Singapore hospital energy storage

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Singapore"s First Utility-scale Energy Storage System. Through a partnership ...

Khoo Teck Puat Hospital, Singapore

The hospital developed an energy reduction plan that centered around the installation of a photovoltaic system to reduce energy use and carbon emissions of the hospital.

A solar photovoltaic (PV) system is a renewable energy technology that converts sunlight into electrical energy. The system consists of several components, including solar panels, inverters, batteries (optional), and other electrical components.Solar PV systems can be used for a variety of applications, such as lighting, low-power equipment, and small plug loads. This allowed the hospital to reduce energy consumption during the daytime. In addition, it reduces dependency on fossil fuel-based electricity.

Energy use has a significant impact on patients and health care workers. The cost of energy affects patient services and leads to higher costs. Poor air quality and increased greenhouse gas emissions can exacerbate respiratory conditions, allergies, and other health issues. Embracing sustainable energy practices can contribute to improved air quality, leading to better overall health outcomes.

The hospital aims to use energy-efficient equipment and install a clean energy system to reduce dependency on fossil fuel-powered electrical sources. This will reduce the carbon dioxide emissions of the facility and minimize environmental impact.

The strategy involved raising awareness, education, and collaboration among staff, the community, and partners, including:

The Green and Sustainability Committee together with facilities management and biomedical engineering lead the hospital"s energy and water efficiency initiatives to curb carbon emissions.

The strategy is driven by the hospital"s facilities management and includes cross-collaboration with the Housing Development Board (HDB) to install a solar PV system on the hospital building. HDB had extensive experience with solar PV installations, with different phases covering most HDB flat rooftops where practicable.

Hospital management is very supportive of any plans that will contribute to carbon reduction and sustainability. Case studies of similar solar PV installations based on leasing models accelerated the decision to install solar PV at the hospital.

Facilities management staff were involved with the solar PV installation along with the service provider. The service provider takes care of the maintenance and operation of the solar PV system, as it is based on a leasing model. Facilities management staff received adequate training to monitor the energy generated. It took about nine months to complete the solar PV installation on three towers of the hospital.

The hospital set a target to generate 1% of clean energy based on average monthly consumption. It is achievable with sufficient sunlight and a good irradiance level. Clean energy generation is tracked through a dashboard or local meter. The minimum guarantee of clean energy is 30, 989 kWh with sufficient irradiance.

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