solar compressed air energy storage patent

An air-compression energy-storage and power-supply system having air purification capability through using solar energy, mainly comprising: a solar power supply device (1), configured to supply, by means of solar power generation, electricity required by the system itself and electricity used by users in the day; an air purification device (2), connected to solar power generation by means of a suction fan (25) for operation, enabling outside air to enter an air barrel (21) after being purified by an air filter (24) and then discharging same from the air barrel (21) to complete air purification; and a compressed-air energy storage power supply device (3), configured to first purify air and then compress same into high-pressure air for storage, so that the energy storage of high-pressure air can enable a power generator (35) to generate power at night for users to use electricity at night; in addition, a wind power transmission device (4) can be further provided above the air purification device (2). AIR COMPRESSION SOLAR ENERGY STORAGE SYSTEM Field of the Invention The invention generally relates to a system and method for movement of a liquid, and in particular a system and method for improving energy efficiency by integrating a WO//211027 AIR-COMPRESSION ENERGY-STORAGE The present invention is effectively formed as a whole, achieving air purification, energy saving, and pollution reduction, purifying air completely by means of natural energy and providing the Modeling of an innovative integration of compressed air energy This study evaluates a novel integration of a high-temperature air-based Concentrated Solar Power (CSP) plant with Compressed Air Energy Storage (CAES), aiming Integrated solar compressed air energy storage systemtechnical field [] The invention belongs to the technical field of electric energy storage, in particular to a compressed air energy storage system integrating solar energy. US20160352282A1 A method of operating a solar energy plant includes storing solar energy in a compressed air system of the plant by converting solar energy into electrical energy which operates a POWER GENERATION SYSTEM AND METHOD BASED ON Provided is a power generation system and method based on compressed air energy storage technology through solar auxiliary hot humid air. The system comprises an energy storage What types of air energy storage patents are there? | NenPowerAs renewable energy sources become dominant, the necessity for efficient and large-scale energy storage options becomes increasingly pressing. Air energy storage patents WO//228938 COMPRESSED AIR ENERGY STORAGE [Problem] To provide an economical compressed air energy storage (CAES) method for effectively utilizing the volume space of an air storage unit in order to reduce An Innovative Solar-Assisted Compressed Air Energy A novel solar-assisted diabatic compressed air energy storage system integrated with a liquefied air power cycle and a liquefied natural gas regasification system is designed and analyzed in US8347628B2 This invention relates to a Compressed Air Turbine-Generator, or CAT-G that will enable the ability to manage energy gathered from ecologically friendly sources, such as solar and wind AIR COMPRESSION SOLAR ENERGY STORAGE SYSTEM AND A system and method for movement of a liquid that may contain and use a photovoltaic cell, gas compressor electrically connected to the photovoltaic cell and fluidly connected to a A hybrid energy storage system using compressed air

and hydrogen as the In this paper, an innovative concept of an energy storage system that combines the idea of energy storage, through the use of compressed air, and the KR102655501B1 An air compressed energy storage and power supply system having the ability to purify air using solar energy is disclosed. The system consists of: a solar energy power supply (1), which uses Israeli Solar Energy Storage Site Won the Bid for Compressed Air Energy Apart from the ubiquitous lithium-ion battery system, the recent solar energy storage tender in Israel has also attracted another alternative storage method: compressed air CN115773215A The invention discloses a solar photo-thermal heat compensation type compressed air energy storage system and method coupled with ORC (organic Rankine cycle), wherein the system A review of thermal energy storage in compressed air energy storage Compressed air energy storage (CAES) is a large-scale physical energy storage method, which can solve the difficulties of grid connection of unstable renewable energy power, Compressed Air Energy Storage--An Overview of Electrical energy storage systems have a fundamental role in the energy transition process supporting the penetration of renewable energy sources into the energy mix. Compressed air energy storage Preliminary design and techno-economic assessment of a The advantages of compressed air energy storage (CAES) have been demonstrated by the trigeneration system with the characteristic of high penetration of WO2009094226A1 The invention relates to a method and apparatus for using solar energy to enhance the efficiency of a compressed air energy storage system. The apparatus comprises a photovoltaic panel to Storage of solar energy The present invention is about using waste heat from a solar power generation system to improve the efficiency of energy storage in a compressed air system. This can be A learning-based energy management strategy for hybrid energy storage This paper proposes a self-adaptive energy management strategy based on deep reinforcement learning (DRL) to integrate renewable energy sources into a system CN118911964B The application discloses an electric cooling combined supply miniature compressed air energy storage system at a distribution network side of a coupling photo-thermal system, which Thermodynamic and economic analysis of new compressed air energy The waste heat from the exhaust air and the hot oil of the compressed air energy storage system is recycled by the feedwater of the H 2-fueled solid oxide fuel cell-gas turbine Storage of solar energy The present invention is about using waste heat from a solar power generation system to improve the efficiency of energy storage in a compressed air system. This can be A learning-based energy management strategy for This paper proposes a self-adaptive energy management strategy based on deep reinforcement learning (DRL) to integrate renewable energy sources into a system comprising compressed air energy storage, Thermodynamic and economic analysis of new compressed air energy The waste heat from the exhaust air and the hot oil of the compressed air energy storage system is recycled by the feedwater of the H 2-fueled solid oxide fuel cell-gas turbine Tracking Patent Trends In the realm of mechanical energy storage, it is clear that pumped hydroelectric (PSH), flywheel (FES), and compressed air energy storage (CAES) lead the way in patent US20090230696A1 The invention relates to a method and apparatus for using solar energy

to enhance the efficiency of a compressed air energy storage system (and visa-versa). The apparatus comprises a Compressed air storage: Opportunities and sustainability issuesAs an effective strategy to implement electrical load shifting and to encourage the use of alternative renewable energies, such as solar and wind generation, the energy US20140183869A1 The invention uses wind turbine and/or solar energy to enhance the efficiency of an underwater and/or underwater in-soil bed of a compressed air energy storage system. The apparatus Performance analysis and configuration method To improve the performance of the compressed air energy storage (CAES) system, flow and heat transfer in different air storage tank (AST) configurations are investigated using numerical simulations after the Thermodynamic analysis on compressed air energy storage Abstract Compressed air energy storage (CAES) is one of the most promising large capacity energy storage technologies and this technology which was used only for Cogeneration systems of solar energy integrated with compressed air This paper proposes three cogeneration systems of solar energy integrated with compressed air energy storage systems and conducts a comparative study of various energy STORAGE OF SOLAR ENERGY A method of operating a solar energy plant includes storing solar energy in a compressed air system of the plant by converting solar energy into electrical energy which Thermodynamic Analysis of a Hybrid Trigenerative Compressed Air Energy The comprehensive utilization technology of combined cooling, heating and power (CCHP) systems is the leading edge of renewable and sustainable energy research. In Thermochemical heat recuperation for compressed air energy storageTo resolve the inherent intermittency of sustainable energy such as wind and solar energy as well as the mismatch of supply and demand for grid electricity, low-cost and US8347628B2 This invention relates to a Compressed Air Turbine-Generator, or CAT-G that will enable the ability to manage energy gathered from ecologically friendly sources, such as solar and wind

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