Energy storage for demand response greece

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Greece"s energy and climate policies are centred on achieving net zero emissions by 2050 while ensuring energy security, improving economic competitiveness and protecting vulnerable consumers. The National Energy and Climate Plan (NECP), adopted in 2019, is the main document setting energy and climate policy through 2030 and includes targets and supporting measures to put the country on a path to net zero emissions. The National Climate Law, adopted in May 2022, sets targets to reduce total greenhouse gas (GHG) emissions by 55% by 2030, by 80% by 2040 and to reach net zero emissions by 2050. It defines key emissions reduction measures, including the phase-out of lignite-fired generation by 2028.

Greece has seen a reduction in the share of fossil fuels in its energy supply, mainly because of decreasing use of lignite for electricity generation. However, fossil fuels are still the dominant energy source in Greece, and strong efforts are needed to reduce fossil fuel demand in line with GHG emissions targets. From 2010 to 2021, the share of fossil fuels in energy supply fell from 90% to 82% of total energy supply (compared to an IEA average of 78% in 2020). From 2005 to 2021, the share of lignite-fired generation fell from 60% to 10%, driving down the carbon intensity of electricity generation. The decline in lignite-fired generation was offset mainly by increased gas-fired generation, along with growth in generation from wind and solar photovoltaics (PV).

Greece achieved most of its 2020 energy and climate targets. However, a significant share of the reduction in energy demand and GHG emissions was caused by Greece"s prolonged economic contraction following the 2008 crisis and the Covid-19 pandemic. Greece has reduced the carbon intensity of its economy, but an increase in demand following the lifting of pandemic restrictions in 2021 is already leading to increased GHG emissions.

Greece is planning major investments in electricity infrastructure. This includes expanding interconnection capacity to increase integration with the European electricity market and support the goal of becoming a net electricity exporter. The government has announced plans to double the capacity of interconnections with Bulgaria, Italy and NorthMacedonia; triple the capacity of interconnections with Albania; and establish an interconnection with Egypt. There are also major investments planned to boost domestic transmission and distribution capacity to support much higher levels of generation from wind, solar PV and hydro. The government also aims to connect the most populated islands to the mainland electricity grid by 2030.

To ensure the efficient and effective functioning of its electricity market, Greece finalised major reforms in 2020 to introduce three wholesale electricity spot markets (day-ahead, intraday and balancing) and a derivatives market. Greece has also completed several reforms to support full integration in the European

common electricity market, including joining the intraday European market coupling in December 2022 and opening its market to demand response in September 2022. Greece"s gas market has also undergone major changes in recent years, with the opening of a natural gas spot market in March 2022 as a key achievement.

Key policy documents (most of which were approved before 2021) give natural gas a major role in reducing lignite-fired generation and oil demand from building heating and industry. Following the Russia Federation"s (hereafter "Russia") invasion of Ukraine and the sustained increase in gas prices, the government is re-evaluating the role of gas in the Greek energy system. However, the future of natural gas in the Greek energy system remains unclear, with major steps being taken to reduce gas demand in line with climate and security goals while at the same time large investments are planned to expand gas infrastructure, which could lead to higher gas demand.

Greece has notable dependence on fossil fuel imports from Russia. In 2021, Russia accounted for 96% of hard coal imports, 41% of natural gas imports, 21% of crude oil imports and a small share of oil products imports. Hard coal imports are used mainly in the industry sector, primarily for steel production. Gas-fired generation plays a key role in the Greek electricity system, and gas is also important for building heating and industry. Greece is taking strong steps to decrease national and EU dependence on Russian energy imports.

The government of Greece should:

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The importance and benefits of the demand-response market, especially for commercial and industrial consumers, has been highlighted, amongst other matters, by Sympower Commercial Director Kostas Athanasopoulos in an interview with energypress.

The official also underlined the need for Greek power grid operator IPTO and the energy ministry to take action to further consolidate the demand-response service in the Greek energy market as a crucial tool for balancing the electricity system.