Container based energy storage system for stabilising voltage supplies

ABSTRACT:

A Hungarian company is offering a unique battery pack with an in house developed Battery Management System to act as a power supply and storage for small communities and renewable energy production. The company is looking for potential partners interested in purchasing or distributing the system. In case of a strong partner there is a possibility for licensing.

TECHNOLOGY OVERVIEW:

The battery bank and the BMS utilize and store power from renewable sources. They can be charged not only by the turbines and solar panels, but also by the energy coming from the utility grid. The battery banks can send energy to the grid when they are full.

The purpose of the Energy Storage System is to apply a constant power supply 24/7 using the different energy generation sources like wind and sun power, grid or diesel generator. A standard 40 feet container could give space to a 2 MW capacity battery pack. (Other known products usually require 2-3 times more space.) Lead-acid batteries are usually last for 5-6 years. But with the BMS system they can prolong this period to 8-10 years. Lithium-ion packs last for 30 years minimum.

TECHNOLOGY SPECIFICATIONS:

The special designed **LITHIUM-BATTERY PACK** and with an in-house developed intelligent BMS system. The system can handle a minimum storage capacity of 20 Kw and a maximum of 500 MW/unit. It is an intelligent, unique control system that helps to charge the batteries with saving battery life ("peak" method) the result is an extremely long lifetime (min. 30 years) It can tolerate the extreme high temperature and big temperature differences very well (from -40 to +80 Celsius) thus adaptable to every geographical need.

The system operates fully automatically, the operation of the system can be continuously checked by smart devices.

ADVANTAGES:

- Efficient and safe
- Low investment cost
- The system doesn't require constant human maintenance
- It can be transported anytime, installed anywhere and rented or leased
- Has no negative impact on the ecosystem
- Adaptable directly for green energy storage (wind, sun, water, steam)
- It is able to charge from direct current

- Small size and high performance
- Can be adapted for individual needs
- Can store high volume of energy from power plants (water, steam, gas)

APPLICATION AREAS:

The system is a perfect solution for disaster areas, condominiums, eco-houses, electric charging stations, schools and small communities since it is able to provide electricity as an uninterruptible power supply.

Its small size and compactness makes it also great for electric vehicle charging stations alongside the highways and already existing gas stations.

SUPPLEMENTARY INFORMATION:

The company currently uses the system alongside a special designed:

The **„BLACK" SOLAR PANELS** can utilize the shine of the rising and setting Sun with impressive effectiveness. Under harsh circumstances like filtered light, shaded areas or high temperature it is more efficient than traditional panels. Thanks to its nano-layer the panels are self-cleaning, meaning dust will not stick to its surface. They do not need maintenance/cleaning like other solar panels and solar collectors.

The **VERTICAL AXIS WIND GENERATOR** is virtually noiseless and its cut off speed is at 1 m/s. It can generate electricity at a very low (2,5 m/sec.) wind speed. The equipment reaches its rated speed at 8-10 m/sec. It does not need to stop the system in case of storm. When the wind speed reaches the critical level, an automatic electronic brake is activated which prevents shaft rotation from speeding up. The turbine rotates at its constant maximum speed producing maximum power. The highest measured wind speed was 140 km/h.

If you are interested, please respond to:

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