

In brief: the Greek Green Islands

Introduction

A significant pillar of the energy transition, as embodied through the European Climate Law¹ aiming to implement the goals of the European Green Deal to achieve climate neutrality of the EU until 2050, should be implemented through the green transformation of the EU islands. This is particularly interesting for Greece due to the number and geographical position of its islands. Towards this direction, Greece has, for several years, undertaken a number of initiatives such as interconnecting of some islands to the mainland (so that the RES development is utilized by the islands as well), auctions for development of RES and HE CHP on islands, and finally pilot projects for the small islands with the purpose of conversion of the Greek islands into innovation hubs of green economy and energy autonomy.

The legal basis of the relevant initiatives

The first pilot projects for the small islands were introduced by Law no. 4495/2017², aiming at the support of the Non-Interconnected Islands (NII) in terms of increasing the participation of Renewable Energy Sources (RES) plants in the electric system thereof. The law regulates that three small islands may be selected by the Ministry of Environment and Energy (YPEN), upon a recommendation by the Hellenic Electricity Distribution Network Operator (HEDNO) acting as market operator for the NII and a respective opinion of the Regulatory Authority for Waste, Energy and Water (RAAEY) to develop the Special Pilot Projects (SPPs). The plants will be granted the operation aid in a competitive procedure while the licenses will be issued by application of special licensing procedures.

Subsequently, a Ministerial Decision is published, setting out the general framework for the participation in the respective competitive procedure launched by RAAEY with respect to each SPP. The selection of the successful bidder is succeeded by the required licensing procedure, the connection of the SPP to the grid and its final operation.

Currently, Greece develops a pilot projects initiative for small islands under the name “Greco Island Initiative”, which shall include not only RES production with storage systems but also e-mobility, energy sufficiency and sustainable management of energy resources.

According to article 21 of the National Climate Law³, the eligibility criteria for the selection of islands to fall within the above initiative, include permanent population number and the energy needs, as well as their possibility for compliance with EU actions, such as “the Clean Energy for the EU islands”. For funding purposes, sources deriving from

¹ Regulation (EU) 2021/1119.

² Art. 151.

³ L. 4936/2022.

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programs such as the National Development Program⁴ 2021-2025⁵ and the National Strategic Reference Framework 2021-2027⁶ may be used.

A landmark for such projects is considered the issuance of a ministerial decision (not issued yet), specifying, among others, the eligibility criteria for the classification of an island as such, the necessary procedure to be followed and the financing sources. Until the issuance thereof, interested legal persons, either public or private, are entitled to express their interest in order to be rendered contractors for the conduct of studies, projects and interventions for energy transition and sustainable development on an island, or a part thereof or in a group of islands on the contractor's own resources, by submitting a relevant proposal before the Directorate for Energy of the YPEN.

Implementation

Agios Efstratios

A significant, tailor-made initiative⁷, is the case of Agios Efstratios island. The subject island has fallen within an Operational Program of the National Strategic Reference Framework and in this regard, special licensing and operational aid procedures are determined following a relevant decision issued by YPEN⁸ after a recommendation by HEDNO and an opinion by RAAEY. The main actions of the project lie in the installation of a hybrid RES plant consisting of a wind turbine, a photovoltaic plant and batteries, an integrated district heating system, the energy upgrade of municipal buildings and the promotion of electromobility. The hybrid power station and the heating system are expected to be put into operation within 2024.

Tilos

Another tailor-made initiative belongs the island of Tilos⁹, a project financed by Horizon 2020¹⁰, i.e. the EU research and innovation funding program from 2014-2020, succeeded by the program Horizon Europe. The project TILOS comprises the first hybrid power station in Greece consisting of a wind turbine of 800kW, a photovoltaic park of 160kW and two batteries of 1.4 MWh each¹¹. The said initiative has been completed, but the island has also fallen within the EU initiative of "30 Renewable Islands for 2030", with objectives the upgrade of the hybrid power station, the transformation of the island's marina into a smart marina and the implementation of energy efficiency in buildings.

⁴ Established by virtue of L. 4635/2019.

⁵ Approved by the no. 38/31.08.2020 act of the Ministerial Council.

⁶ Especially through the Program "Environment and Climate Change as approved by the decision of the European Commission no. C(2022) 6045 final/26.08.2022.

⁷ Art. 152 L.4495/2017.

⁸ No. 51966/2203/2020.

⁹ T.I.L.O.S. (Technology Innovation for the Local Scale).

¹⁰ Established through EU Regulation 1291/2013.

¹¹ Producer's Certificate no.0435/2022 (which amended the Production License no.0126/2016).

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Astypalaia

Astypalaia project is classified as an SPP, while in parallel, it belongs to the EU initiative of “30 Renewable Islands for 2030”, an initiative aiming at the provision of technical support to the selected islands for 3 years, contributing to the fulfillment of complete energy independence through 100% RES by 2030.

The “Astypalaia Smart and Sustainable Island (ASSI)”, was launched in 2020, under a cooperation of Greek authorities and foreign investors, envisaging the full decarbonization of the island by 2050.

The project consists of 4 pillars. RES production will be achieved through a hybrid energy system¹² (3 MW production capacity and a storage unit of 10 MWh capacity) which should initially cover almost 61% of the island’s power demand and subsequently, by 2026, be expanded to cover more than 80% of the island’s overall demand. Another specific pillar is the e-mobility, in which respect, the subsidy program under the name “e-Astypalaia”¹³ provides incentives to both the permanent residents of the islands and the legal persons or branches seated therein for the purchase of electric vehicles. Additional pillars constitute the smart mobility, transforming the traditional public bus transformation into a ridesharing service consisting of 100% electric on-demand shuttles, as well as the autonomous driving.

Chalki

The island of Chalki constitutes the first, already completed, example of Gr-eco Island, having been rendered a model for the energy transition of other islands. It is the result of a cooperation between Greek and foreign investors under the coordination of YPEN. A primary role to this initiative plays an energy community named ChalkiOn which contributes to the reduction of the energy cost for the energy consumers by means of virtual net-metering through a photovoltaic plant of 1 MW. Other significant actions having taken place include electric vehicles and electric chargers, as well as the green lighting of public buildings and streets through smart systems of energy saving.

Poros

The island of Poros constitutes the latest example of such initiatives, being also a collaborative effort between Greek authorities and foreign investors. The project aims at the implementation of sustainable development in the sectors of RES electricity production, electromobility and waste management. The planning of the individual actions has already begun with a completion timeline envisaged within 2026.

¹² Producer’s Certificate no. BEB-0059/2023.

¹³ Joint Ministerial Decision no.78654/257, as amended and in force.

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