

DYNAMIC PROFIT ANALYSIS OF ENERGY STORAGE POWER STATION



How do business models of energy storage work? Building upon both strands of work, we propose to characterize business models of energy storage as the combination of an application of storage with the revenue stream earned from the operation and the market role of the investor.



What is the energy storage system? The energy storage system includes 1x5 MWx2 h LiB, 1x2 MWx2 h VRFB. And the wind power of 99 MW had been put into operation in August 2012. The system is connected with the 35 kV bus. Through intelligent control, the system stores and releases power according to the coordinating with wind power.



What was the growth rate of energy storage industry in 2015? Driven by the Euramerican and Asia-Pacific market, worldwide energy storage industry experienced fast development in 2015. According to CNESA, global cumulative installed capacity of energy storage system was 946.8 MW (excluding PSS, CAES and heat storage) by the end of 2015 and the growth rate was 12.7% compared with year 2014.



How can energy storage be profitable? Where a profitable application of energy storage requires saving of costs or deferral of investments, direct mechanisms, such as subsidies and rebates, will be effective. For applications dependent on price arbitrage, the existence and access to variable market prices are essential.



How much subsidy should PV energy storage facilities be paid? It specifies that energy storage facilities constructed synchronously with newly installed PV power generation should be paid a subsidy within 600 euro. In addition, the subsidy paid to energy storage facilities added to existing PV power generation should be within 660 euro/kW. What's more, price policies for PSS are relatively perfect in the EU.

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How many kW is a solar energy storage system? The wind power is 2x780 kW, the PV power is 300 kW. The energy storage system includes 1x2 MWx2 h PbAB, 1x500 kWx15 s SCES and 5x500 kW bidirectional converters. The system can realize the flexible shift between on-grid and off-grid operation. This bidirectional balance can guarantee the island's power utilization.



Finally, a simulation analysis is carried out, and the results show that compared with the independent operation mode of each virtual power plant, the model proposed in this paper ???



It evaluates the cost-effectiveness by using the indexes of income flow, net present value, dynamic investment payback period and intrinsic rate of return. The results show that under ???



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In addition, the insufficient parameter optimization of the system leads to the low round-trip efficiency of the system, which is only 55.35%. In the construction of the ???

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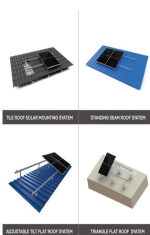
Two different converters and energy storage systems are combined, and the two types of energy storage power stations are connected at a single point through a large number ???



With the development of smart grid, the system needs to have the ability to quicker respond for the purpose of security [1]. Thus, it is necessary to fulfil fault location accurately, ???



With the acceleration of China's energy structure transformation, energy storage, as a new form of operation, plays a key role in improving power quality, absorption, frequency modulation and ???



The EV charging station is equipped with an energy storage device, and the electric energy stored in a certain period of time is divided into five parts: the first part is the remaining ???



In order to promote the deployment of large-scale energy storage power stations in the power grid, the paper analyzes the economics of energy storage power stations from three aspects of ???

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In recent years, with the rapid development of new energy sources bringing great pressure on the safe and stable operation of power grids, energy storage technology has received more and ???



For this reason, this paper will concentrate on China's energy storage industry. First, it summarizes the developing status of energy storage industry in China. Then, this ???