No.1035 Ptolemaida Battery Energy Storage System (BESS)

TEN-E Regional Group: North South East Electricity interconnectionsin Central Eastern and South Eastern Europe ('NSI East Electricity')Countries concerned: GreeceTYNDP number: 1035 – Ptolemaida Battery Energy Storage SystemPCI/PMI number [1st Union PCI-PMI list] : 2.10Project Promoter: Prolemaida Storage SMSA (private company)Expected date of commissioning: 31/12/2027CAPEX [MEUR]: 228OPEX [MEUR/year]: 1.6Implementation status: In PermittingProject website: https://bess-ptolemaida.eu



Source: ENTSO-e TYNDP 2024, Project 1035, Project Sheet

<u>Project description</u> : It concerns a state-of-the-art BESS plant with a rated power of 250 MW and capacity of 1000MWh (4 hrs). The plant will consist of Li-ion battery groups connected to multiple DC/AC converters. It will be installed close to existing lignite power stations in Western Macedonia, Greece which will be soon decommissioned pursuant to Greece's lignite phase-out plan (as set out in the Greek National Energy Climate Plan). Connection of the plant to the 400 kV EHV transmission network will be achieved via its own EHV substation. The plant can go into operation relatively soon and in a timely manner following fast-track procedures as it has been included in the latest PCI 1st Union's list and in the National Strategic Investments. It will enhance the cross-border transmission capacity, address capacity adequacy and flexibility issues arising from the i) decommissioning of thermal plants; ii) demand increase; and iii) integration of significantly higher shares of variable renewable energy, and contribute to employment growth / job creation in the region.

TYNDP number	Investment name	Current status	Delayed/ Reschedule d	Reason for delay/reschedule
1035	Ptolemaida Battery Energy Storage System	ENTSO-E TYNDP 2024 status: In Permitting Permitting status: (production and storage license granted by the Regulator in alignment with the new regulatory framework in Greece, EIA completed and Decision on Environmental terms issued, land secured by the competent Municipality, expected the System Connection Terms by the Operator) Project fully supported by the <u>Greek Government,</u> <u>Regulator (RAAEY), Local Municipality and Region</u> <u>of Western Macedonia</u> . The only mature project of its kind.	N/A On schedule	N/A On schedule

Regional needs that the Ptolemaida Battery Energy Storage System fulfils:

• Market Integration:

- **SEW** It yields benefits in terms of socio-economic welfare as defined in ENTSO-E's indicator while its total CAPEX is driven by low unit prices (considering current price trends and evolution) due to its large scale.
- Balancing flexibility The increased storage capacity can actively participate in all 4 newly established Greek Target Model Markets, ensuring high levels of balancing flexibility, operating in parallel with conventional plants, compensating system congestion, providing frequency reserves and contributing to voltage stabilisation and control.
- Transmission capacity increase due to its large storage capacity (250MW/1000MWh), fast response characteristics and deployment location, it can ensure and support increased cross-border transmission capacity between neighbouring EU countries through existing interconnectors.
- RES dispatch Ptolemaida BESS will support RES development by further limiting curtailments and assisting optimally in the dispatch of RES produced energy into the system.

<u>Security of Supply (Generation Portfolio)</u>:

- **Sources diversification** Significant RES increase expected in Greece by 2030 (intermittent RES installed capacity reaching 20,000MW) exceeding the 50% system needs threshold.
- SoS & System Adequacy Ptolemaida BESS will enhance system stability by making use of fast response capabilities and by providing ancillary services, decreasing Loss of Load situations of the region and neighbouring EU countries.
- Battery contribution, as stated in the needs they are considering in the ramping reserve requirements frequency containment and restoration
- Sustainability:
 - According to the revised Greek NECP, RES generation will be covering 60% of the energy consumption. Such battery systems are needed to allow the power system to evolve into a sustainable one.
 - Although it does not constitute a RES production unit, PTOLEMAIDA BESS significantly assists in creating stable technical ground for sustainable and GHG emission-free RES development.