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**Lately, the funding in the area of renewable energy sources' development has gradually increased worldwide. It is also a trend for the Russian Federation but rather not in the economically justified projects, but in the initiatives to promote the 'green' image of the corporations. For example, ROSATOM, RUSHYDRO. These companies are implementing fairly large-scale projects for the introduction of renewable energy sources using their fundings. It helps to demonstrate the feasibility of combining traditional energy technologies with renewable ones.**

The question arises on how to ensure the proper interaction of traditional and renewable energy, thus there are no violations of power quality indicators. Moreover, to ensure the reliability and uninterrupted power supply in the system.

Russia implements local projects to install renewable energy sources in remote regions, in case if it is economically justified. Since the costs of connection to power lines are significantly higher than the capital costs of the establishment of such facilities. Due to the lack of fuel costs, the operating costs of renewable energy sources are always lower than traditional ones.

In Russia, renewable energy sources are being developed for local practical application. So far, it is not economically profitable without the compensation of the costs by the expense of the market.

To guarantee the investment return, it is necessary to partly extract the funds from the capacity market (from the profit of traditional energy) and transfer it to renewable energy sources.

The share of renewable energy sources is not significant in the total balance of power generation, so the share of funds' redistribution is not very noticeable. However, if the share increase, it starts to affect the redistribution of profits more significantly.

Many experts emphasize that non-traditional generating facilities of low capacity put additional pressure on the market. Thus, traditional energy pays out of its profits for the development of renewable energy sources. Due to weather conditions, local renewable energy installations can't always ensure the reliability of energy generation, therefore these installations are equipped with diesel generators (as a backup power source).

However, it leads to the dependence of such installations on the supply of diesel fuel, which also negatively affects the environment. In addition, while the share of renewable energy sources increases, the storage system is demanded. The production of batteries is also an energy-intensive process, which requires the extraction of certain natural resources.

Additionally, it has an impact on the environment.

Although the introduction of renewable energy sources helps to reduce CO<sub>2</sub> emission, at the

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same time, the negative impact of the extraction of minerals for the storage systems manufacturing increases. Environmental experts note the insufficient research of the negative impact of the entire life cycle of renewable energy resources in combination with an accumulation system. This is a worldwide problem.

Currently, scientists are looking for technological solutions to reduce the impact on the environment.

In my opinion, it is necessary to create digital models before the establishment of renewable energy installations. Digitalization is the key to understanding how and where it is advisable to install renewable energy sources, how to make this process safe for the reliability of power generation, as well as for the environment. European analysts note that mainly projects related to wind and solar energy are financed.

However, a parallel assessment of the dynamics of the emission level doesn't correlate with the increase in the share of renewable energy sources. Other sources contribute to increased CO<sub>2</sub> emissions. Replacing traditional energy with renewable energy sources doesn't lead to the expected reduction of emissions. Perhaps this problem will be solved by the development of other renewable sources such as geothermal energy, waste processing, etc.

The prospects for using the traditional electric power system with a decrease in environmental impact should be considered. Technologies based on hydrogen and the conversion of electricity to gas are becoming more important. Consequently, energy-gas technology has great potential to provide the transfer of electricity to the users in non-electrical form. Though there are still many unsolved issues concerning hydrogen energy. The technology of hydrogen production, transportation, accumulation system, converting it into energy at the power plant.

On whole, the prospect of a particular technology has a direct connection not only to the resource potential but also to the scientific results. Thus, the development of renewable energy sources can't be predicted without considering the scientific breakthroughs. Its expectation and accuracy require the creation of mathematical models.

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