development of two new nuclear reactors at Paks II nuclear power station.

(366) Regarding the CfD design, the Commission considers that the CfD currently proposed by Belgium in the Implementation Agreement of 13 December 2023 does not provide sufficient market exposure to the beneficiaries.

(a) First, the current CfD design does not provide the right signals to produce and schedule maintenance in an efficient way, respecting market conditions, as mentioned in recitals (290) and (291).

(b) Second, when electricity market prices are negative, market players react by cutting production so that at some point prices will go up again and the equilibrium is restored. The current remuneration at times of negative prices (see recital (75)(c)) does not ensure that the nuclear operator has the right incentives to stop producing when electricity supply of higher than demand. Therefore, electricity prices might stay negative for a longer time than necessary (see recital (292)).

(c) Third, as mentioned in recital (293), the DAM price is used as market reference price in the CfD design, which is questioned by the CREG, who would be more in favour of a long-term product as part of the MRP. The Commission considers that the use of the DAM as reference price does not provide incentives to participate efficiently in electricity markets and may have distortive effects on the operation, dispatch and maintenance decisions of the generator or on its bidding behaviour in the electricity markets, and therefore might not be in line with Article 19d(2), points (a) and (b) of Regulation (EU) 2024/1747. The use of the DAM as the only reference price for the CfD removes incentives for the generator to hedge on the forward market and will critically impact the liquidity in this market (see recital (293)).

(367) Therefore, the Commission considers that the CfD design, providing a guaranteed remuneration for the LTO Project, might have an adverse effect on the functioning of the market, contrary to the principles set out in Article 19d(2) of Regulation (EU) 2024/1747. A change in the CfD design could however address the concerns mentioned in recital (366).

(368) Regarding the sales of electricity generated by the LTO Units, the Commission observes that the electricity will be sold for 100 % on the wholesale day-ahead market (see recital (110)), which should be sufficient to prevent aid spillovers. However, while the agent selling the electricity from the LTO Units will in principle be selected through a competitive tender (see recital (107)), in case of an unsuccessful tender, Electrabel and the Belgian government shall negotiate and find an agreement, whereby it is possible that Engie's trading business (GEMS) will act as agent selling BE-NUC's electricity. In order to avoid the risk for market foreclosure and other potential anticompetitive practices by Engie, the Commission considers it important that Electrabel and Engie would not be involved in the marketing of the electricity from the LTO Units. The marketing should ideally be done by an independent company or SPV.

(369) Therefore, the Commission considers that the marketing of electricity resulting from the implementation of the LTO Project might lead to market distortions if not executed by an independent entity. Belgium should commit in this respect that the agent, as determined by the EMSA, should sell the electricity independently.

(370) Regarding the impact of the LTO Project on Electrabel's position in the Belgian energy landscape, the Commission considers the following:

(a) First, as recognised by Elia in its latest resource adequacy study (2023 NRAA), the lifetime extension of the two LTO Units will not suffice to fulfil the expected increase in demand for electricity in the next 10 years (see recital (19)). In addition, Belgium set up a capacity mechanism through which other new and existing generation technologies (in particular thermal generation, demand response and storage) have access to financing for a short or longer period of time (CM contracts are granted for 1, 3, 8 or 15 years). Therefore, the LTO Project will not unduly affect the situation of other generation technologies in Belgium and will not discourage any investment in new thermal installations, demand response and storage until 2035.

(b) Second, Belgium further supports the development of new generation capacity, to enable the generation of electricity from renewable energy sources. For example, Belgium supports the development of wind farms in the North Sea, through the Princess Elisabeth Offshore wind project ([129]).

(c) Third, the Commission observes that the market concentration in recent years has been slightly decreasing (see recital (14)); the parallel decommissioning of Engie's other nuclear reactors in Belgium (see recital (4)) might further continue this trend and might counterbalance Engie's market position in Belgium.

(371) For the reasons mentioned in recital (370), the Commission considers that the LTO Project will not fully absorb the insufficient generation capacity for electricity during the period 2025-2035 and will not per se increase Electrabel's market share due to the parallel decommissioning of Engie's other nuclear reactors and the further penetration of renewables. The extension will therefore not prevent new players from entering the market for the production of electricity in Belgium and will not prevent the other players from developing new generation capacities. Consequently, the impact of the LTO Project on the retail market is expected to remain limited as well.

(372) Regarding the transfer of nuclear waste and spent fuel liabilities, the Commission notes that this sub-measure will not have the immediate effect of improving the competitive situation of the beneficiaries vis-à-vis their competitors. At first, the sub-measure will force the nuclear operator to pay a higher cash amount than what they have currently accumulated in their balance sheets. The volume adjustment fee, which makes sure that the nuclear operator pays an additional amount in case more nuclear waste is produced than originally foreseen, acts as a safeguard. Nevertheless, the Commission currently has doubts on whether the EUR 15 billion will be sufficient to reduce sufficiently the risk taken by the Belgian State when taking over the nuclear waste liabilities from Electrabel (see section 4.3.2.5.2).

(373) Finally, the legal protection clauses contained in the agreements, if and when applicable, would be purely compensatory in nature. They therefore have no potential negative effect on competition and trade between Member States.

4.3.3.3. Conclusion on the effect on competition and trade

(374) Despite the high market share of Electrabel in the wholesale and retail market for electricity in Belgium, the Commission considers that the main concerns regarding the effect of the measure on the market stems from the CfD design and the implementation of the EMSA. For the reasons mentioned in recitals (366) and (367), the current CfD design reduces significantly exposure to market risk to Electrabel and Luminus. For the reasons mentioned in recitals (368) and (369), it is not certain whether the electricity from the LTO Units will be sold by an independent agent, which might lead to risks of market foreclosure by Electrabel. Finally, as mentioned in recital (372), an overly low amount foreseen for the transfer of waste liabilities could also lead to a competitive advantage by Electrabel and the Contributing Companies. The Commission therefore, at this stage, raises doubts on the effect of the LTO Project on the market.

5. **COMMISSION DOUBTS AND GROUNDS FOR OPENING THE FORMAL INVESTIGATION PROCEDURE**

The Commission considers at this stage that the notified measure involves State aid within the meaning of Article 107(1) TFEU, which supports the development of the economic activity of nuclear electricity generation. The Commission considers at this stage that State support for the LTO Project has an incentive effect.

([129]) SA.107336 - Princess Elisabeth Offshore zone. The State aid assessment of this case is currently ongoing.

However, at this stage, based on the information submitted, the Commission does not have sufficient elements to conclude whether the conditions for the compatibility of any possible aid with the internal market in accordance with Article 107(3)(c) TFEU are met, in particular, whether the aid is necessary, appropriate and proportionate, does not violate Union law and does not affect competition in a way contrary to the common interest.

In the light of the foregoing considerations, the Commission, acting under the procedure laid down in Article 108(2) TFEU, requests Belgium to submit its comments and to provide all such information as may help to assess the measure, within one month of the date of receipt of this letter. It requests your authorities to forward a copy of this letter to the potential recipient of the aid immediately.

The Commission wishes to remind Belgium that Article 108(3) TFEU has suspensory effect, and would draw your attention to Article 16 of Council Regulation (EU) 2015/1589, which provides that all unlawful aid may be recovered from the recipient.

The Commission warns Belgium that it will inform interested parties by publishing this letter and a meaningful summary of it in the *Official Journal of the European Union*. It will also inform interested parties in the EFTA countries which are signatories to the EEA Agreement, by publication of a notice in the EEA Supplement to the *Official Journal of the European Union* and will inform the EFTA Surveillance Authority by sending a copy of this letter. All such interested parties will be invited to submit their comments within one month of the date of such publication.