Mobile power systems: the energy of the future

The issue of delivering “clean” and cost-effective electricity to each individual remains a problem even today, in the era of rapid technological growth. With over a billion people without access to electricity, local power-generation solutions are critical in providing energy everywhere, especially to places that are cut off from national or regional grids for different reasons.

The development and implementation of mobile power systems that use renewable energy are growing fast everywhere in the world. Wind, solar thermal, solar photovoltaic, biomass, and geothermal are examples of renewable energy sources that may offer sustainable and cost-effective energy to all people, regardless of their geographic location, especially to off-grid remote communities.

These sources are free, “clean”, and available. They have no territorial limits. Mobile power systems can use a single energy source or a few different ones. Hybrid power systems that combine different energy sources are mostly used. Very often, such power sources are intermittent, necessitating efficient and comprehensive control systems, such as Artificial Intelligence, to keep them running smoothly under changing conditions.

Although mobile power systems are relatively new to the market, they have already proven their reliability, safety, and cost-effectiveness. They are currently used to distribute power to remote communities, islands, mountain cabins, and other purposes. Mobile autonomous power systems, which are capable of simultaneously powering numerous electrical devices to perform a variety of tasks, is an ideal option for energy supply with a wide range of applications.

In a manufacturing plant, they can power computers for remote data entry or retrieval, as well as devices like scanners and units for quality control, among other things.

At home and in the office computers, printers and cell phones can all be powered by a mobile power system. They may also power lights, alarm systems, garage doors, televisions, music players, medical equipment, fans, and even fish tank lights in the home during power outages.

In the educational process in classrooms and auditoriums, audio-visual equipment can be powered by such systems as well.

In military facilities, mobile power systems play a crucial role in distributing power to numerous electric devices. The demand for communication systems is growing rapidly in defense. This makes supplying power for field missions quite a challenge. Soldiers increasingly use electric devices and communication systems. As a result, mobile power systems of various capacities become a successful solution for providing military facilities and people in the field with the necessary power.

The main advantages of mobile autonomous charging stations are:

1. Simplicity and rapidity of deployment;
2. Operation during power outages;
3. Supplying energy to remote areas and homes that do not have access to the grid;
4. Efficient use of natural energy and energy independence.

It is possible to considerably increase the network's capacity, intensify its flexibility, and ultimately speed the decarbonization activities by using mobile power systems. Such cutting-edge technology also boosts the wider implementation of renewable energy.

One of the best examples of mobile power system technologies is MASWES (Mobile Autonomous

Solar-Wind Electrical Station), developed by a team of Slovak and Ukrainian inventors and engineers. This invention represents a mobile photovoltaic and wind power plant that is suitable for a wide range of consumers.

MASWES relies entirely on environmentally friendly renewable energy sources. Electric vehicles and remote households, electric tractors and isolated areas, mining businesses, and military facilities can be supplied with power easily by using MASWES. The station, which is constructed on a 40-foot container, will produce a minimum of 124,000 kWh per year for Southern Europe.

Depending on the conditions and the facilities, the station can operate off-grid or on-grid. It offers a vast range of benefits and can charge up to six electric vehicles.

MASWES is:

- environmentally friendly,
- inexpensive and cost-effective (about 0.065 €/kWh),
- autonomous,
- mobile and easily transportable.

MASWES will have a highly reliable integrated protection system and its AI Technology will find the best locations adapting to weather conditions.

Furthermore, the manufacturer is going to provide a variety of options for the station’s usage, including property, rent, sharing, or selling. There are a few competitive devices on the market right now, but according to experts estimates, MASWES is the most cost-effective among them.

MASWES is distinguished by its improved power and operational reliability. Its software will ensure that every rechargeable battery receives a consistent charge regardless of the weather. Besides, other hybrid mobile stations, unlike MASWES, sometimes employ diesel or gas generators and hence cannot be considered entirely ecologically friendly.

In today's world, attempting to make global electricity generation greener, cheaper, and decentralized, such inventions as MASWES are the promising operational solutions that promote an easy and efficient transition to sustainable green energy, supplying power to every distant territory and object.