03. Wireless hence easy to install;
05. High measurement accuracy;

Modem Features:
01. The modem safely transmits data from the sensors every 10 seconds.
02. Reliable communication channel allows you to connect to the modem up to 300 sensors
03. Requires a minimum amount of the Internet traffic
04. Wi-Fi / Ethernet / 3G / 4G connection

Software features

01. The energy indicators you want to display can be selected:
– power consumption (kW) – electricity consumption (rubles)
– consumed electricity (kW * h) – current (A)
– power factor – voltage (V)
– reactive power – network frequency (Hz)
– consumed active electricity
02. The data can be saved in a table

Download the necessary information for any period and any equipment in one click. The data export tool will allow you to create files in image formats (* .png) or Excel file (* .csv)

03. Data comparison

Compare data with similar periods in the past to detect deviations in equipment operation and monitor the dynamics of energy consumption and equipment operation

04. All information can be viewed from a mobile device anywhere in the world.

Due to this system, energy costs can be significantly reduced, costs will be lower, and profits will be greater. The average payback period is 105 days.

APPLICATION OF ELECTRIC ENERGY STORAGE DEVICES IN ELECTRIC SYSTEMS WITH RENEWABLE ENERGY SOURCES

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The exponential growth of renewable energy sources strongly requires a clear understanding of the nature of their work in the changing climatic conditions, as well as the development of the existing infrastructure of the energy system, the nature of consumers, the rational use of energy and the need for its accumulation and supply at the required time.

Keywords: electric systems, renewable energy sources, energy storage device, electric power systems, electrical grid.

In order to reduce the negative impact of human activities on the environment and the depletion of mineral resources used for hydrocarbon fuels, the electricity generation sector is on the verge of a major transformation, driven in large part by the increasing use of renewable energy sources such as wind and solar energy. Taking into account the adopted concept of integration of renewable energy generating facilities, as well as the nature of their operation, electricity storage is considered as a key technology that is crucial to ensure this transformation.

Batteries for energy storage have been used in industry for many decades. Although accumulation in itself does not save energy, but rather leads to additional losses, it can significantly facilitate the management of energy consumption and, accordingly, reduce in many cases its irrational use. It's known that the generated electricity of most renewable sources is subject to periodic and random changes (wind, solar and hydro energy). At the same time, the rate of energy consumption varies in time both during the day and during the year. The alignment of energy production and consumption over time can be achieved through energy storage devices (ESD).

Various kinds of energy storage devices can also be of great importance for improving the modes of operation of electric power systems (EPS). For example, ESDs, which have a high speed and the ability to instantaneous power reversal, can be very significant in improving the static and dynamic stability of the EPS. With the help of ESDs, short-term peaks of the load can be removed; fluctuations in irregular flows of exchange power, as well as load

points can be damped. An energy storage device can play a great role for balancing unbalanced modes and keeping current frequency and voltage when they have small and fast variations.

Energy storage devices can contribute to keeping the emergency control system in working order and thus to the prevention of cascading failures. ESDs can have a great advantage over other types of reserve being able of almost instantaneous entering into the EPS operation.

To perform various functions related to the operation of EPS and renewable energy sources, the power and energy intensity of the ESD should be unequal, as well as its speed. It is possible to construct an ESD having different components, a greater or less speed depending on its nature. For example, if we consider the application of storage systems for renewable energy technologies (RET), powered by wind energy, as a rule, we can take into account two circumstances. One of them is that wind energy fluctuations are present at different wind speeds, which requires the energy storage system to align the power output graph in different time ranges. The second circumstance will develop from dominant character of loads of the electric energy consumer.

In energy storage systems operating in a static mode, it is mainly possible to use lithium-ion or vanadium redox batteries, since they can have a large capacity to keep the output power in a given range. In energy storage systems, working primarily in a dynamic mode, you can use supercapacitors or flywheels. When using a wind generator as a renewable energy source, it is necessary to take into account that wind energy fluctuations are divided into short-term and long-term components, and for the effective use of storage systems, two-level storage systems can be used, for example, lithium-ion batteries and supercapacitors, or vanadium redox batteries and flywheel, etc. [1–4].

After analyzing the information presented, it can be concluded that the choice of energy storage equipment may depend on the parameters of an electrical grid and/or a renewable energy source. Using energy storage devices it is possible to accumulate electricity generated from RET during low loads, and to generate it during the day at peak loads. The advantage of energy storage devices is the ability to keep static and dynamic loads of the electrical grid. Also, an energy storage device can participate in the accumulation of electricity from an electrical grid at the time of a consumer deficient load; and to contribute to keeping the emergency control system in working order and thus help prevent cascading failures, which is one of the main problems of the power industry.

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ECOLOGICAL SIGNIFICANCE OF WHITE MISTLETOE (VISCUM ALBUM L.)

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This article presents a brief description of the plant, which is widely distributed in the territory of the Republic of Belarus. At the moment, white mistletoe (Viscum album L.) has become part of the active invasive plants. Its spread contributes to the increase in the number of parks and areas of orchards. The latter is due to the increase in fruit production.

The neighborhood of fruit trees with v. album l. can negatively affect their condition, which entails negative consequences for the horticulture of the Republic of Belarus.

Keywords: mistletoe white, viscum album l., invasion, invasive plants, influence.

Vegetation in urban environments creates favorable conditions for human life. At the same time, various negative factors are formed in cities, which have a detrimental effect on the vital activity of plants. One such factor is the invasion of white mistletoe (viscum album l).

V. album l. is an evergreen semi-parasitic shrub that forms globular bushes on the branches of deciduous trees. Distribution is mainly by birds eating its berries. V. album l. causes a significant decrease in growth energy,