ELECTRICAL ENERGY EFFICIENCY STUDY OF WATER DISCHARGE DEVICE

D.O.Nuritdinov

I.A.Husanova

E.U.Yuldashev.

Abstract: It makes it possible to reduce power wastes in electric motors and electrical networks from compensating for reactive power in order to increase the efficiency of electrical energy in water discharges. That is, using full power will prevent the coefficient from decreasing.

Keywords: Asynchronous electric motor, reactive power, active power coefficient, capacitor batarekas.

It is possible to avoid energy wastes by reducing reactive power by increasing the coefficient of active power when operating water discharge devices during normal operation and at low load.

Reactive power compensation is achieved through the following methods.

- The natural method
- Artificial (method of using a special compensating device)

Natural method: Replacement of low load conductor with small capacity. Systematically reduce the voltage of the conductor, which works with low load. Restriction to the salt operating modes of the conductors. In cases where there is no negative impact on the technological process, replacing asynchronous conductors with synchronous conductors. Using the most desirable valve changer circuit.

Artificial (method of using a special compensating device). Serial connection of the inductive reel. Parallel connection of the capacitor batareka. The use of synchronous compensators.

To carry out the research and achieve energy efficiency, the following tasks were developed.

- which method is the most optimal method for a water discharge device to conserve reactive power.

- the effect of the selected technical solution on energy efficiency.

- comparison of initial and eskperiment results

Research was carried out by selecting a method of parallel connection of the capacitor batareka of compensating the reactive power of the water discharge device.

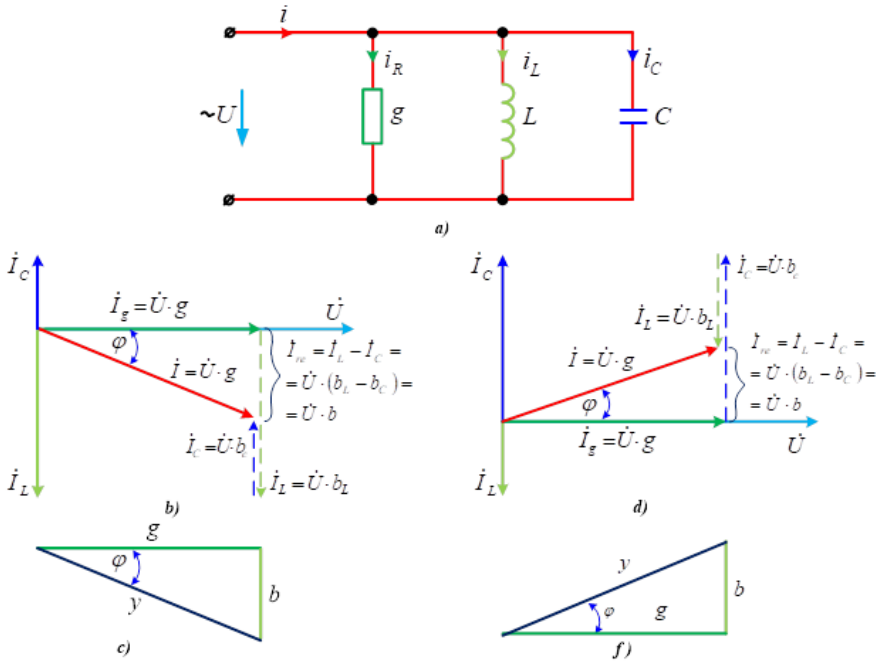

Fig 1. Scheme of parallel connection of capacitor batarekas to the consumer.

The issue of facilitating the balance of reactive power in the power supply system of the enterprise, the choice of type and power of devices, the determination of installation locations should be solved at minimum costs. One of the main directions is the improvement of electrical energy quality, reduction of waste and increased efficiency of electrical devices at the same time as the compensation of reactive power. Scientific research has been carried out on the above theory, and the reactive power capacitance 4-6% electrical energy efficiency was achieved in the water discharge device at the cost of condensed reactive power

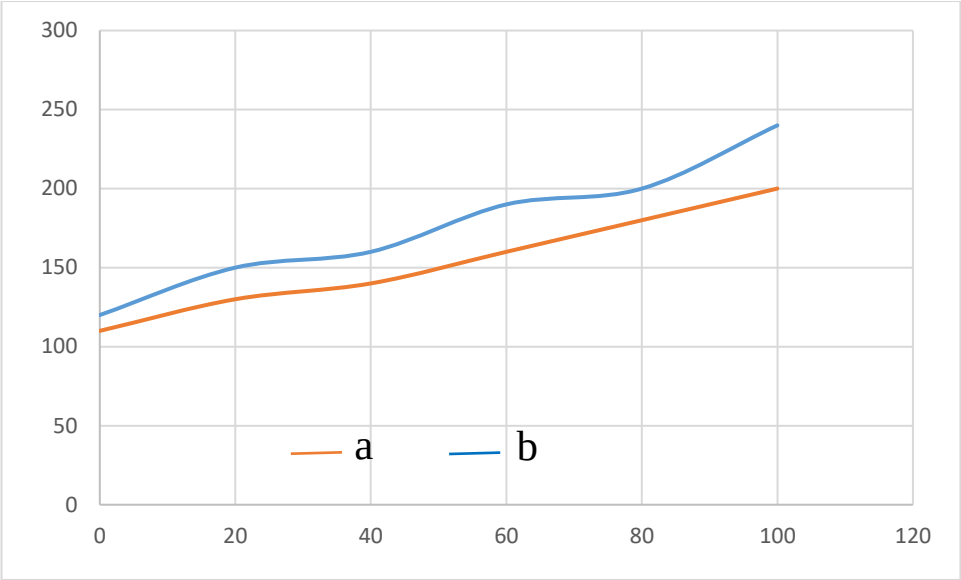

Fig 2. a) electrical energy consumption in the postconpensation state.

b) electrical energy istemol in the initial state.

As a conclusion, it is worth noting that reactive power compensation will be able to prevent power loss in the power supply system. In power compensation, each method has its own drawback and advantage. . One way to reduce reactive power consumption is by connecting two or more rectifier bridge circuits in series and controlling them alternately.

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