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SENSITIVE [*]: *COMP Operations*

Subject: **State Aid SA.104106 (2023/N) – Italy**
Support for the development of a centralised electricity storage system in Italy

Excellency,

1. PROCEDURE

(1) Following pre-notification contacts, pursuant to Article 108(3) of the Treaty on the Functioning of the European Union ('TFEU'), Italy notified to the European Commission (the 'Commission') on 8 November 2023 its support scheme for the development of a centralised storage system in Italy (the 'measure' or 'scheme').

(2) Italy provided additional information on 28 November and on 11, 12, 13, 14 and 18 December 2023.

(3) On 30 November 2023, the Italian authorities waived their right under Article 342 TFEU in conjunction with Article 3 of Regulation (EEC) No 1/1958 and agreed that the decision in procedure SA.104106 be adopted and notified in English.

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Onorevole Antonio Tajani
Ministro degli Affari esteri e della Cooperazione Internazionale
Piazzale della Farnesina, 1
00135 Roma
ITALIA

2. DETAILED DESCRIPTION OF THE MEASURE

2.1. Background

2.1.1. Context and justification of the measure

(4) The EU has set an ambitious climate protection target of reducing net greenhouse gas emissions by at least 55% by 2030, with a view to becoming climate neutral by 2050. Given that the production and use of energy account for more than 75% of the European Union's (the 'Union' or the 'EU') greenhouse gas emissions, decarbonising the energy system is crucial to reaching these targets. To deliver on its commitments, the EU is accelerating the take-up of energy produced from renewable energy sources ('RES'), aiming to increase its share to at least 42.5% of the EU's energy use ([1]).

(5) Italy's 2019 National Energy and Climate Plan ('NECP') set targets to develop additional solar capacity of 28 GW in 2025 and 52 GW in 2030 and additional wind capacity of 16 GW in 2025 and over 19 GW in 2030 (compared to 2016 levels). These goals are to be increased in line with the Fit for 55 package ([2]). The draft 2023 NECP ([3]) proposes a renewable target of 40.5% in gross energy consumption by 2030, which translates, according to Italy, in a need to further increase RES generation capacity by 66.3 GW by 2030 (with respect to 2019 levels), with an intermediate target of 30 additional GW between 2025 and 2026.

(6) Italy submits that energy storage is a crucial technology to provide the necessary flexibility, stability, and reliability for the future energy system. Flexibility is particularly needed in the electricity system where the share of renewable energy is set to grow significantly. Italy explained that storage facilities participate in the electricity markets notably performing an energy shifting function, i.e. absorbing and storing electricity when electricity market prices are low and injecting it back into the grid when electricity market prices are high. As such, storage facilities effectively substitute expensive electricity generated by high-cost units for low-cost RES electricity, provide clean electricity stored during high-RES generation conditions, and help to facilitate RES integration and reduce RES curtailments during over-generation periods.

(7) Apart from performing price arbitrage, the storage facilities have other benefits. They also provide flexibility, adequacy, and ancillary services to the electricity system, which are key to the successful integration of a large capacity of varying and intermittent RES in power systems. Storage facilities can also contribute to increase the liquidity of those markets, supporting competition and transparent price formation, therefore contributing to reducing the prices of balancing services.

([1]) Directive (EU) 2023/2413 of the European Parliament and of the Council of 18 October 2023 amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 97/70/EC as regards the promotion of energy from renewable energy sources, and repealing Council Directive (EU) 2015/652.

([2]) The Fit for 55 package is a set of proposals to revise and update EU legislation and to put in place new initiatives with the aim of ensuring that EU policies are in line with the climate goals agreed by the Council and the European Parliament. The aim of the package is to reduce CO_2 emissions by at least 55% by 2030 and to achieve climate neutrality by 2050. Available here: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021DC0550

([3]) Available here: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://commission.europa.eu/system/files/2023-07/ITALY%20-%20DRAFT%20UPDATED%20NECP%202021%202030%20%281%29.pdf

(8) Italy submits that the modelling under the NECP showed that in case of absence of adequate measures ([4]), Italy runs a high risk of not being able to completely dispatch the growing production from renewable sources during their peak production. RES over-generation is expected to be concentrated in the southern and insular areas of the country which have the highest expected penetration of production from renewable sources but still lack sufficient interconnections with areas characterised by high demand. Italy estimates that over-generation could amount to around 11 TWh/year which may have strong negative impacts on the economy of the whole Italian energy system due to high balancing costs and might jeopardize the achievement of the national RES targets and the public acceptance of RES.

(9) According to Italy's draft 2023 NECP, large-scale energy storage systems will be necessary to integrate 98 GW of RES by 2030 and their development is uncertain. The Italian authorities explained that the costs of the investments are too high to enable the massive development of storage systems on market terms within the short timeframe needed to achieve the energy and environmental targets laid down in the NECP. Firstly, this is because energy-only markets do not promote coordinated development of generation, transmission, and storage capacity due to an information asymmetry between different players in the electricity sector and a lack of coordination between investors in RES generation capacity and storage systems. Secondly, there is a high degree of uncertainty due to market volatility, lack of predictability, high fixed costs and missing long-term incentives to invest. The wholesale electricity markets are based on short and very short-term horizons, missing certainty in long-term contracts, and as a result investors fear that future revenues will not be able to cover fixed costs or ensure an adequate return on investment.

(10) The measure therefore aims to support investments for the development of stand-alone electricity storage systems connected to the transmission and distribution grid for an aggregate installed capacity of at least 3 GW / 24 GWh by 2025-2026 and more than 9 GW / 71 GWh by 2030.

2.1.2. The electricity market in Italy

(11) The Italian electricity network is characterised by significant and recurrent grid constraints given by geographical dispersion. Therefore, for system security purposes, the country is divided into six bidding zones, as there are physical limits to electricity transfers to/from other geographical zones. Another specificity is that demand is higher in Northern and Central-Northern Italy, while production is shifting towards the South of the country with increasing RES penetration. Sardinia and Sicily have especially peculiar characteristics as they have limited interconnection capacity and lower electricity demand, however, good conditions for RES generation.

(12) In Italy, market participants can trade electricity in several timeframes, for example in the Forward Electricity Market (Mercato Elettrico a Termine, 'MTE'), in the Day-Ahead Market (Mercato del Giorno Prima, 'MGP'), in the Intra-Day Market (Mercato Infragiornaliero, 'MI') and can offer ancillary services in the Ancillary Services Market (Mercato per il Servizio di Dispacciamento, 'MSD'), which consists of two parts, namely a planning phase (the 'ex-ante MSD') and the Balancing Market (Mercato di

([4]) Such measures should include the development of the transmission grid, the revision of the rules on the participation of intermittent renewable sources in the supply of services, the development of demand side management, the development of distributed storage systems, interventions on distribution networks for better management at the local level of generation and distributed loads and the development of centralized storage systems.

Bilanciamento, 'MB') ([5]). The ex-ante MSD and MB take place in multiple parallel sessions. In the MSD, Terna S.p.A., the national Transmission System Operator ('TSO') procures the resources needed for the secure operation of the Italian electric power system. Unlike most balancing markets in the EU, the Italian market considers locational elements at a lower level than a bidding zone. In the MSD, accepted offers are remunerated at the price offered (pay-as-bid) following a competitive procedure. Furthermore, market participants can also participate on the Platform for the International Coordination of Automated Frequency Restoration and Stable System Operation (PICASSO), on the Trans European Replacement Reserve Exchange (TERRE) platform and – in the following years – on the Manually Activated Reserves Initiative (MARI) platform which allows or will allow cross border exchange of balancing products.

(13) The Italian wholesale market is operated by Gestore Mercati Energetici ('GME'), a company wholly owned by Gestore dei Servizi Energetici ('GSE') S.p.A., which is in turn fully owned by the Ministry of Economy and Finance. GME runs the Italian Power Exchange and operates the MTE, MGP and MI. The MSD, including the MB, is operated by the TSO. GME will also organise and manage a new market platform for trading time-shifting products provided by storage facilities (see recital (17)).

(14) Due to decreasing levels of generation adequacy, a market-wide capacity mechanism has been in place in Italy since 2019 ([6]). The mechanism is volume based, as the TSO determines the amount of capacity needed to ensure the required level of security of supply, and open to all capacity providers. The providers that offer capacity are selected via auctions and receive fixed regular payments financed through a charge levied upon the dispatching users and collected by the TSO. The first tenders under the mechanism took place in 2019 and traditional sources obtained most of the capacity contracted for delivery in 2022 and 2023. The latest tenders, held in 2022 for delivery in 2024 saw storage facilities winning important shares of the tendered capacity ([7]). Italy submits that the role of batteries has been so far focused on short duration balancing and ancillary services, as the average duration of batteries awarded in the capacity markets is around four hours. However, longer duration storage capacity is needed to support periods of low renewable output and facilitate renewable penetration. Furthermore, the absolute volume of storage capacities available in the Italian market remain small compared to the forecasted needs. Finally, Italy explained that the storage capacity contracted under the scheme would be taken into account in the calculation of the generation adequacy assessment that will determine the amount of capacity to be procured in future tenders under the capacity mechanism.

2.1.3. Overview of the measure

(15) The measure provides aid to beneficiaries for the development of stand-alone storage systems in annual tranches over a predefined duration.

(16) The aid will be granted via competitive, transparent, and non-discriminatory auctions carried out by the TSO regularly over the duration of the measure. The capacity volumes of each auction will be decided by the Ministry of Environment and Energy

([5]) For a detailed description of those markets, see: https://www.mercatoelettrico.org/En/Mercati/MercatoElettrico/MPE.aspx.

([6]) See State Aid SA.42011 (2017/N) and its modification State Aid SA.53821 (2019/N).

([7]) New storage capacities were awarded around 1.1 GW of likely available capacity (Capacita Disponibile in Probabilità or 'CDP').

Security, based on a proposal of the TSO underpinned by an analysis of the investment and operating costs of the storage technologies concerned, the amount and value of the electricity at risk of overgeneration, as well as the cost of alternative options such as e.g. interventions to resolve grid constraints.

(17) Successful bidders are required to make the storage capacity, once built and operational, available to the TSO ([8]), which will offer the pooled storage capacity to third parties, in the form of standardised time-shifting products on a new centralised trading platform which will be organised and managed by GME. The time-shifting products will give their buyers the possibility to use a virtual storage asset as if was theirs, to store and sell electricity when they wish to do so. The GME will develop the time-shifting trading platform to facilitate the purchase or sale of time-shifting options through bidding into a competitive auction. The TSO will define several standard time-shifting products, differentiated depending on performance, validity period (multiannual, annual, monthly, weekly and daily duration) and reference area, as well as the volumes to be offered for each standard product, calculated depending on the storage capacity contracted through the measure and its availability. Italy explained that storage resources developed outside the scheme will also be allowed to participate and trade on the market platform. All interested third parties will be able to participate in the market.

(18) Italy explained that the time-shifting products allow their owners to benefit from price differentials on the energy spot markets (i.e. to buy electricity in periods of low prices and high RES production and sell it in periods with peak prices and low RES production). This will effectively help reduce RES curtailment and perform price arbitrage. It also allows RES producers, who can buy time-shifting options, to decrease their exposure to price variability and the TSO to optimise the utilisation of the storage systems. The allocation of storage capacity in the form of time-shifting options will take place based on a pooling mechanism ([9]), i.e. without a direct match between a specific time-shifting product and a specific storage resource. The owner of the storage capacity will receive orders to withdraw or to release electricity, as dispatched by the TSO after the buyers of the time-shifting options will have exercised their options. The TSO will decide which storage asset needs to be used to perform the physical transfer of electricity associated to the exercise of the option to optimise the use of the storage systems.

(19) The 'residual' storage capacity not sold in the form of time-shifting products will be made available on the ancillary services market, on the balancing market and on the European balancing platforms. The revenues obtained by the beneficiaries on these markets will be subject to a pay-back obligation and claw-back mechanism (see section 2.7).

([8]) The standard contracts for the supply of electricity storage capacity grant their beneficiaries the right to receive a regular payment, but also require them to make the respective storage capacity available to third parties via the TSO. In case of failure to comply with contractual obligations, the TSO will impose several penalties. A penalty is foreseen for the failure to deliver the storage capacity awarded to the beneficiary as a result of the auction, while another penalty is applicable in each calendar year of the contract, for all the quarters of hours of unavailability/outage of the storage assets that exceed predefined standards.

([9]) Italy explained that the pooling mechanism makes it possible to make the time-shifting product independent of the level of actual availability of a specific storage facility, which increases the value of the time-shifting option. It also allows the TSO to allocate energy withdrawal/release orders to individual storage facilities, taking into account specific system security needs and it increases liquidity in the market for time-shifting products.

2.2. National legal bases

(20) The national legal bases of the measure are:

i) Article 18 of the Legislative Decree no. 210 of 8 November 2021, which sets out the framework of the measure and the roles and responsibilities of the administrators. It also includes a standstill clause according to which no aid can be granted under the measure before the notification of the Commission's decision approving the measure in accordance with State aid rules.

ii) Decision no. 247 of 6 June 2023 of the Authority for Energy Networks and Environment on the criteria and conditions of the measure for the supply of electricity storage capacity.

iii) The operating rules governing the procurement of the centralised electricity storage system developed by the TSO pursuant to and in accordance with the criteria and conditions laid down by ARERA in Decision 247/2023/R, a draft version of which has been provided to the Commission. Italy explained that the Ministry of Environment and Energy Security will approve these rules after the notification of the Commission's decision approving the measure.

2.3. Administration of the measure

(21) The Ministry of Environment and Energy Security is responsible for overseeing the functioning of the measure.

(22) The Italian Regulatory Authority for Energy, Networks and Environment (*L'Autorità di Regolazione per Energia Reti e Ambiente*, 'ARERA') is an independent administrative authority that carries out regulatory and supervisory activities in the sectors of electricity, natural gas, water services, waste cycle and district heating. ARERA is responsible for developing the criteria for the awarding of aid under the measure and for defining the mechanisms for the financing of the measure. ARERA is also tasked to develop the conditions under which the contracted storage capacity should be made available on the time-shifting options market platform, as well as the criteria and conditions for the organisation and operation of that platform.

(23) The TSO is a privately-owned undertaking which is responsible for running the auctions and concluding contracts with the winning beneficiaries. The TSO will oversee the offering of the pooled contracted storage capacity on the market platform for the trading of time-shifting options and will assign the physical storage assets to standard time-shifting contracts, optimising the use of available storage assets. The TSO will also communicate to the storage developers when to charge and discharge the storage assets to execute the time-shifting options bought by market participants.

(24) The TSO is tasked with managing the financial flows of the measure as it collects the revenues from the selling of the time-shifting options and from the balancing market, which it distributes to the beneficiaries of the measure, i.e. the storage owners, in accordance with their aid contracts. The TSO will implement the payback obligation and claw-back mechanism described in section 2.7 and will use the proceeds to provide support to the contracted energy storage capacity (the beneficiaries). Finally, the TSO will organise and implement a system of guarantees and penalties to be applied to beneficiaries of the measure in the event of non-compliance with their contractual obligations.

(25) The GME is tasked to run the centralised platform for trading standard time-shifting options and may propose, subject to the approval of the Ministry of Environment and Energy Security, after ARERA's opinion, limits to the maximum quantities of time-shifting products that can be purchased by each market operator to prevent the creation of dominant positions.

2.4. Budget, financing, and duration of the measure

(26) The estimated total maximum budget of the measure is EUR 17,7 billion, for a total estimated storage capacity of 71 GWh. Italy explained that the aid granted under the measure will be provided to beneficiaries in yearly tranches over the lifetime of the assets.

(27) Aid under the scheme can be granted until 31 December 2033, via regular competitive tendering procedures. The Italian authorities explained that the 10-year duration of the measure is needed for long-term planning, allowing a gradual implementation of the measure in line with the deployment of RES installations over time.

(28) The payments to the beneficiaries under the measure will be done by the TSO.

(29) The measure will be funded from several sources, as follows:

i) From the revenues collected by the GME from the sale of the time-shifting options associated to the pooled storage capacity, which are transferred to accounts managed by the TSO and used exclusively to fund the measure. The collection and use of these funds is regulated by ARERA under the oversight of the Ministry of Environment and Energy Security.

ii) From the revenues generated through the sale of residual storage capacity on the ancillary services market which will be in part clawed-back by the TSO and the proceeds from the payback obligation. Italy explained that the financial transactions on the ancillary services markets will follow the financial process applicable for any production unit providing offers on those markets.

iii) The residual cost of the measure not covered by the two above sources of revenues will be financed by a compulsory charge on electricity consumption as stipulated in Article 18, paragraph 7 of the Legislative Decree no. 210 of 8 November 2021 (see recital (20) i) above). The Italian authorities explained that ahead of each quarter, the TSO, on the basis of detailed rules set by ARERA, will calculate the difference between the payment to be made to the beneficiaries under the aid contracts and the revenues generated (described in point i) and ii) above), which will be financed through the levy. The levy will be applied on the balancing responsible parties (i.e. customers on the wholesale market) for the electricity consumed in the following quarter. Italy explained that the charges will then be paid by the end-consumers to their respective electricity suppliers, which in turn will transfer the amounts to the above-mentioned balancing responsible parties. The latter will transfer the money collected to the TSO, which earmarks it exclusively for the financing of the measure.

2.5. Beneficiaries

(30) The beneficiaries of the measure are undertakings, irrespective of size and sector who are selected through competitive auctions held by the TSO to build and operate new electricity storage capacities.

(31) In order to be eligible to participate in competitive procedures, storage capacity developers must comply with the following minimum requirements set by the TSO:

i) the storage capacity offered must be newly built ([10]);

ii) the investment project must have obtained the necessary construction and operating permits;

iii) the beneficiary must provide the guarantees ([11]) required by the TSO; and

iv) the beneficiary must commit to relinquish any other subsidies for the investment or operation of the storage capacity supported under the measure, over the duration of the aid contract.

2.6. Main elements of the measure

2.6.1. Eligible technologies

(32) The measure is open to all electricity storage technologies which meet the minimum charge/discharge performance requirements set by the TSO. Italy explained that while other flexibility solutions exist, such as demand response, the measure will finance the development of electricity storage only, given the potential of the technology to contribute to deep decarbonisation in the long term, by facilitating the integration of large amounts of renewable electricity sources that are expected to be developed and to avoid their curtailment.

(33) The eligible electricity storage technologies that can receive support under the measure are defined based on a market study ([12]) prepared by the TSO at the request of ARERA, which will be updated at least every two years. The study will regularly review and identify the storage technologies that have reached an adequate level of technological ([13]) and commercial maturity ([14]) and are suitable to provide the services required by the electricity system. The market study assesses existing technologies with different durations, performance, availability, lifetime, lead time, round-trip efficiency,

([10]) Italy explained that this will cover also existing hydropower plants which are to be converted to hydro-pumped storage or the capacity extension of existing hydro pumped storage plants.

([11]) Tenderers will be required to provide a pre-auction guarantee for an amount equal to 10% of the product between the storage capacity offered by the tenderer in an auction and the bid cap of the respective auction. The TSO will return the respective guarantee within 15 days of the notification of the result of the competitive tender process.

([12]) The first version of the study was published by the TSO in August 2023 for public consultation and is available here: https://download.terna.it/terna/Study_on_electricity_storage_reference_technologies_8db99b53d98c32b.pdf.

([13]) Where technological maturity is reached when the technology fulfils the technical criteria listed in the Italian network code, which define the minimum criteria that a power plant (including a storage asset) must fulfil to connect to the high voltage grid and the minimum requirements for delivering an ancillary service.

([14]) Where commercial maturity is reached when there are more than 10 utility-scale projects installed and operative worldwide. Italy explained that it will also allow new smaller scale storage technologies that have not yet reached full commercial maturity to participate in tenders up to 10% of the tendered capacity in the auction for battery storage. The Italian authorities explained that this will allow to increase the pool of eligible technologies that are cost-effective while limiting the risks to the system from the introduction of new technologies not yet proven at utility scale.

technological and commercial maturity, as well as their investment and operating costs, their risks and suitability in view of the needs of the Italian electricity system.

(34) Italy therefore plans to support the deployment of technically and commercially mature storage technologies, guided by the production capacity from RES in the various nodes of the grid.

(35) Italy explained that the market study shows that currently, the commercially and technically mature technologies for storing electricity are hydropower and lithium-ion storage systems (battery storage). These technologies have high round-trip efficiency of around 70-75% for hydro-pumping and 80-90% for lithium-ion batteries. Italy explained that the efficiency of storage systems is a key parameter as it shows the percentage of electricity put into storage that is later retrieved. Therefore, the higher the roundtrip efficiency, the less energy is lost in the storage process.

(36) Italy submits that different energy storage technologies have varying parameters and different technical characteristics, including as regards the construction and operation lifetime and geographical possibilities ([15]). For example, construction time (including the authorisation processes) ranges from one to three years for lithium-ion batteries and to five years or more for hydroelectric pumping, while the operating lifetime of lithium-ion batteries ranges between 10 and 15 years (depending on multiple aging factors such as temperature, the number and depth of charge-discharge cycles, etc.), and at least 40 years for pumped storage hydropower. The TSO, after consultation with the Ministry, will therefore define one or more standard aid contracts according to the different characteristics of storage technologies needed in the Italian electricity system.

(37) Italy confirmed that no aid will be granted in cases where the start of works on the project ([16]) took place prior to the aid application by the beneficiary to the national authorities, i.e. prior to the submission of the bid.

2.6.2. Quantification of the funding gap for reference projects

(38) The Italian authorities have quantified the net present value ('NPV') that a storage asset could expect absent the measure, showing that for the identified reference projects, such NPV would be negative and hence the projects would not be economically viable in the absence of aid.

(39) Italy identified two reference projects, reflecting the expected average size of projects that will take part in the measure:

i) a battery storage system of 100 MW and 8 hours capacity;

ii) a pumped storage hydro power plant of 500 MW and 8 hours capacity.

([15]) Development of hydropower is subject to geographical constraints linked to the availability of water resources and the geomorphology of the area.

([16]) The start of the works means the start date of the construction works required by the investment or, if earlier, the date of the first firm commitment to order the necessary equipment or the date on which any other commitment has been made that makes the investment irreversible. In the case of acquisition, the start of the works coincides with the date of acquisition of the assets directly linked to the purchased establishment. The purchase of land and preparatory activities, such as applying for permits or authorisations and carrying out feasibility studies, do not constitute the start of the works.

(40) The table below summarises, for each of these reference projects, the main factors which are relevant for the quantification of the NPV. These main factors are then discussed in detail, in the following paragraphs.

***Table 1**: Main factors underpinning the quantification of the NPV of the reference projects.*

Relevant Factor	Battery storage system of 100 MW and 8 hours	Pumped storage hydro power plant of 500 MW and 8 hours capacity
Asset lifetime (years)	13	40
CAPEX (Million EUR/MW)	2	1.7
OPEX (% CAPEX)	32.5%	70%
Revenues (Million EUR per year)	25	125
WACC (%)	8.2%	8.2%
NPV post-tax (Million EUR)	-89	-140

(41) As for the lifetime of the assets, the Italian authorities assumed for the battery storage system a 13-year lifetime, with a one-year construction time and a 70% capacity retention after 13 years of operation ([17]) and for the pumped storage hydro power plant 40 years, with a 5-year construction time ([18]) ([19]).

(42) The assumed WACC for both reference projects is 8.2% post-tax ([20]). The assumed tax rate is 27.9%.

(43) The CAPEX is estimated to be of EUR 2 million per MW ([21]) for the battery storage system reference project and EUR 1.7 million per MW for hydro-pumped storage ([22]).

(44) As for the battery storage system, Italy assumed annual operating costs equal to 2.5% of the CAPEX ([23]). As for the pumped storage hydro power plant, Italy considered a value of 1.75% ([24]).

(45) For the battery reference project ([25]), in order to estimate its net revenues in the Intra-day and Day-ahead market, the Italian authorities used the results of the 2030 Italian scenario in line with the 'Fit for 55' package, developed by RSE, where the average

([17]) The Italian authorities relied on the average lifetime as reported in the study on technologies prepared by the TSO.

([18]) In line with IRENA's 2020 publication Innovative operation of pumped hydropower storage.

([19]) The Italian authorities assumed one and five years construction times, respectively, as a conservative estimate (see recital (36)).

([20]) With a debt/equity ratio of 50%, a debt rate of 6% and equity rate of 12%. These estimates are based on interviews conducted with business operators active in the industry. The WACC for the hydro pump storage project reported by the Italian authorities is conservative as, given the long lifetime of the project, the reference project carries a higher risk compared to the battery reference project. Nonetheless, for the purpose of computing the funding gap of the reference project, using such conservative assumption shows that even under conservative assumptions the reference project would not be carried out in the absence of support in the current market conditions.

([21]) Based on the average 2025 CAPEX according to the '2022 Annual Technology Baseline - ATB' of NREL.

([22]) Based on the '2022 Annual Technology Baseline - ATB' of NREL, which reports CAPEX ranging from 2 to 5.5 million Dollars per MW, since costs are very site-specific. Nevertheless, for the eligible project Italy decided to assume a conservative value of 1.7 M€/MW.

([23]) Based on the 'Annual Technology Baseline' study by NREL.

([24]) In line with the International Energy Agency ETSAP technology collaboration program, which assumed O&M costs between 1.5% and 2.5% of the CAPEX per year.

([25]) Assuming that the battery storage system of this eligible project is installed in 2025 and lives until 2035.

annual revenues are EUR 10 million per year in the first year of operation, while in the subsequent years they decrease proportionally to the degradation of the storage capacity, which in the thirteenth year reaches 60% of the initial capacity. To estimate expected revenues from the ancillary services and balancing services markets, since currently there are no large-scale battery storage systems operating in the Italian ancillary services and balancing services markets, Italy used as a proxy the revenues achieved in such markets by pumped storage hydro plants. In particular, on the basis of data concerning the bids accepted in these markets published by GME, the Italian authorities calculated the specific net revenues in 2019 (pre-Covid and pre-energy crisis year) and in 2022 of some of the main Italian pumped storage hydro plants ([26]). Based on this data, the Italian authorities selected the best-case conservative scenario of a constant revenue of EUR 150 000 per MW from the ancillary services and balancing markets.

(46) Since a pumped storage hydro plant has an expected lifetime of 40 years or more and require approximately 5 years for construction, the Italian authorities assumed that the plant of this reference project will be in operation from 2030 to 2070. Providing a robust accurate estimation of the evolution of the revenues of the plant over a such a long time span is not possible, as the power system and the related markets are expected to undergo a dramatic transformation towards the net-zero greenhouse gas emission target. Therefore, the Italian authorities assumed the same amount of revenues as the ones assumed for the battery storage system reference project, without considering degradation of the asset as was the case for batteries.

(47) The Italian authorities furthermore note that the revenue estimate is especially conservative as it considers both the highest revenue estimated for the time-shift service in the Intra-day and Day-ahead markets and the highest revenue estimated for ancillary and balancing services market, which is optimistic, since performing one service limits the possibility of performing the others.

(48) On the basis of the assumptions outlined above, the Italian authorities estimate that the NPV of the battery reference project would be EUR – 89 million and of the pumped storage hydro plant EUR – 140 million, therefore the projects would not be economically viable absent State aid.

2.6.3. Selection of beneficiaries and form of aid

(49) Beneficiaries of the measures are storage operators selected through competitive bidding processes organised periodically by the TSO.

(50) Where the eligible technologies differ significantly in terms of lifespan or construction time ([27]) (for example, batteries and hydro pumped storage), the TSO will organise separate auctions per technology and will define separate standard aid contracts in accordance with the minimum technical specifications for each eligible technology and

([26]) In order to select a representative sample, 5 plants selected were located across all regions (North, Centre, South, Sicily and Sardinia) with power ranging between 240 and 1263 MW. The revenues from ancillary services markets in the years 2019 and 2020 from these plants ranged between EUR 4887 per MW per year and EUR 143101 per MW per year and was characterised by high volatility across the two years considered, 2019 and 2020, even for the same plant. Therefore, according to the Italian authorities, the assumption made by Italy with regards to revenues from balancing services is highly conservative.

([27]) The criteria for running technology-specific auctions will be the existence of a 20% (or higher) difference in either the construction time or the lifetime of a technology. The relevant parameters (technology construction time and lifetime) will be set out in the technology study to be updated at least every 2 years.

their construction and operation time, as defined in the market study referred to in recital (33) ([28]). A first auction will be reserved to the technology with the shorter construction/operation time (battery storage) and a second auction to the technology with the longer construction/operation time (hydro pumped storage).

(51) For each eligible technology, a single tender process will be organised at national level and at lower geographical level (i.e. bidding zone) according to the following rules:

a) The TSO will define a minimum ([29]) and a maximum ([30]) storage volume to be procured at bidding zone level, as well as a maximum volume to be procured at the national level.

b) Each auction session will be preceded by a qualifying phase where bidders will provide the required documentation, which will be verified by the TSO, proving that they are eligible to participate in the tender, including the technical characteristics and capacity of the storage asset and its location.

c) Participants will bid the amount of aid they need to carry out the investment, expressed in EUR/MWh-year, subject to applicable maximum bid caps (see section 2.6.5).

d) All eligible bids, regardless of location, will be ranked from the lowest to the highest bid according to the algorithm described in section 2.6.6. Consequently, bids will be assigned to the geographical areas they are located in until the minimum volumes set at that level have been reached. If any bids on top of the minimum quantity have been placed for the respective bidding zone area, these will continue to be assigned to the respective areas until either the maximum volumes set per bidding zone or the maximum volumes set at national level has been exhausted.

(52) The Italian authorities explained that the above auction set-up is designed to provide adequate locational signals and to maximise the benefits to the system. Geographical areas will be defined at bidding zone level, but the TSO will have the possibility to run auctions at a more aggregated level if adequate locational signals are preserved.

(53) Each auction will take place after at least 180 days after the TSO publishes the relevant rules approved by the Ministry of Environment and Energy Security, at least 60 days from the publication of all the technical and economic parameters for the competitive bidding procedure and at least 60 days after the announcement of the auction.

([28]) The Italian authorities explain that the participation of significantly different technologies in the same procedure would have several drawbacks. First of all, the construction time would need to be set equal to the largest one (5 years in the example in the footnote above), which could slow down the efficient deployment of storage capacity. Secondly, having a single standard contract with the same technical parameters would increase risks borne by market participants and it would expose the system to the risk of moral hazard. For instance, a battery developer could take the risk of signing a long-duration contract significantly exceeding the lifetime of the asset.

([29]) The minimum quantity will be calculated considering different factors such as the level of over-generation in that relevant area (in other terms, the quantity of renewables installed in that area), the maximum quantity of energy that each relevant area can import from other relevant areas and the quantity of different ancillary services needed in that relevant area.

([30]) The maximum quantity will take into account the maximum quantity of energy that each relevant area can export to other areas, taking into account grid developments in the different delivery years.

(54) At the end of each auction, the TSO will publish for each auction the total capacity selected for each geographical area, the value of the highest bid accepted, as well as a weighted average of the bids awarded a contract in that respective auction.

(55) Italy confirmed that storage facilities which will be located in the territory of other Member States of the European Union (or in a third country geographically bordering Italy, with which the EU has a free trade agreement in force) will be allowed to participate in the competitive tendering process, subject to the definition of mutual agreements with the interconnected Member States concerned and the implementation of technical arrangements with the relevant TSOs in order to ensure that all beneficiaries are in condition to fulfil their obligations and comply with the same requirements as the beneficiaries located in the Italian territory.

(56) The aid takes the form of a yearly remuneration per MWh for the predefined contract duration set for the respective technology. Beneficiaries will sign the standard aid contract for the supply of electricity storage capacity ('standard contract') with the TSO, entitling them to receive the aid and requiring them to:

i) make the committed storage capacity available to third parties for the full duration of the aid contract, to enable them to exercise the time-shifting options traded on the new market platform (see also recital (13) above); and

ii) make available on the ancillary services market and on the European balancing platforms the 'residual' storage capacity left after the time-shifting options have been exercised, under the conditions described in section 2.7.

(57) Beneficiaries are exempted from the obligations referred to in recital (56) during periods of scheduled maintenance of storage capacity and during periods when the unavailability of storage capacity is due to local grid constraints and/or major force as regulated in the standard contract.

(58) The aid amount that the beneficiaries will receive will be equivalent to the bid placed and accepted in the competitive bidding procedure and will be paid in monthly instalments. Italy explained that maximum 30% of the value of the bid will be adjusted on a monthly basis to account for the impact of inflation ([31]) on the fixed operating costs (excluding depreciation).

2.6.4. Tendered capacity

(59) The amounts of new capacity to be procured in each auction are broken down according to eligible technology and geographical areas, as explained in recital (51) considering the expected evolution of the demand for electricity in the area, the production capacity from RES, the merchant storage developed outside the measure, as well as the developments of the whole electricity system ([32]).

(60) The Italian authorities confirmed that the minimum capacity to be auctioned in each competitive bidding process at bidding zone level as well as the maximum capacity to be auctioned for each technology at national level will be lower than the capacity that received permitting at the same level, so that it can be expected that not all permit

([31]) Defined with reference to the Consumer Price Index for households, workers and clerks excluding tobacco, as published by the National Statistical Institute.

([32]) Such as available transmission capacity across bidding zones and the results of the capacity mechanism auctions.

holders will receive support. Italy confirmed that in case there is only one permit holder for a given technology and geographical area for which the tendering process is organized, no auction will be run.

(61) Moreover, Italy confirmed that in case auctions are undersubscribed, the parameters (bid caps and tendered volume limits) of the subsequent auctions will be revised before the new auctions are held to restore effective competition.

(62) Specifically, the Italian authorities will introduce a volume control mechanism according to the following criteria:

i) If two consecutive tender rounds have been undersubscribed, the minimum tender volumes at the level of the geographical areas and the maximum tender volume set at national level for the subsequent tenders will be limited on the basis of the average volume awarded in the previous two rounds.

ii) The correction will be applied by the TSO only in case of an undersubscription of at least 10% in each of the two previous rounds.

(63) With regards to batteries, the Italian authorities submitted that, at the time of the notification, 27 storage plants for a total power of approximately 1400 MW have already received the authorisation ([33]), while 44 authorization procedures are still underway for a total storage capacity of approximately of 5 GW.

(64) With regards to hydro-pump storage capacity, the total hydro-pump storage capacity that can be installed in Italy is approximately of 13.6 GW, through the construction of 56 new plants ([34]). The highest concentration of potential hydro-pump storage plants is in Sardinia with 16 technically feasible plants of about 5.1 GW of total power, followed by the Basilicata Region with a potential of about 1.3 GW and Friuli-Venezia Giulia with about 1.1 GW. Four sites out of the 56 sites available are, to date, involved in a ministerial authorization procedure and another 10 are in the study and/or environmental assessment phase.

2.6.5. Determination of the bid caps

(65) As explained in recital (51), bid caps will be in place for each auction procedure.

(66) The bid cap will be determined on the basis of the investment and operating costs of storage technologies and the required remuneration of invested capital, in line with the assumptions made in the quantification of the NPV of the reference project (see section 2.6.2) and based on the market study referred to in recital (33) ([35]).

(67) The Italian authorities explained that all investments and operating costs as well as the remuneration of invested capital will be taken into account to set bid caps in this case. This is due to the fact that, under the measure, the only revenues that the beneficiaries will receive to remunerate the assets built will be those determined in the auctions, corresponding to the revenue from signing the standard contract with Terna, and the small share of revenue realised from offering services in the ancillary services market

([33]) As reported in the PNIEC 2023 2019 (updated to June 2023).

([34]) According to a study by RSE (Ricerca Sistema Energetico), '*Localizzazione e caratterizzazione di impianti di pompaggio tradizionali e marini italiani, considerando l'incidenza dell'interrimento e nuove metodologie GIS*', 2022.

([35]) The study, which will be carried out at least every two years and will be subject to a public consultation, will estimate the relevant financial parameters of the reference technologies taking into account relevant market developments.

which is not clawed back by the TSO. The latter, however, cannot be reasonably estimated by potential beneficiaries and accounted for in the determination of their bid as it is highly dependent on the behaviour of third market participants and on the optimisation of the system by the TSO, over which potential beneficiaries do not have any control. Moreover, a majority of the latter revenues realised from offering services in the ancillary services market will be subject to a claw-back clause as described in section 2.7.

(68) The bid cap will be based on the Cost of New Entry ('CONE') determined with the following formula:

$$CONE = \left[INV * \frac{WACC}{1-\left(\frac{1}{1+WACC}\right)^{n}} \right] + CFO$$

where:

INV represents the investment costs, expressed in EUR/MWh usable;

WACC is the pre-tax weighted average cost of capital for the technology;

n is the asset lifetime, expressed in number of years;

CFO represents the asset's annual fixed operating costs (excluding depreciation costs), expressed in EUR/MWh/year.

(69) The bid cap for the first auction and subsequent auctions will be defined as close as possible to the date of the auction, in order to take into account technological developments, the dynamics of financial markets and exchange rates, the evolution of raw materials markets and, more generally, of inflationary pressures (which contribute to the determination of the parameters in the formula above) to avoid unduly constraining auctions, while providing an adequate safeguard in case the auction is not competitive despite the limitation of capacity offered.

(70) An additional bid cap will be applied in the auction for the technology with the longer delivery time (i.e. hydro-pumped storage) equal to the marginal premium ([36]) determined in the first auction ([37]). The Italian authorities explain that this approach will allow to develop the technology with a longer construction time - which does not cater to the immediate needs of the system - only if it is not more costly than the most expensive technology receiving support under the first auction (i.e. the auction of the technology with shorter delivery time).

2.6.6. Valorisation mechanism

(71) As mentioned in recital (51), bids will be adjusted, only for ranking purposes (i.e. beneficiaries will receive aid based on their bid) using pre-defined coefficients accounting for potential additional energy and power services offered by the technology over the minimum technical requirements identified by the TSO. Coefficients will be communicated at least 60 working days before the auction and will be revised before each auction to account for changes in the relevant determining factors.

([36]) This represents the value of the highest bid accepted in the respective auction.

([37]) Therefore, the applicable bid cap for the auction for the technology with the longer duration will be the lower of the bid cap calculated according to the formula set out in recital (68) and the bid cap set out in recital (70).

(72) The valorisation mechanism is necessary as bids are expressed in EUR/MWh - year, however an eligible project could provide higher power than the minimum required, expressed in MW, for the same amount of energy offered. Additional power over the minimum required has beneficial effects for the system both in terms of adequacy and in terms of security. Selecting the project with a higher power for the same capacity would avoid an additional cost for the system in terms of additional power that should be available in order to keep the system adequate. Therefore, the ranking coefficients account for these additional system adequacy benefits in terms of avoided costs.

(73) This additional power has a value in Euros that can be quantified by multiplying the additional MW ([38]) offered by the project on top of the minimum required by a price that is significant from the system adequacy perspective. To determine the relevant price to be applied to quantify the value of additional power in Euros, the TSO will develop, before each auction, an adequacy assessment. The price used in the valorisation mechanism will be defined following the same rules for the determination of the bid cap as approved by the Commission for the Italian capacity market mechanism ([39]) i.e. it will be equal to the price cap for new capacity in the Italian Capacity Market auctions, which reflects the upper value of the estimated fixed costs that a new peak generation unit, that is the production technology characterized by the lowest fixed costs and the highest variable costs, would have to bear to enter the market.

(74) The coefficients used for ranking, are then calculated as follows:

$$C = \left[\frac{B \times E - V}{E}\right] / B$$

Where:

C is the ranking coefficient*;*

B is the bid cap of the auction in EUR/MWh;

E is the Energy in MWh of the storage asset offered in the auction;

V is the Value of the additional power offered by the storage asset in the auction over the minimum required.

2.7. Payback obligation and clawback clause

(75) As explained in recital (56)ii), beneficiaries will be required to make available the contracted storage capacity on the ancillary services market and on the European balancing platforms, during the entire delivery period stipulated in the aid contract.

(76) In relation to their participation in the ancillary services market and on the European balancing platforms, the beneficiaries will be subject to a payback obligation and a clawback clause as described below.

(77) First, storage providers will have the obligation to pay to the TSO an amount equal to the difference, if positive, between a reference price and a pre-determined strike price.

([38]) MW in terms of nominal power will be 'translated' into derated power, as the adequacy contribution of an asset is measured in terms of derated power. This can be done, by way of example, using the de-rating factors of the Capacity Market, which in the case of storage depend on the Energy/Power ratio. The derated power represents the expected adequacy contribution of an asset during adequacy stress events. Only the additional derated power has a value for the system. The exact de-rating factors that will be applied will be further defined by the TSO to ensure market developments are properly reflected and then approved by the Ministry of Environment and Energy Security and by the Energy Regulator.

([39]) SA.42011 (2017/N) Italy – Italian Capacity Mechanism, recitals 72 and 48.

This difference will be applied to volumes determined on the basis of the contracted storage capacity, adjusted, if necessary, in order to consider the energy constraints related to each storage plant.

(78) Italy explained that the strike price will be set, in case of upward activation ([40]) of the storage capacity, at the level of the standard hourly variable cost of the technology with the highest variable costs (i.e. peak technology) which currently is a gas-fired open cycle turbine ('OCGT') with a capacity between 50 and 150 MW ([41]). In case of downward activation, the strike price will be equal to 0 EUR/MWh.

(79) The reference price referred to in recital (77) will be defined as a function of the price of the Italian ancillary services market and of the European platforms. The Italian authorities provided an overview of the main principles of the methodology for setting the reference price as follows:

(80) The upward reference prices ([42]) will be defined as a function of upward Italian ancillary services market and European platforms prices, namely:

a) in case of upward quantity accepted on the Italian ancillary services market, the upward reference price will be equal to the offered price;

b) in case of upward quantity accepted on the European platforms, the upward reference price will be equal to the marginal price of the European platform where the quantity is accepted;

c) in case of upward quantity offered but not accepted on the Italian ancillary services market, the upward reference price will be equal to the offered price;

d) in case of upward quantity offered but not accepted on the European platforms, the upward reference price will be equal to the offered price;

e) in case of upward quantity not offered either on the Italian ancillary services market or on the European platforms, if the electricity system is adequate, the upward reference price will be defined as a function of the maximum upward Italian ancillary services market price and the European platforms marginal prices;

f) in case of upward quantity not offered either on the Italian ancillary services market or on the European platforms, if the electricity system is inadequate, the upward reference price will be defined on the basis of the value of lost load.

(81) The downward reference prices will be defined as a function of downward Italian ancillary services market and European platforms prices, as follows:

a) in case of downward quantity accepted on the Italian ancillary services market, the downward reference price will be equal to the offered price;

([40]) Upward (Downward) activation, refers to the situation in which an electricity storage asset offers to release (absorb) electricity in the system, helping the TSO to balance demand and supply.

([41]) Italy explained that a similar approach is applied in the current Italian capacity market mechanism.

([42]) Upward (Downward) reference price refers to the reference price associated to offering upward (downward) activation services.

b) in case of downward quantity accepted on the European platforms, the downward reference price will be equal to the marginal price of the European platform where the quantity is accepted;

c) in case of downward quantity offered but not accepted on the Italian ancillary services market, the downward reference price will be equal to the offered price;

d) in case of downward quantity offered but not accepted on the European platforms, the downward reference price will be equal to the offered price;

e) in case of downward quantity not offered either on the Italian ancillary services market or on the European platforms, the downward reference price will be defined as a function of the minimum downward Italian ancillary services market price and the European platforms marginal prices.

(82) The detailed methodology for determining the strike price and the reference price will be published by the TSO before each auction.

(83) Italy explained that the payback obligation applies regardless of whether a storage owner has offered its capacity on the Italian ancillary services markets or on the European platforms and therefore provides economic incentives to make available the respective capacities on the market. The payback obligation also constitutes a penalty for the beneficiaries that fail to offer the contracted capacity in the Italian ancillary services market or the European platforms, since they will have to pay to the TSO the difference between the reference price and the strike price, even though they have not received the reference price.

(84) The Italian authorities indicated that the payback obligation may be subject to a stop loss clause to ensure that the payback obligation which may be due, for instance, to the unavailability of the storage capacity, shall not exceed, on a yearly basis, a multiple of the bid cap.

(85) Second, Italy explained that the beneficiaries will be able to derive margins from offering their services on the Italian ancillary services market and the European platforms (i.e. below the strike prices for upwards and downward activations). However, since they are not expected to be able to forecast and factor in these potential margins in their bids due to the reasons reported in recital (67), it is necessary to introduce a claw-back mechanism in relation to these revenues in order to avoid the overcompensation of aid beneficiaries. The TSO will therefore claw-back [43] a predefined percentage (between 80% and 95%) of the positive margins obtained by the beneficiaries from offering on the Italian ancillary services market and the European platform.

(86) The proceeds obtained from the payback obligation and the clawback mechanism will be used by the TSO exclusively for financing the measure.

(87) The Italian authorities confirm that the measure will comply with the energy market regulations, in particular with the requirements set out in Regulation (EU)

([43]) The TSO will design the clawback with a view to maintaining incentives for the beneficiaries to participate efficiently in the market, minimising their costs and developing their business in a more efficient manner over time.

2019/943, Article 3(b), 6 and 10 of the Regulation in relation to free price formation and Directive (EU) 2019/944.

(88) Italy has also confirmed that the supported activity, the scheme and the conditions attached to it, including its financing method, entail no violation of relevant Union law.

2.8. Cumulation

(89) Italy confirmed that beneficiaries cannot receive financing from other public sources for the same eligible costs, under the penalty of the termination of the financing contract and the reimbursement of the aid amounts already received (with interests) (see also recital (31)iv)).

2.9. Transparency and monitoring

(90) Italy committed to comply with the transparency requirements laid down in points 58 to 61 of the Commission's Guidelines on State aid for climate, environmental protection and energy 2022 ('CEEAG') ([44]). The relevant data of the measure will be published on a national website that will link to the Commission's transparency register ([45]).

(91) In addition to the publication in the Commissions transparency register and in accordance with Italian law and the provisions of points 58 to 61 CEEAG. The relevant data of the notified measure will be published on the Italian State Aid Register ([46]).

2.10. Companies in difficulty and under recovery order

(92) Undertakings in difficulty as defined by the Commission Guidelines on State aid for rescuing and restructuring non-financial undertakings in difficulty ([47]) are excluded from the scheme.

(93) For undertakings subject to outstanding recovery orders following a previous Commission decision declaring an aid illegal and incompatible with the internal market, access to the scheme is not allowed.

2.11. Evaluation plan

(94) The Italian authorities notified, together with the measure, an evaluation plan, taking into account the best practices recalled in the Commission 2014 Staff Working Document on a Common methodology for State aid evaluation. The main elements of the evaluation plan are described below.

(95) The evaluation plan describes the objectives of the measure and comprises evaluation questions that, through both quantitative and qualitative analysis, address the direct and indirect effects of the measure, as well as its proportionality and appropriateness.

([44]) Communication from the Commission – Guidelines on State aid for climate, environmental protection and energy 2022, C/2022/481 (OJ C 80, 18.2.2022, p. 1).

([45]) Accessible here: https://webgate.ec.europa.eu/competition/transparency/public?lang=en

([46]) https://www.rna.gov.it/sites/PortaleRNA/it_IT/home; https://www.gse.it/trasparenza/sovvenzioni-contributi-sussidi-vantaggi-economici; https://www.gazzettaufficiale.it/.

([47]) Communication from the Commission — Guidelines on State aid for rescuing and restructuring non-financial undertakings in difficulty (OJ C 249, 31.7.2014, p. 1).

(96) The questions addressing the direct effect of the aid will mainly investigate the scheme's contributions to: resolving the market failure with regard to the development of new electricity storage capacity; the promotion of energy storage development; reducing the risk of over-generation of renewable electricity; the impact of the aid on beneficiaries in different geographical areas.

(97) A set of questions will address the indirect effects of the aid on: the use of storage facilities in energy markets; economic growth; employment; development of a national industrial sector; environmental benefits; contribution to the adequacy needs, as well as the appropriateness and proportionality of the aid.

(98) The evaluation plan describes the result indicators that will be used to measure the degree of achievement of the measure's objectives in relation to the evaluation questions, and the methodology to be used to determine the impact of the measure.

(99) Italy considers that, given the characteristics of the scheme, it is unlikely that projects will be carried out without aid, which jeopardises the possibility of establishing a control group based on projects carried out in absence of support. Italy considers that the most suitable methodology to be applied for the purpose of the evaluation of the effectiveness of the aid scheme might be quasi-experimental approaches such as the Regression Discontinuity Design ('RDD') or the Difference-in-Differences ('DID'). These methods, however, require the identification of an appropriate control group and the collection of sufficient data. Therefore, direct and indirect effects, additionality and proportionality will be analysed using indicators developed from data collected mainly from aid beneficiaries at the time of the application for the aid and then annually during the management of the aid scheme. Any other useful data may also be collected through surveys targeting, for example, trade associations. Data from official statistics on renewable energy are also important to have a complete picture of the new installations of storage systems implemented after the entry into force of the mechanism.

(100) Italy will also evaluate the effectiveness and competitiveness of the auctions, the volume tendered, the number of participants, the size of the projects, the capacity allocated in relation to the available quotas, and the socio-economic impacts. The impact of the aid on the consumer's energy bills will be assessed using a specific methodology to analyse the evolution of the energy bill before and after the entry into force of the aid scheme.

(101) The assessment will be carried out by an independent body (consultant) selected by the Ministry of the Environment and Energy Safety based on the criteria in the Legislative Decree 8 November 2021, n. 210, art. 18. The evaluation body will be selected on the basis of: independence and absence of conflict of interest with the beneficiary and the Ministry, experience in evaluating projects and operations. The data necessary for the assessment of the direct and indirect effects and of the proportionality and appropriateness of the measure will be collected mainly from the beneficiaries of the aid, by the TSO and the GME at the time of the aid application and then annually during the management of the measure. Secondly, any other useful data may also be collected through surveys, for example, addressed to trade associations. The data collection process from aid beneficiaries will be managed on the basis of their obligation to provide data for the management and monitoring of the mechanism. The data collected will be subject to the appropriate aggregated statistical analyses provided by the National Statistical Institute. For specific analyses of the impact of the measure on the

energy and services markets, the Energy Services Manager – GSE S.p.A. and its subsidiary Research on the Energy System – RSE S.p.A. will also be involved.

(102) An interim report will be submitted to the Commission at the end of 2025, presenting descriptive statistics on the aid already granted and verifying the actual suitability of the foreseen methodology, including assessment of the impact on the capacity market auction. The final evaluation report will be submitted at the latest nine months before the expiry of the scheme, by the 31 March 2032.

(103) The evaluation plan and the evaluation reports will be published on the website of the Ministry of Environment and Energy Security.

3. ASSESSMENT OF THE MEASURE

3.1. Existence of State aid within the meaning of Article 107(1) TFEU

(104) Article 107(1) TFEU states that *'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, shall, in so far as it affects trade between Member States, be incompatible with the common market'*.

(105) For a measure to be categorised as aid within the meaning of Article 107(1) TFEU, all the conditions set out in that provision must be fulfilled. First, the measure must be imputable to the State and financed through State resources. Second, it must confer an advantage on its recipients. Third, that advantage must be selective in nature. Fourth, the measure must distort or threaten to distort competition and affect trade between Member States.

(106) The Italian authorities do not contest the qualification of the measure as State aid within the meaning of art. 107(1) TFEU and has notified it for approval by the Commission.

3.1.1. Imputability

(107) The measure and its parameters are provided in national legislation, more precisely in the Legislative Decree no. 210 of 8 November 2021 (see recital (20)). The measure and the mechanism to finance the measure are developed by the Italian authorities, as the TSO's proposal for the operating rules of the measure will be approved by a Decree of the Ministry of Environment and Energy Security.

(108) As stated in section 2.3, Italy has appointed the TSO, a privately-owned undertaking, to administer the measure including the mandatory contribution imposed on the customers that will cover in part the costs of the measure. The fact the TSO is a privately owned undertaking (see recital (23)) does not change the conclusion in recital (109) as the TSO will administer the measure under the supervision of ARERA and the Ministry for Ecological Transition and will carry out tasks entrusted to it by the Italian State.

(109) On the basis of the above elements, the Commission concludes that the scheme is imputable to the Italian State.

3.1.2. Existence of State resources

(110) For a measure to amount to aid within the meaning of Article 107(1) TFEU, it has to be granted directly or indirectly through State resources. The concept of 'intervention

through State resources' covers not only measures which are granted directly by the State, but also those granted through a public or private body appointed or established by the State to administer that measure ([48]). In this sense, Article 107(1) TFEU covers all the financial means by which the public authorities may actually support undertakings, irrespective of whether those means are permanent assets of the public sector ([49]).

(111) The mere fact that the measure is not financed directly from the State budget is not sufficient to exclude State resources being involved. It follows from the case law of the Union Courts that it is not necessary to establish that there has been a transfer of money from the budget or from a public entity for the advantage granted to one or more undertakings to be capable of being recognised as State aid within the meaning of Article 107(1) TFEU ([50]). It is sufficient that they remain under public control ([51]).

(112) The originally private nature of the resources does not prevent them from being regarded as State resources within the meaning of Article 107(1) TFEU ([52]). Hence, the mere fact that a measure benefiting certain economic operators in a given sector is partially financed by contributions imposed by the public authority and levied on the undertakings concerned is not sufficient to take away from that measure its status of aid granted by the State within the meaning of Article 107(1) TFEU ([53]).

(113) State resources are present in particular where the Member State finances a measure by introducing a compulsory measure (e.g. a surcharge) to be paid by companies or by consumers ([54]). In particular, the judgments in *Covestro* and *FVE Holýšov*, have clarified that it is irrelevant for the presence of State resources whether the entity that collects the receipts of the compulsory measure is State-owned or private or whether the compulsory measure is imposed on intermediary actors, such as electricity suppliers, or final consumers.

(114) In the present case, it should be observed that, in line with the case law cited above, the measure involves State resources as is demonstrated below.

(115) As explained in recital (28), the measure will be financed first from revenues from the selling of time-shifting options collected by GME and transferred to the TSO as well as from the proceeds from the payback obligation and the clawback of revenues

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([48]) Judgment of 22 March 1977, Steinike & Weinlig v Germany, 76/78, EU:C:1977:52, paragraph 21; judgment of 13 March 2001, PreussenElektra, C-379/98, EU:C:2001:160, paragraph 58; judgment of 30 May 2013, Doux Elevage and Cooperative agricole UKL-ARREE, C-677/11, EU:C:2013:348, paragraph 26; judgment of 19 December 2013, Association Vent de Colère!, C-262/12, EU:C:2013:851, paragraph 20; judgment of 17 March 1993, Sloman Neptun, C-72/91 and C-73/91, EU:C:1993:97, paragraph 19; judgment of 9 November 2017, Commission v TV2/Danmark, C-656/15 P, EU:C:2017:836, paragraph 44.

([49]) Judgment of 30 May 2013, Doux Elevage and Cooperative agricole UKL-ARREE, C-677/11, EU:C:2013:348, paragraph 34; judgment of 27 September 2012, France v Commission, T-139/09, EU:T:2012:496, paragraph 36; judgment of 19 December 2013, Association Vent de Colère!, C262/12, EU:C:2013:851, paragraph 21.

([50]) See judgment of 16 May 2002, France v Commission, C-482/99, EU:C:2002:294, paragraph 36; judgment of 17 July 2008, Essent Netwerk Noord and Others, C-206/06, EU:C:2008:413, paragraph 70; judgment of 19 December 2013, Association Vent De Colère!, C-262/12, EU:C:2013:851, paragraphs 19 to 21 and judgment of 13 September 2017, ENEA, C-329/15, EU:C:2017:671, paragraph 25, and judgment of 19 March 2013, Bouygues Telecom v Commission, C-399/10 P and C401/10 P, EU:C:2013:175, paragraph 100

([51]) Judgment of 16 May 2002, *France* v *Commission*, C-482/99, EU:C:2002:294, paragraph 37.

([52]) See judgment of 12 December 1996, *Air France* v *Commission*, T-358/94, EU:T:1996:194, paragraphs 63 to 65.

([53]) Judgment of 27 September 2012, *France* v *Commission*, T-139/09, EU:T:2012:496 paragraph 61.

([54]) See, most recently, judgment of 6 October 2021, *Covestro Deutschland* v *Commission*, T-745/18, EU:T:2021:644, paragraphs 95 to 97 and 118 to 119, and judgment of 16 September 2021, FVE Holýšov I s. r. o. v Commission,C-850/19 P, EU:C:2021:740, paragraph 46.

obtained by the beneficiaries on the balancing market. These revenues are used by the TSO to provide aid to the selected beneficiaries, in the form of a yearly remuneration per MWh for the duration of the aid contract.

(116) Italy controls and approves the mechanism for collecting and allocating the funds at issue, the TSO acting as an intermediary in the execution of that mechanism, which is regulated by State provisions. Therefore, this aid is wholly or partially financed from revenues flowing to an authority which acts on behalf of the State, based on requirements deriving from national law, and which are paid by undertakings that procure time-shifting options or balancing services on the ancillary services market or on the European platforms. It follows that these revenues received or clawed back by the TSO remain under its control and cannot be used for purposes other than those provided by the law, being exclusively allocated to the objectives of the measure.

(117) Therefore, it can be concluded that the revenues from the selling of the time-shifting options and those obtained by the beneficiaries from the selling of balancing services and clawed-back by the TSO amount to State resources within the meaning of Article 107(1) TFEU, because the State exercises control over them.

(118) As set out is recital (29), the third source of financing of the measure will be a levy imposed and required by law and levied by the TSO on purchasers on the wholesale electricity market, in proportion to the electricity consumed (see recital (29) iii)). The TSO has no discretion in this respect and is obliged by law to levy the contribution, which amounts to a payment obligation imposed on the purchasers on the wholesale market. It therefore follows that the levy constitutes a compulsory surcharge, which as explained in recital (113), is sufficient to prove the presence of State resources.

(119) Italy controls the mechanism for collecting and allocating the funds at issue, the TSO acting as mere intermediary in the execution of that mechanism, which is regulated in its entirety by State provisions.

(120) Accordingly, also the contributions levied on the purchasers on the wholesale market can be deemed State resources within the meaning of Article 107(1) TFEU.

(121) In view of the above, all three modes of financing the measure, i.e. from the income from the sale of the time-shifting options and from the payment obligation and clawback of revenues on the balancing market, as well as the contributions levied on the wholesale market purchasers can be deemed State resources within the meaning of Article 107(1) TFEU.

3.1.3. Existence of a selective advantage

(122) 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, that is to say in the absence of State intervention. Article 107(1) TFEU also requires that a measure, in order to constitute State aid, is selective in the sense that it favours 'certain undertakings or the production of certain goods' ([55]).

(123) The Commission notes that the measure will provide an economic advantage to the beneficiaries, as they will obtain aid to build storage facilities, which they would not

([55]) See order of 22 October 2014, *Elcogás*, C-275/13, not published, EU:C:2014:2314, paragraph 30, judgment of 15 May 2019, *Achema*, C-706/17, EU:C:2019:38, paragraph 68.

have obtained under normal market conditions, i.e. in the absence of the State intervention.

(124) The measure is selective since it is provided only to certain beneficiaries, which are selected via a tender process, and is not accessible to all undertakings.

(125) Therefore, it follows that the support under the measure confers a selective advantage within the meaning of Article 107(1) TFEU.

3.1.4. Impact on competition and on trade between Member States

(126) In accordance with settled case law ([56]), for a measure to impact competition and trade, it is sufficient that the recipient of the aid competes with other undertakings on markets open to competition.

(127) The electricity market has been liberalised and electricity producers (and storage operators) engage in trade between Member States. The electricity stored by the beneficiaries of the measure will generally be sold on the market where it will enter in competition with electricity from different sources (such as electricity from RES and conventional sources). Moreover, the Italian market is interconnected to seven countries, Switzerland, France, Austria, Slovenia, and Greece, Malta, and Montenegro, as well as coupled with other markets via the European day ahead market coupling ([57]) and the PICASSO platform ([58]). Therefore, the advantage granted to the beneficiaries of the measure is likely to distort competition and affect trade between Member States.

3.1.5. Conclusion regarding existence of State aid

(128) Based on the above considerations, the Commission concludes that the measure constitutes State aid within the meaning of Article 107(1) TFEU.

3.2. Lawfulness of the aid

(129) By notifying the measure before its implementation (see recital (20)i) above), the Italian authorities have respected the notification and standstill obligation laid down in Article 108(3) TFEU.

3.3. Compatibility of the aid

3.3.1. Legal basis for assessment

(130) Article 107(3), point (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 a certain economic activity ([59]). Furthermore, the aid should not distort competition in a way contrary to the common interest.

([56]) Judgment of 30 April 1998, *Het Vlaamse Gewest* v *Commission*, T-214/95, EU:T:1998:77.

([57]) https://www.entsoe.eu/network_codes/cacm/implementation/sdac/

([58]) https://www.entsoe.eu/network_codes/eb/picasso/

([59]) Judgment of 22 September 2020, *Austria v Commission*, C-594/18 P, EU:C:2020:742, paragraphs 20 and 24.

(131) The Commission notes that the measure aims to support the development of stand-alone electricity storage systems connected to the transmission and distribution grid, which qualify as energy storage facilities under point 19(33) CEEAG. According to point 377 CEEAG, section 4.9 CEEAG also applies to energy storage facilities, connected to transmission or distribution lines irrespective of the voltage levels, for schemes approved no later than 31 December 2023.

(132) The Commission has therefore assessed the compatibility of the measure on the basis of the general compatibility provisions of the CEEAG (set out in section 3 CEEAG), where applicable, and the specific compatibility criteria for aid for energy infrastructure (section 4.9 CEEAG).

3.3.2. Positive condition: the aid must facilitate the development of an economic activity

3.3.2.1. Identification of the economic activity, which is being facilitated by the measure, its positive effects for society at large and, where applicable, its relevance for specific policies of the Union

(133) In line with points 23 to 25 CEEAG, Member States must identify the economic activities that will be facilitated as a result of the aid and describe if and how the aid will contribute to the achievement of Union policies and targets.

(134) The Commission notes that the measure aims at promoting the establishment of electric storage facilities. It thus contributes to the development of a certain economic activity. The Commission also notes that the measure will allow the feasibility of the supported projects, which would not have taken place in the absence of the aid (see section 2.6.2).

(135) Moreover, the promotion of the development of electricity storage is in line with Italy's NECP (see recitals (8) and (9)). The measure will help Italy reach its objectives related to the reduction of greenhouse gas emissions, in line with the Fit for 55 package (recital (5)), as it will enable the smooth integration of a higher level of penetration of RES in the Italian electricity system with a reduced level of curtailments (see recitals (6) to (9)).

(136) The measure will thus contribute to Italy's decarbonisation process and, at the same time, contribute to a smooth operation of the electricity system during the latter's transition towards the extensive use of RES. In this context, the measure will also contribute to the attainment of the Union targets of reduction of greenhouse gas emissions by 2030 and towards a climate neutral Union by 2050.

(137) The measure will also provide a number of additional services and benefits to the electricity system, including flexibility, adequacy, and ancillary services. In addition, storage facilities enhance market liquidity, particularly in the balancing markets, supporting competitiveness and transparent price formation, and contribute to reduce the prices of balancing services (see recital (7)).

(138) Considering the above, the Commission concludes that the measure contributes to the development of economic activities of electricity storage, as required by Article 107(3), point (c), TFEU, in a manner that improves the RES penetration in Italy and also has other positive effects on the Italian electricity system.

3.3.2.2. Incentive effect

(139) According to point 26 CEEAG, aid can be considered as facilitating an economic activity only if it has an incentive effect. An incentive effect occurs when the aid induces the beneficiary to change its behaviour, to engage in additional economic activity or in more environmentally-friendly economic activity, which it would not carry out without the aid or would carry out in a restricted or different manner. The aid must not support the costs of an activity that the aid beneficiary would anyhow carry out and must not compensate for the normal business risk of an economic activity (point 27 CEEAG).

(140) To demonstrate the presence of an incentive effect, point 28 CEEAG requires the identification of the factual scenario and the likely counterfactual scenario in the absence of aid. For aid to infrastructure, the counterfactual scenario is presumed to be the situation in which the project would not take place (point 381 CEEAG). Furthermore, point 28 CEEAG sets out that the incentive effect is to be demonstrated through a quantification referred to in Section 3.2.1.3 CEEAG.

(141) Italy submitted that, in the absence of aid, investors would not have the appropriate incentives to undertake the material investments required for the establishment of the required storage capacity (see recital (38)). The analysis provided by Italy shows that without the aid measure, the storage facilities would not be constructed, because the expected market revenues do not suffice to ensure viability of the storage projects, leading to a negative NPV (see section 2.6.2). Therefore, absent the measure the aid storage facilities could not materialise and contribute to ensure stable RES integration and provide benefits to the electricity system.

(142) Furthermore, the Commission notes that the aid application, required in point 30 CEEAG, will be in the form of a bid in the tender process that Italy will carry out for the selection of the beneficiaries (see recitals (37) and (49)).

(143) Italy also confirmed that no aid will be granted in cases where the start of works on the project took place prior to the aid application by the beneficiary to the national authorities, i.e. prior to the submission of the bid, in line with point 29 CEEAG (see recital (37)).

(144) Taking into account the above considerations, it can be concluded that the measure has an incentive effect, as it induces the beneficiaries to engage in an economic activity that they would not carry out without the aid or would carry out in a restricted or different manner.

3.3.2.3. No breach of any relevant provision of Union law

(145) According to point 33 CEEAG, if the supported activity, or the aid measure or the conditions attached to it, including its financing method when it forms an integral part of the measure, entail a non-severable violation of relevant Union law, the aid cannot be declared compatible with the internal market.

(146) In the present case, Italy confirmed that the proposed measure does not by itself, or by the conditions attached to it or by its financing method constitute a non-severable violation of Union law (see recital (87)).

(147) In particular, Italy confirmed that the beneficiaries will be subject to the energy market regulations and will notably comply with the requirements set out in Regulation (EU) 2019/943 and Directive (EU) 2019/944 (e.g. excluding system operators from owning, developing, managing or operating energy storage facilities).

(148) The Commission notes that any levy that has the aim of financing a State aid measure and forms an integral part of that measure needs to comply in particular with Article 30 and 110 TFEU ([60]).

(149) According to settled case law, for a levy to be regarded as forming an integral part of an aid measure, it must be hypothecated to the aid under the relevant national rules, in the sense that the revenue from the charge is necessarily allocated for the financing of the aid and has a direct impact on the amount of the aid and, consequently, on the assessment of the compatibility of that aid with the common market ([61]). In particular, the charge at issue must be levied specifically and solely for the purpose of financing the aid at issue and must be necessarily allocated or wholly and exclusively allocated for the purpose of financing the aid at issue ([62]).

(150) In the present case, the scheme will be partly financed by a levy (see recital (28) iii)), which will be imposed, through a legislative act, upon wholesale market purchasers, proportional to electricity consumption.

(151) As the Commission cannot exclude the existence of a hypothecation link between the levy and the aid awarded, the Commission has examined its compliance with Articles 30 and 110 TFEU.

(152) According to the case law ([63]), a charge which is imposed on domestic and imported products according to the same criteria may nevertheless be prohibited by the Treaty if the revenues from such a charge are used to support activities which specifically benefit the taxed domestic products. Such a charge would include a levy if the advantages which those domestic products enjoy wholly offset the burden imposed on them, the effects of that charge are apparent only with regard to imported products and that charge constitutes a charge having equivalent effect to custom duties, contrary to Article 30 TFEU. If, on the other hand, those advantages only partly offset the burden borne by domestic products, the charge in question constitutes discriminatory taxation for the purposes of Article 110 TFEU and will be contrary to this provision as regards the proportion used to offset the burden borne by the domestic products.

(153) In line with its decisional practice ([64]), the Commission considers that the opening of the competitive bidding process to storage facilities owners from other Member States

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([60]) Judgment of 17 July 2008, Essent Netwerk Noord and Others, C-206/06, EU:C:2008:413, paragraphs 40 to 59. For the application of Articles 30 and 110 TFEU to tradable certificates schemes, see Commission Decision C(2009)7085 of 17.9.2009, State aid N 437/2009 — Aid scheme for the promotion of cogeneration in Romania (OJ C 31, 9.2.2010, p. 8), recitals 63 to 65.

([61]) See judgment of 22 December 2008, Régie Networks v Rhone Alpes Bourgogne, C-333/07, EU:C:2008:764, paragraph 99 and case law cited.

([62]) See judgment of 22 December 2008, Régie Networks v Rhone Alpes Bourgogne, C-333/07, EU:C:2008:764, paragraphs 99 and case law cited.

([63]) Joined Cases C-128/03 and C-129/03 AEM, EU:C:2005:224; Case C-206/06 Essent, EU:C:2008:413, paragraph 42.

([64]) See Commission Decision of 20 December 2021 in State Aid SA.58731 (2020/N) – Austria – Operating aid to electricity from RES in Austria, section 3.3.4; Commission Decision of 29 April 2021 in State Aid SA.57779 (2020/N) – Germany - EEG 2021, section 3.3.1.3; Commission Decision of 24 November 2021 in State aid SA.60064 (2021/N) – Greece - Greek RES and CHP scheme 2021-2025, section 3.3.12; Commission decision of 23 April 2019 in State Aid SA.50199

and neighbouring countries, as described in recital (55), remedies any potential discrimination against providers of electricity storage services in other Member States under Articles 30 and 110 TFEU.

(154) Based on the information provided by the Italian authorities, the Commission has no indications of a possible breach of any relevant provision of Union law that would prevent the notified measure from being declared compatible with the internal market. Therefore, the Commission considers that the requirements of point 33 CEEAG are fulfilled.

3.3.2.4. Conclusion

(155) The Commission therefore concludes that the measure fulfils the first (positive) condition of the compatibility assessment, i.e. that the aid facilitates the development of an economic activity pursuant to the requirements set out in Section 3.1 CEEAG.

3.3.3. Negative condition: the aid measure must not unduly affect trading conditions to an extent contrary to the common interest

3.3.3.1. Minimisation of distortions of competition and trade

(156) The measure affects mainly the electricity market in Italy, notably the day-ahead, intraday and balancing markets, where several suppliers are in competition with each other. The measure might also affect the electricity markets in neighbouring countries, in view of the cross-borders interconnections.

3.3.3.1.1. Necessity of the aid

(157) In order to demonstrate the necessity of the measure, it has to be established that the measure is targeted towards a situation where aid can bring about a material improvement, which the market alone cannot deliver.

(158) The Commission recognised in point 372 CEEAG that where market operators cannot deliver the infrastructure needed, State aid may be necessary in order to overcome market failures and ensure that the Union's considerable infrastructure needs are met. In the present case, without the measure, the necessary investments in storage facilities would not take place within the required timeframe and the storage needs of the Italian electricity system would not be fulfilled (see recital (9)).

(159) Energy infrastructure is typically financed through user tariffs and the granting of State aid is a way to overcome market failures that cannot be fully addressed by means of compulsory user tariffs. However, this is not the case for electricity storage facilities (points 379 and 380 CEEAG), for which points 380(a) and (b) CEEAG are not applicable. According to point 380(c) CEEAG, in order to demonstrate the need for State aid for electricity storage facilities, the Commission may require the demonstration by the Member State of a specific market failure in the development of facilities to provide similar services.

(2019/N) – Lithuania Support to power plants producing electricity from renewable energy sources, section 3.4.1; Commission decision of 29 March 2019, in Aide d'État SA.48601 (2018/N) – Luxembourg Production d'électricité basée sur les sources d'énergie renouvelables, modification du régime de soutien pour les énergies renouvelables au Luxembourg, section 3.3.8; Commission decision of 24 October 2014 in State aid No SA.36204 (2013/N) – Denmark Aid to photovoltaic installations and other renewable energy installations, section 3.4.

(160) The Commission notes that, based on Italy's analysis of the Italian electricity market, in the absence of a support scheme, the market revenues generated by storage projects would not suffice to ensure their viability, leading to a negative NPV (see section 2.6.2). It follows that in absence of the measure, the necessary investments in storage facilities would not take place and the storage needs of the Italian electricity system would not be achieved, with the result that Italy may run a high risk of not being able to completely dispatch the growing production from renewable sources during their peak production. So far, there have been limited investments in Italy in battery storage facilities. This indicates the existence of a specific market failure, due to a lack of coordination between investors in RES generation capacity and storage systems, as well as a lack of predictability and market volatility (see recital (9)). State aid is thus necessary to bridge the funding gap of the storage projects and promote the development of the required storage capacity, which will allow the material increase in RES penetration levels anticipated in the coming years.

(161) In addition, the need for the development of additional storage capacities was also identified in Italy's 2023 NECP to facilitate the integration of increasing capacities of renewable energy by 2030.

(162) The Commission therefore concludes that the measure is necessary for the development of storage facilities in Italy.

3.3.3.1.2. Appropriateness

(163) The proposed aid measure must be an appropriate policy instrument to achieve the intended objective of the aid, that is to say there must not be a less distortive policy and aid instrument capable of achieving the same results.

(164) The Commission recalls that, according to point 380 CEEAG, the granting of State aid is a way to overcome market failures that cannot be fully addressed by means of compulsory user tariffs, in the case of infrastructure investments. Unlike classical energy infrastructure, pursuant to Article 54 of Directive 2019/944, storage is not part of the asset base for transmission or distribution system operators. As such, it cannot be financed by general transmission or distribution tariffs.

(165) The Commission notes that the measure will offer short-term flexibility to the Italian electricity system, by providing storage capacity in the form of standardised time-shifting products traded via the Italian power market exchange to support the enhanced penetration of intermittent RES sources (see recitals (17) and (18)). The measure will allow traders, utilities, and RES producers to decrease their exposure to price variability by acquiring and using the time-shifting options and allows the TSO to optimise the utilisation of the centralised storage system.

(166) The storage assets supported under the measure will also be required to make the residual storage capacity and electricity available on the ancillary services and balancing market, thereby contributing to the liquidity of these markets (see recital (19)).

(167) The Commission notes that, based on the information provided by the Italian authorities, under normal market conditions, market investors would not invest in storage projects without aid due to the significant funding gap (see recital (38)). Therefore, in the absence of the aid, investors would not have the appropriate incentive

to undertake the material investments required for the establishment of the required storage capacity and the benefits of the schemes would not materialise.

(168) For the reasons outlined above, the Commission considers that aid in the form of a yearly remuneration constitutes an appropriate instrument to bring the projects forward.

3.3.3.1.3. Proportionality and cumulation

(169) Aid is considered to be proportionate if its amount per beneficiary is limited to the minimum needed for carrying out the aided project or activity (point 47 CEEAG).

(170) According to point 381 CEEAG, proportionality is assessed on the basis of the funding gap principle, as set out in points 48, 51, and 52 CEEAG. Point 48 CEEAG explains that aid will be considered as limited to the minimum needed for carrying out the aided project or activity, if its amount corresponds to the net extra cost ('funding gap') necessary to meet the objective of the aid. Point 51 clarifies how the funding gap must be calculated, where aid is not granted under a competitive bidding process. At the same time, point 49 CEEAG sets out that a detailed assessment of the funding gap will not be required if the aid amounts are determined through a competitive bidding process, because that process provides a reliable estimate of the minimum aid amount required by potential beneficiaries. Point 49 CEEAG further details the criteria that the bidding process must meet so that the aid determined through that process is deemed proportional and point 50 CEEAG establishes guiding principles for the selection criteria used for the ranking of bids in the bidding process.

(171) The Commission notes that, in the present case, the amount of aid to the beneficiaries will be established through a competitive bidding process and will take the form of a yearly remuneration per MWh for the duration of the aid contract. Thus, in order to assess proportionality in the present case, it is necessary to assess the bidding process and its compliance with the criteria described in points 49 and 50 CEEAG.

(172) First, the Commission considers that the eligibility criteria are clear, objective, defined ex-ante, and non-discriminatory in view of the objectives of the scheme, which are to prepare the Italian electricity system for increasing level of penetration of RES electricity and to make it more flexible.

(173) The Commission notes that tenders will be open to all participants that satisfy the eligibility criteria (see recitals (31) and (32)).

(174) In relation to the eligible technologies that can participate in the auction, the Commission positively notes that the Italian TSO will update the study identifying eligible technologies, which will be approved by the Italian Regulator ARERA, at least every two years to ensure that new technologies that meet the minimum criteria throughout the duration of the measure will be eligible in subsequent auctions (see recital (33)).

(175) As explained in section 2.6.3, each tendering procedure will be carried out for the eligible technologies at the bidding zone or more aggregate geographical level through linked auctions, subject to specific bid caps (see section 2.6.5) and volume limitations (see section 2.6.4).

(176) The Commission found that Italy has sufficiently justified that a single process open to all eligible beneficiaries and across all bidding zones would lead to a sub-optimal result.

In particular, auctions held at the bidding zone level will allow the Italian authorities to define storage capacity needs at a sub-national level and thereby provide adequate locational signals, maximising the benefits to the system. Carrying out a single auction at national level would lead to a suboptimal result and delay the achievement of the objectives of the measure. Separate auctions for the eligible technologies are justified by significant differences in either construction time or operation time (see recital (50)) and the respective parameters are reviewed regularly to account for market developments (see recital (33)). Furthermore, a single auction for technologies that have different costs may lead to strategic bidding from the cheapest technology. Therefore, the Commission considers that limiting the geographical level to the bidding zone level and holding separate linked auctions for different technologies does not constrain the bidding process, which remains open and non-discriminatory, as it is justified by the need to achieve the objectives of the measure and to minimise the risk of strategic bidding, in line with point 49(a) CEEAG.

(177) The Commission also notes that Italy has decided to set bid caps to reduce the risk of overcompensation of the cheapest eligible technologies and considers that the bid caps should not unduly restrict the auctions given the methodology that will be used to calculate them, which will take into account all relevant investments and operating costs as well as the remuneration of invested capital needs. Furthermore, the bid caps imposed on storage technologies with longer construction time will allow to develop the respective technology only if they are not more costly than the most expensive reference technology with shorter construction time receiving support (see recital (70)). Finally, as explained by the Italian authorities, before each new auction the bid cap will be revised as close as possible to the date of the auction to take into account technological developments and inflationary pressures to avoid unduly constraining auctions, while providing an adequate safeguard in case the auction is not competitive despite the limitation of capacity offered (see recital (69)).

(178) As described in recitals (49), (65) and (71), the selection of the winning bids will be made based on the value of the bid expressed in EUR/MWh-year adjusted as required by the valorisation mechanism known ex-ante by the applicants (see section 2.6.6), and limited by the applicable bid caps (see section 2.6.5). The Commission considers that this constitutes an objective criterion, defined ex-ante in accordance with the objective of the measure, in line with point 49(a) CEEAG.

(179) Therefore, the Commission considers that the measure complies with point 49(a) CEEAG.

(180) Second, the Commission notes that the tender process foreseen in the scheme is transparent and based on rules which will be made public at least 60 days in advance of each round of tendering (see recital (53)), which constitutes sufficient time for potential beneficiaries to prepare their bids. The bidding process thus enables effective competition. The Commission therefore considers that the measure complies with point 49(b) CEEAG.

(181) Third, the Commission notes that, for the eligible technologies, simultaneous and linked tenders are envisaged at bidding zone and national level (see recital (51)). For each round, certain capacity volumes limits are set, both at bidding zone level, as well at the national level. First, applicants will be selected until the minimum capacity auctioned at bidding zone level has been exhausted, after which remaining eligible bids not yet selected will be accepted until either the maximum capacity set at regional level

has been reached or until the maximum capacity set at national level is exhausted. This auction setup will ensure that up to minimum area volume levels, projects located in a certain area will only compete against each other and, beyond those limits, the projects will be a competition regardless of their location.

(182) Italy has provided information illustrating the number of potential eligible projects including those that have already obtained, or are in the process of obtaining, permits (see recitals (63) and (64)) which exceed the total capacity envisaged by the measure over its entire duration. Italy has also submitted that the minimum capacity to be auctioned for each competitive bidding process and the maximum capacity auctioned at national level will be lower than the capacity that received permitting (per technology and relevant geographical area), so that it can be expected that not all permit holders will receive support (see recital (60)). The Commission moreover notes that Italy will take remediation measures in case of repeated undersubscribed bidding processes, in particular through the revision of the bid caps (see recital (69)) and a volume control mechanism (see recital (62)). The revision of the bid caps will allow taking into account the most recent trends affecting the costs of the eligible technologies and ensure that the caps do not unduly constrain auctions, while the volume control mechanism ensures that the TSO will reduce tender volumes in case of repeated under subscription. Consequently, the tender volumes will constitute a binding constraint, as it can be expected that not all bidders will receive aid. The Commission therefore considers that the measure complies with point 49(c) CEEAG.

(183) Fourth, the Commission notes that the selection process does not allow for any ex-post adjustments to the bids made in the bidding process, in line with point 49(d) CEEAG), as the bid of successful applicants will determine the amount of support that each applicant will receive ('pay as bid', see recital (71)).

(184) The valorisation mechanism applied for the purpose of ranking bids is aimed at accounting for the contribution of the storage asset to the objective of system adequacy through the potential additional energy and power services offered by the technology over the minimum technical requirements identified by the TSO (see recital (71)). The coefficients therefore enable to quantify the positive externalities of the project in terms of system adequacy and relate them to the aid amount. As the objectives of the scheme are to maximise the use of RES generated electricity, to facilitate its integration into the electricity and ancillary services markets, to meet the increasing flexibility needs and to support the secure operation of the Italian electricity system and to promote the development of storage facilities (see recitals (6) and (7)), the Commission considers that the measure complies with point 50 CEEAG since the selection criteria used for ranking bids puts the contribution to the main objectives of the measure in relation with the aid amount.

(185) The Commission notes that beneficiaries will be subject to a payback obligation and a clawback clause imposed in relation to their participation in the ancillary services markets and on the European balancing platforms, as described in section 2.7. which aim, on the one hand to provide economic incentives to the beneficiaries to make the storage capacity available on the balancing market and, on the other hand, to prevent overcompensation. As regards the latter, Italy submits that the clawback clause is necessary because they do not expect beneficiaries to be able to forecast potential balancing market revenues and therefore account them in their bids for aid. In order to cater for the risk of windfall profits, the Commission agrees with Italy's view that additional revenue on top of what is needed to cover the costs of making the asset

available for the participation in the ancillary services market requires the introduction of a claw-back mechanism, despite the fact that the aid amount is determined through a competitive bidding process. Nonetheless, the beneficiaries will maintain the incentive to reduce the costs of offering the capacity on the ancillary services market as not all profits will be clawed-back.

(186) The Commission therefore finds that the foreseen claw-back, requiring a significant share of the revenue from the sale of services on the ancillary services market to be retained by the TSO and used to finance the support determined through the bid of successful beneficiaries is appropriate and that it maintains the incentives for the beneficiaries to minimise their costs and develop their business in a more efficient manner over time.

(187) Point 56 CEEAG explains that when aid under one measure is cumulated with aid under other measures, Member States must specify the method used to ensure that the total amount of aid for a project or an activity does not lead to overcompensation or exceed the maximum aid amount allowed under the CEEAG. Moreover, point 57 CEEAG provides that centrally managed Union funding that is not directly or indirectly under the control of the Member State, does not constitute State aid. Where such Union funding is combined with State aid, it has to be ensured that the total amount of public funding granted in relation to the same eligible costs does not lead to overcompensation.

(188) The Commission notes that Italy confirmed that the measure cannot be cumulated with other forms of support to cover the same eligible costs (see recitals (89) and (31)iv)).

(189) In view of the above considerations, the Commission concludes that the measure is proportionate.

3.3.3.1.4. Transparency

(190) Italy committed to comply with the transparency requirements laid down in points 58 to 61 CEEAG (see recital (90)). The relevant data of the measure will be published on a national website that will link to the Commission's transparency register.

3.3.3.2. Avoidance of undue negative effects on competition and trade

(191) In line with point 382(a) CEEAG, the Commission will generally consider that aid for energy infrastructure that is subject to full internal market regulation does not have undue distortive effects. In the present case, the storage facilities will indeed be subject to full internal market regulation (see recital (87)).

(192) In line with point 382(d) CEEAG, for support to electricity storage facilities, the Commission will in particular assess the risks of distortion of competition which may arise in related services markets as well as on other energy markets.

(193) The Commission has assessed the potential impact of the measure on the Intraday and Day-ahead markets, on the capacity market and on the ancillary services market.

(194) As described in recital (13), the measure foresees the creation of the market for time-shifting products which will be traded on a newly built platform managed by GME, where market participants will be able to buy options to use the virtual storage assets procured through the measure directly in the Intra-day and Day-ahead markets.

(195) The Commission has investigated whether the creation of the market for time-shifting options could draw liquidity away from the Intra-day and the Day-Ahead market. It has found that the market for time-shifting options will not compete with the Intra-Day and Day-ahead markets, but complement them by allowing market participants, including RES producers, to directly participate in the Intra-day and Day-ahead markets by shifting their production from times of overgeneration to times of scarcity, thereby hedging their positions and reducing their balancing costs. Therefore, the new market for time-shifting options is expected to have a positive effect on the liquidity of the Intra-day and Day-ahead market and it will allow the efficient use of the storage assets, by virtue of the role of the TSO in pooling the resources and optimising their use. The Commission furthermore notes that storage resources outside of the scheme will be allowed to participate and trade on the market platform (see recital (17)), and that participants located in other Member States will be able to participate to the measure and therefore offer their assets on the time-shifting platform.

(196) The Commission notes that the new time-shifting market will be set-up and organised in a way that promotes the competitiveness of the market, as the options will be awarded through auctions that facilitate price discovery and several products will be developed to ensure a sufficient variety to cater for the different needs of market participants (see recital (17)). The pooled offering of storage capacity by the TSO will enhance market liquidity and the match between supply and demand. All interested third parties will be entitled to participate on the market (see recital (17)). The Commission moreover notes that limits to the maximum quantities of time-shifting products that can be purchased by each market operator may be introduced (see recital (25)) to prevent the creation of dominant positions.

(197) The Commission investigated whether the measure could negatively affect the functioning of the Italian capacity market by reducing the competitiveness and, as a result, increasing the costs of the tenders organised to procure capacity, as it is possible that fewer storage projects would be available to participate in the respective capacity auctions required to ensure system adequacy (see recital (14)). First, the Commission notes that the measure targets longer duration electricity storage capacity, an enabling characteristic required to shift RES produced electricity from times of overproduction to times of scarcity, whereas in the capacity mechanism storage assets contracted so far have generally been of shorter duration and therefore focused on providing balancing and ancillary services. Second, Italy will take into account the storage capacity contracted under the measure in the calculation of the generation adequacy assessment that will inform the amount of capacity that will be procured in future tenders under the capacity mechanism (see recital (14)). Third, the Commission notes that Italy has committed to assess, in an interim evaluation report to be submitted before the end of 2025, the impact of the measure on the competitiveness of the capacity market auctions (see recital (102)).

(198) Therefore, the Commission concludes that any potential negative impacts on the capacity market are minimised.

(199) As described in recital (17), the storage developers will be required to make available any residual storage capacity on the ancillary services market, after the buyers of the time-shifting options have exercised them. The storage developers will be subject to a payback obligation as explained in section 2.7. which aims to provide financial incentives to participate in the ancillary services market, but not an obligation to bid at a given price. The Commission notes that the measure should result in a significant

increase in the number of facilities capable of providing services on the ancillary services market and will incentivise several market participants to actively compete both on the Italian ancillary services markets and on the European balancing platforms, resulting in increased competition.

(200) In view of the above, it can be concluded that the risk of undue negative effects on competition and trade from the measure is limited.

3.3.4. Weighing the positive effects of the aid against the negative effects on competition and trade

(201) A carefully designed aid measure should ensure that the overall balance of the effects of the measure is positive in terms of avoiding adversely affecting trading conditions to an extent contrary to the common interest.

(202) As shown in section 3.3.2, the aid will facilitate the development of storage facilities, thereby contributing to the development of an economic activity for the storage of electricity and, moreover, to the smooth and effective integration of clean RES in the Italian power system. The measure will moreover provide benefits to the Italian electricity system.

(203) Furthermore, the Italian authorities have designed the measure in such a way as to minimise any potential distortions of competition arising out of the measure.

(204) Therefore, the positive effects of the measure outweigh any potential negative effects on competition and trade. On balance, the measure is in line with the objectives of Article 107(3), point (c), TFEU, as it facilitates the development of electricity storage in Italy and does not adversely affect competition to an extent contrary to the common interest.

(205) Any potential negative effect of the measure on competition between storage facilities are, on the one hand, limited by the competitive selection process and limits to prevent overcompensation and, on the other hand, outweighed by the positive contribution of storage facilities to the integration of renewable energy in the system, the development of competition on balancing and other service markets and the overall benefits to the electricity system in terms of stability and security.

3.3.5. Companies in difficulty and under recovery order

(206) As explained in recital (92), Italy committed not to grant aid under the measure to undertakings in difficulty and undertakings subject to an outstanding recovery order. Therefore, the Commission concludes that the measure complies with points 14 and 15 CEEAG.

3.3.6. Evaluation plan

(207) Points 455 and 456 CEEAG state that to further ensure that distortions of competition and trade are limited, the Commission may require notifiable aid schemes to be subject to an ex-post evaluation and that in any event ex-post evaluation will be required when the State aid budget exceeds EUR 750 million over the total duration of the scheme.

(208) As further explained in point 459 CEEAG, the Member State must notify a draft evaluation plan, which will be an integral part of the Commission's assessment of the scheme.

(209) In view of the envisaged budget, the scheme will be subject to an ex-post evaluation. In this context, the Commission required the submission of an evaluation plan, which the Italian authorities submitted in the context of the notification as an integral part of it.

(210) The Commission considers that the notified evaluation plan contains all the necessary elements: the objectives of the measure to be evaluated, including evaluation questions, the result indicators, the envisaged methodology to conduct evaluation and the proposed timing of the evaluation including the date of submission of the final evaluation report (see section 2.11).

(211) The Commission notes that:

i) the scope of the evaluation is defined in an appropriate way. It comprises a list of evaluation questions with matched result indicators. Moreover, the evaluation plan explains the main methods that will be used in order to identify the impacts of the scheme;

ii) the evaluation will be conducted in accordance with the notified evaluation plan by an independent evaluation body, in line with the criteria laid down in the evaluation plan;

iii) the proposed modalities for the publication of the evaluation results are adequately ensure their transparency;

iv) Italy committed to submit an interim report (see recital (102)), by the end of 2025 and a final evaluation report nine months before the expiry of the scheme (31st March 2032). The Commission notes that the evaluation methods might be further refined in common accord between the Italian authorities and the Commission, and it will be described in the interim report.

(212) The Commission notes that Italy will communicate to the Commission any difficulty that could significantly affect the agreed evaluation in order to work out possible solutions.

(213) Moreover, the Commission notes that the scheme will be suspended if the final evaluation report is not submitted in due time and is not of sufficient quality.

3.3.7. Conclusion on the compatibility of the measure

(214) The Commission concludes that the aid under the measure facilitates the development of an economic activity and does not adversely affect trading conditions to an extent contrary to the common interest. Therefore, the Commission considers the aid compatible with the internal market based on Article 107(3), point (c), TFEU, as interpreted by the relevant points of the CEEAG.

4. AUTHENTIC LANGUAGE

(215) As mentioned in recital (3), the Italian authorities have accepted to have the decision adopted and notified in English. The authentic language will therefore be English.

5. CONCLUSION

The Commission has accordingly decided not to raise objections to the aid on the grounds that it is compatible with the internal market pursuant to Article 107(3), point (c), TFEU.

If this letter contains confidential information which should not be disclosed to third parties, please inform the Commission within fifteen working days of the date of receipt. If the Commission does not receive a reasoned request by that deadline, you will be deemed to agree to the disclosure to third parties and to the publication of the full text of the letter in the authentic language on the Internet site:

http://ec.europa.eu/competition/elojade/isef/index.cfm.

Your request should be sent electronically to the following address:

European Commission,
Directorate-General Competition
State Aid Greffe
B-1049 Brussels
Stateaidgreffe@ec.europa.eu

Yours faithfully,

For the Commission

Margrethe VESTAGER
Executive Vice-President

CERTIFIED COPY
For the Secretary-General

Martine DEPREZ
Director
Decision-making & Collegiality
EUROPEAN COMMISSION