

Solar power generation replaces electric motors





Overview

Can solar powered motors be used in industrial machines?

Such solar-powered motors could someday be used in industrial machines, household appliances, and even electric cars. Bismit Mohanty, the lead author on the study, says the focus of the model was on boosting the overall efficiency of the system, to obtain the highest output of the motor for the solar power available.

Can a solar powered motor be used in a car?

The system relies on AI to optimize the solar array's output and operate the motor at 88 percent efficiency; real-world DC electric motors have efficiencies of 75 to 80 percent. Such solar-powered motors could someday be used in industrial machines, household appliances, and even electric cars.

How does a solar motor work?

According to the model, when it's sunny, the solar array generates enough power to operate the motor, storing excess energy in the battery. When it's overcast, the motor runs off the battery. The motor's regenerative braking system charges the battery whenever the brakes are applied, turning kinetic energy into electrical energy.

Could a solar powered electric motor be used in a home?

This model for a solar-powered electric motor could be used in an industrial setting or for household appliances, such as refrigerators and fans. Mohanty says he hopes to see such a system someday used in electric vehicles, which would eliminate the need to plug the EV into the main power grid.

Can a photovoltaic array power a direct-current electric motor?

This article is part of our exclusive IEEE Journal Watch series in partnership with IEEE Xplore. Researchers from Odisha University of Technology and Research, in India, have developed a model for a direct-current electric motor



powered by a photovoltaic array.

How can a new generation of power deliver net zero?

Innovation is at the heart of the solutions that will deliver net zero. Motors with enhanced energy efficiency, more efficient generators and new approaches to grid stability are all coming together to pioneer a new breed of decarbonised power. By Heikki Vepsäläinen, Division President – Large Motors and Generators at ABB



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Novel AI-powered solar panels offer 88% energy ...

Researchers at the Odisha University of Technology and Research in India have developed an artificial intelligence (AI) powered model for direct current (DC) electric motors that are powered by

Large motors and generators can power the way to net ...

Innovation is at the heart of the solutions that will deliver net zero. Motors with enhanced energy efficiency, more efficient generators and new approaches to grid stability are all coming together to pioneer a new breed of ...



[Solar PV based Electric Vehicle](#)

possible power generation using a solar PV system fixed on the vehicles might be replaced by electric vehicles. In recent times, DC solar power based various electric vehicle has been ...

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How Solar-Powered Cars Could Make Us Rethink Our Approach To Electric ...

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Design of solar powered electric vehicle

In the designed vehicle, solar panel is used as the power source and developed voltage, stored in the battery, is used to drive the permanent magnet DC motor which ...



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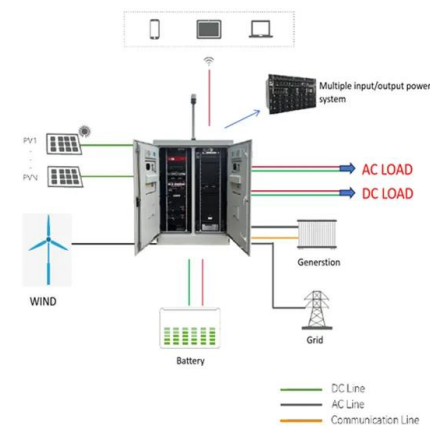


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The speed of transmission was adjusted, and shaft rotation was connected to a 7.5 kw/h DC power motor with two 15 kw/h alternators in three phases to generate high torque ...

Solar energy

Solar energy - Electricity Generation: Solar radiation may be converted directly into solar power (electricity) by solar cells, or photovoltaic cells. In such cells, a small electric voltage is generated when light strikes the ...



A new electric motor for a digital, sustainable future ...

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Solar power technology for electricity generation: A critical review

In addition, a comparison is made between solar thermal power plants and PV power generation plants. Based on published studies, PV-based systems are more suitable for ...



Solar-Powered Electric Motors for EVs That Never Plug In

Researchers from Odisha University of Technology and Research, in India, have developed a model for a direct-current electric motor powered by a photovoltaic array.

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Completed the previously announced acquisition of Emerson Electric's power generation, motor and drive businesses. The acquired companies have a solid business ...



Advantages of replacement of conventional power generation ...

Many countries have decided to go for mega-scale solar and wind-based power stations and replace the aged Super thermal power plants. As of now, Solar power ...



Efficient Motors and Drives: Lowering energy

As per a recent white paper by ABB, large motors, drawing more than 375 kW of power, represent only 0.03 per cent of all motors in use and account for about 23 per cent of all electric consumption by motors globally in ...



Electric motors find new roles in robots, ships, cars, and ...

Many of the recent innovations in electric motors are found in robotics, which need smarter motors that can reliably deliver variable levels of power on demand for short periods. Electric motors can provide mobile robots ...

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