Zambia solar container communication station flywheel energy storage installation energy storage

How does a flywheel energy storage system work?

Flywheel Energy Storage Systems (FESS) rely on a mechanical working principle: An electric motor is used to spin a rotor of high inertia up to 20,000-50,000 rpm. Electrical energy is thus converted to kinetic energy for storage. For discharging, the motor acts as a generator, braking the rotor to produce electricity.

Are flywheel energy storages commercially available?

Flywheel energy storages are commercially available(TRL 9) but have not yet experienced large-scale commercialisation due to their cost disadvantages in comparison with battery storages (higher investment,lower energy density). Another challenge is the comparably high standby loss in FESS caused by the magnetic drag of the motor-generator.

What are large synchronous flywheels used for?

Large synchronous flywheels are also used for energy storage,yet not to be mistaken with FESS. They use very large flywheels with a mass in the order of 100 tonnes. These are directly connected to a synchronous condenser in order to provide grid inertia.

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