THE IMPACT OF INVESTMENT MECHANISMS ON THE DEVELOPMENT OF ELECTRIC NETWORKS

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Abstract: *In this article, the need for the problem of forming a strategy for re-equipment of the electrical network complex is considered. Creating technologically and economically efficient power supply systems leads to the need to find an optimal plan.*

Keywords: *complex, integrative, optimal, scale, benchmark, operational, fundamental, forecast, investment, describing.*

The development of any complex production system, which may be related to the power supply system, goes through different periods, from initiation and growth to saturation and decline. These stages of activity are typical for describing the life cycle for basic electrical equipment as well as technological processes.

At the initial stage, the commissioning of new modern equipment is characterized by low reliability with a high probability of failure. Possible emergencies are related to the debugging process.

Develop fundamental approaches to electrical equipment and commissioning, operation and maintenance. The second stage is characterized by a decrease in the values of the parameters of the current that are not functioning due to the introduction of the elements of the electrical network into the technological process. The saturation stage is characterized by the most reliable mode of operation of the equipment as a result of the correction of production and technological processes. The stagnation period is characterized by an increase in the number of failures associated with the wear and tear accumulated during the period of operation of the equipment.

Since any element of the power supply system inevitably enters the final stage and ends its existence, there is a need to update production capacities and the technological base - to form a technical re-equipment program. For example, innovative solutions should be financed from the funds obtained in stable operating phases - slowing down growth and reaching saturation. Such financing ensures the renewal of the technological base of the electricity supply system before the onset of recession.

Modern regulatory and production conditions change the requirements for the power supply system. There was a need for the main reconstruction of the network complex, the creation of new generation networks that meet economic and environmental requirements, as well as the modern technical level of transmission and distribution of electricity in accordance with consumer needs.

When assessing the feasibility of reconstruction or re-equipment of power supply system facilities using modern technological solutions, three main tasks must be solved:

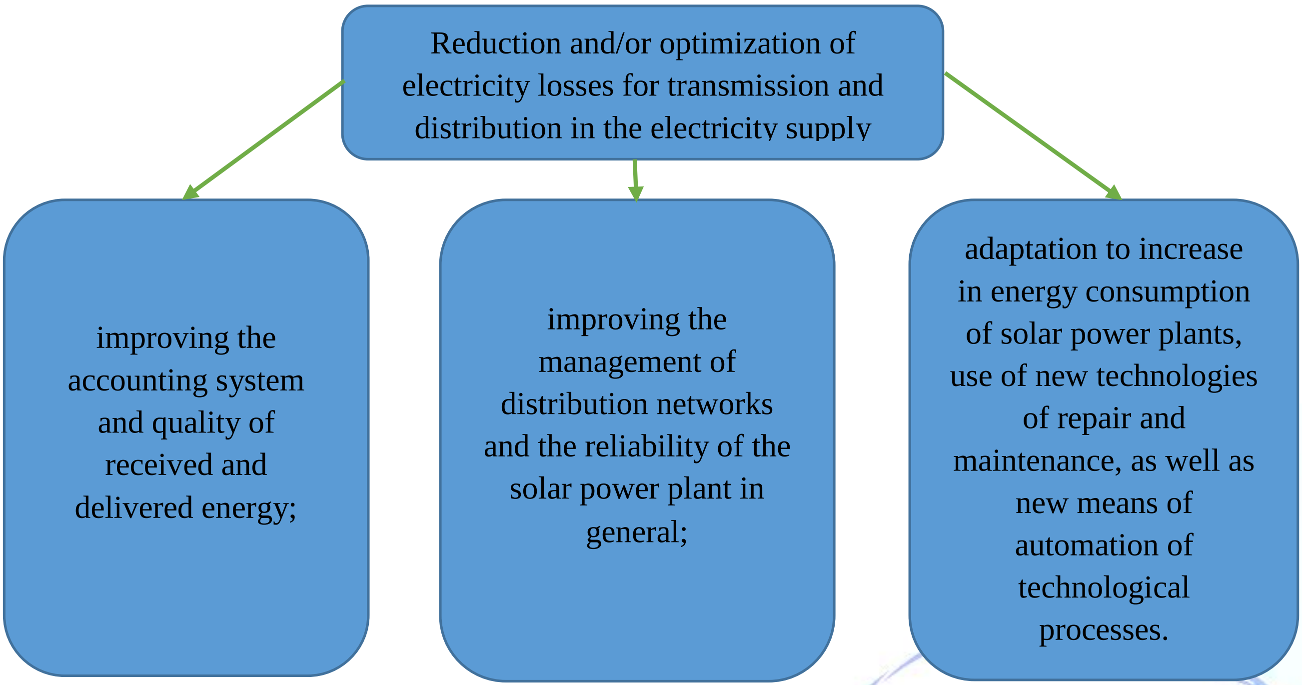
1. *Determination of the necessary rational parameters of electrical equipment*its technical condition, economic parameters, compliance with regulatory documents, their application helps to increase energy efficiency and, as a result, the economic efficiency of the power grid enterprise.

2. Optimum selection of SES electrical equipment among various technical offers of electric power equipment manufacturers.

3. Determining the effectiveness of technical modernization. The development of the personal computer puts new demands on the substation, the main switching circuits of the connections and the equipment mentioned above. Optimum use of power supply system equipment, taking into account the life cycle, forms the general parameters of the network and determines capital investments for modernization, as well as its payback period. The technical policy of power grid enterprises in the field of re-

equipment and reconstruction of solar power plants should be aimed at solving the following tasks:

- Necessary replacement of the physically and morally outdated elements of the solar power plant, which reduce the reliability and quality of the supply of electricity to consumers;
- timely replacement of direct current equipment whose parameters do not meet the voltage level, thermal and dynamic stability, as well as safety requirements;



It is worth saying that the reconstruction of facilities in the power supply system should be combined with the transfer of networks to a higher voltage class, if necessary: from 6 kV to 10 kV or 20 kV, from 35 kV to 110 kV, substation electric closer to energy consumers, reducing the length of power lines.

The evolutionary process of development can only be a development in the complex of electrical networks. Due to the large size of such systems, the power supply system networks must be monitored and managed.

Key decisions.

The experience of using electrical equipment shows that the service life of substation networks can be up to forty years or more with free maintenance according to the condition of the equipment in time. Overhaul or modernization of power supply system facilities and increases the service life by 50% on average. This leads to a gradual decrease in the technical level of the power supply system.

It is not possible to implement the technological base using outdated technical solutions to increase the operational efficiency of the power supply system by retrofitting elements and local modernization of previously obsolete devices. Exclusive use of completely new solutions for automation of processes, management and protection of networks and systems, as well as the use of new generation electrical equipment, maintenance and repair will allow to achieve changes in the quality of reliability.

According to sanitary standards and regulations, Tashkent city with more than 1 million inhabitants is one of the largest cities. In accordance with the requirements, the following requirements are imposed on energy facilities:

During the reconstruction of cities, air with a voltage of 35-110 kV and higher should be removed from the residential area or replaced with an air cable. In the largest cities, it is necessary to ensure the replacement of existing open substations with closed ones;

• 1

Transformer substations with a capacity of 16 thousand kVA and more, as well as air-to-cable transition points located in residential areas should be closed;

• 2

For closed substations containing 110-220 kV power transmission equipment, the dimensions of land plots should not exceed 0.6, and for air-to-cable transitions, the dimensions should not exceed 0.1.

The above regulatory requirements and regulations recommend the use of closed type substations only in the development area of the city if it is desirable to vacate the areas or when installing transformers with a capacity of 16 MVA and more. It should be noted that the use of gas-insulated cells allows the use of simple electrical connection schemes without rotating devices. Therefore, it leads to a reduction of the occupied area of the electrical installation.

It is allowed to use external switches when installing transformers with a capacity of up to 16 MVA outside the area intended for residential construction or in the residential area. It is not recommended to build 110 kV external power transmission equipment in prefabricated structures with independent equipment, because such solutions require a large area and cannot be used in cramped urban conditions.

It should be noted that only open substations are reasonable in terms of economic indicators, taking into account the standard service life of 25 years. Capital, maintenance and depreciation costs adjusted for the life of the equipment are typically 2-4 times lower for such solutions than for solutions using advanced equipment such as GIS.

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