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# Update on electricity storage in Greece

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> [Introduction](#)

> [Standalone batteries](#)

> [PV solar plants with storage behind the meter](#)

## Introduction

In 2022, Greece amended the Energy Framework Law No. 4001/2011 by providing the legal framework for electricity storage particularly regarding licensing, remuneration and market participation. Thus, the law now recognises the following types of electricity storage:

- standalone electricity storage units (mainly batteries) with exclusive activity the electricity storage;
- RES plants with storage with no ability to charge from the grid;
- RES plants with storage with ability to charge from the grid;
- pumped hydro storage plants; and
- hybrid plants for the non-interconnected islands and Crete.

This article focuses on standalone batteries. The legal framework on electricity storage is intended to service the smooth integration of a higher share of renewable energy sources (RES) in the Greek electricity system with a reduced level of curtailments, particularly by storing electricity when electricity market prices are low and injecting it back into the grid when electricity market prices are high.

## Standalone batteries

### *State aid approved by the EU Commission*

In 2022, the European Commission approved to Greece Financial support in favour of electricity storage facilities.<sup>(1)</sup> The scheme provides for two forms of support to be granted cumulatively to the selected storage facilities:

- an investment grant – this grant finances capital expenditure which will be paid during the construction period of each project (ie, until the end of 2025) in an amount that does not exceed 40-50% of a project's capital expenditures (investments costs); and
- a two-way contract for difference – this contract extends over a ten-year period to cover the balance of any residual funding gap, after payment of the investment grant (the annual support) to be paid from the commencement of operation of the project (ie, by 2035 at the latest) in the amount equal to the difference between the amount of revenues tendered by each project as necessary for its financial viability, and the revenues that each project will earn from its participation in the various electricity markets.

The scheme is included in the Greek National Recovery and Resiliency Plan. This investment should support the installation of the total 1,580-megawatt capacity of storage in the electricity system (ie, 680 megawatts for the Amfilochia Pump Hydro Storage Project and the remaining capacity of up to 900 megawatts for the standalone storage plants). The storage projects to be supported by the scheme will be selected through a tender process held until the end of 2023. No support will be granted in cases where the start of works on the project took place prior to the submission of the bid for granting of the state aid.

The installation of the storage facilities should take place by the end of 2025. The supported projects will be legally obliged not to conclude private power purchase agreements and will have to participate in the markets on an individual basis. The total budget of the measure is estimated at €341 million, including the investment grant (€200 million) and the annual support (€141 million). That figure has been derived assuming a total capacity of 900 megawatts under the scheme.

Greece's energy storage scheme allows projects from the European Economic Area (EEA) outside of Greece, provided there is an electricity interconnection and fully coupled power grids between Greece and the EEA country. Currently, only Bulgaria meets these expectations.

### *Recent development of Greek legislation*

Law 4920/2022 amending the Energy law 4001/2011 sets the national legal basis for the grant of state aid for the establishment of electricity storage facilities. Apart from the EU Commission approval of this state aid, the following documents are required for its implementation:

- the adoption of a ministerial decision dealing with the main elements of the state aid scheme;
- a Regulatory Authority for Waste, Energy and Water (RAAEY) decision laying down the detailed methodology for the determination of the amount of the approved annual support for the supported projects;
- a methodology for the allocation of the annual storage support account cost to load representatives (ie, suppliers of electricity, which act as the aggregators to represent consumer demand in the electricity market); and
- amendments to the Electricity Market Regulations and System Codes to implement all necessary details for the application of the scheme.

The Ministries of Finance, of Development and Investment and of Environment and Energy published their joint ministerial decision No. 55948/1087 in the OJ B' 3416/2023. It regulates the regime of providing state aid to storage plants connected to the high voltage system in compliance with the Commission's approval, particularly the:

- time frame;
- number of tenders;
- capacities;
- technical characteristics; and
- initial reference price.

The tender procedures should be organised before the end of 2023 and the storage plants should be operational by 31 December 2025. There will be three tender procedures with total capacity of 1,000 megawatts divided into 400, 300 and 300 megawatts (the third one organised for certain regions), organised by RAAEY as single stage bidding. The minimum capacity for participation of a plant would be one megawatt and the maximum 100 megawatts. While the total capacity to participate in all three tenders may not exceed 250 megawatts per participant, the project should ensure a minimum two-hour capacity duration and commence construction after a tender concludes. The maximum reference price in the first tender may not exceed €115,000 per megawatt per year.

All plants participating should have previously obtained the respective electricity storage licence. Each tender must include a minimum of four independent participants with no business ties. Additionally, any participant in each of the three tenders cannot bid for more than 25% of the energy storage capacity offered in the auction.

The investment state aid to be provided in the first two tenders will be €200,000 per megawatt. The operational aid is provided for 10 years from the beginning of operations calculated in compliance with methodology to be provided by RAAEY.

In November, it was subsequently amended by the decision of the Ministry of Environment and Energy and of Economy and Finance No. 114021/203706.1.2023<sup>(2)</sup> which significantly reduced the investment grant to be offered at the second tender from €200,000 per megawatt in the first tender to €100,000 per megawatt and scheduling the third tender for the first quarter of 2024.

On 28 November 2023, the Ministry of Environment and Energy and of Finance issued a joint ministerial decision specifying details of the state to be provided and particularly the procedure, conditions, amounts and timeframe.

### **Tenders**

On 17 June 2023, RAAEY published decision No. E-45/2023<sup>(3)</sup> launching the first tender for the investment and operational support to the standalone storage plants for the total capacity of 400 megawatts with the announcement of the qualified bidders on 10 August 2023.

In this tender a total of 12 projects were selected secured tariffs averaging €49,748 per megawatt per year or 57% below the starting price of €115,000 per megawatt per year which was the initial auction price.

On 22 November 2023, RAAEY published decision No. E-204/2023<sup>(4)</sup> launching the second tender for the standalone storage plants for the total capacity of 288.21 megawatts. The deadline for submission of applications is 22 December 2023, while the final list of the qualified bidders should be announced on 15 February 2024. The application fee and the participation letter of guarantee remains €2,500 and €35,000 per megawatt, while the letter of guarantee for timely business performance and the letter of guarantee for quality operations are reduced from €250 per megawatt each. The maximum price (ie, the starting price) remains €115,000 per megawatt per year.

### **PV solar plants with storage behind the meter**

According to business press announcements, the Ministry for Environment and Energy is considering offering operation state aid to photovoltaic (PV) solar plants with behind-the-meter battery installations as a means of freeing up grid capacity. This solution is expected to enable power grid operator Independent Power Transmission Operator to resume offering new connection terms, currently on hold as a result of grid-capacity restraints.

According to the ministry's plan, the state aid would be offered in the form of contracts for difference with reference price determined in competitive procedures. Essentially, these competitive procedures would replace any other PV solar competitive procedure or, in other words, any PV solar plant under development would have to add storage units of this technology in order to receive the operational state aid.

Further, the competitive procedures would be offered only to mature projects possessing final offer for connection to the grid. The tenders would offer higher reference prices taking into account the increase in investment cost due to adding of the storage units. It is expected that the respective regulations are issued before the end of 2023 and that the first tender will be launched in February 2024 for the capacity of 200-300 megawatts.

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### **Endnotes**

(1) SA 64736.

(2) OJ B' 6399/2023.

(3) OJ B' 3939/2023.

(4) OJ B' 6608/2023.