

How is energy storage defined in Morocco?

Electricity storage is not separately defined in the Moroccan legislative framework. The rules concerning the issue of energy storage are to be found in the law applicable to the production of electricity.

Who is responsible for electricity storage in Morocco?

Electricity storage in Morocco falls within the scope of competence of the Ministry of Energy, Mines, Water and Environment. ONEE is in charge of the production, the transmission and the distribution of electricity.

Does Morocco have a security of supply?

Security of supply also remains one of the major challenges of the Moroccan energy model, which it is attempting to address through the diversification of its energy resources. Morocco's primary energy demand and electricity demand will both be expected to double by 2030.

Is there a standard for battery storage in Morocco?

It is also worth noting that the Moroccan Institute for Standardization ( "IMANOR") has recently enacted standards applying to battery storage 4 .

What is the first large-scale electricity storage project in Morocco?

The first large-scale electricity storage project in Morocco is the 460 MW Afourer Pumped Storage Power Station ( PETS ), commissioned in 2004. It consists of a hydraulic system composed of two 1.3 million-m<sup>3</sup> water reservoirs connected by a pipeline with two hydroelectric production units between the basins.

How to save energy and control energy consumption in Morocco?

In this context, a number of measures to save energy and control energy consumption in various sectors (industry, buildings, agriculture, public lighting and transport) have been adopted in Morocco. To support energy efficiency programmes, Law 47-09 on energy efficiency was published in 2011 .

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Morocco has adopted the renewable energy path through a strategy targeted on the development of solar, wind and hydroelectric power to boost its energy policy by adapting it to the challenges posed by today's world.

Standard NM CEI 61427-1 regulates the general conditions applying to the battery storage for renewable energy, NM EN 12977-3 regulates the performance testing methods applying to the storage installations for

water solar heating, and NM EN 12977-4 regulates the conditions applying to the combined storage methods for solar heating.

The project will combine a solar PV array with a battery energy storage system. The document said its expected net capacity during off-peak hours will be 200MWac and is not to exceed 230MW, measured at the delivery point. During peak hours, the project is expected to provide around 400MWh of energy from the BESS.

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The National Energy Strategy (NES), a strategic plan for energy transition in Morocco, was established in 2009 with ambitious objectives, aiming to diversify the energy mix and promote the development of renewable energy, and reduce the use of fossil fuels.

Equipped with recycled aluminium as a storage medium, the system is said to be free from rare minerals, ensuring no reduced capacity over time. The company noted that its energy storage system is scalable from 100kW to 100MW, filling a void in the market and moving closer to providing sustainable and affordable energy for everyone.

Abstract: The main objective of this paper is to investigate a 2030 scenario for the Moroccan power system and identify challenges that need to be addressed in order to integrate renewable energy and realize the potential for export. Particular emphasis is put on a cost-benefit analysis comparing investments in storage capabilities and grid ...

In the medium term (2030-2040), Morocco will focus on using GH2 as an energy storage vector to ensure grid stability, but also in public and heavy trucks transports. In the long term (2040-2050), the strategy foresees higher levels of exports and use in industrial heat, railway, maritime, and aviation transport, as well as passenger vehicles.

Beyond the advancement of renewable energy, Morocco's policy initiatives encompass energy efficiency measures in challenging-to-abate sectors, such as building insulation and the adoption of energy-saving light

bulbs. The overarching objective is to achieve a 20% reduction in overall energy consumption by 2030.

Many thermal storage options can be developed in Morocco such as the storage of excess renewable electrical energy in buildings (e.g. domestic hot water tank). The development of district heating networks in Morocco can also give a growing role to the massive thermal storage in Morocco [60].

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