

AN OPTIMAL WAY OF INCREASING THE GENERATION OF ELECTRIC POWER IN THE COUNTRIES OF TRANSCAUCASIA IN THE CONDITIONS OF FREE MARKET ECONOMY

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The issue of selecting optimal way of increasing power generation in Transcaucasia republics under market economy conditions is reviewed. Based on the existing situation in power generation field of Transcaucasia republics, it is suggested to follow the principles of the expected deficit on load demand. Each republic should cover the load demand by such power station the weighted average power cost of which will be as low as possible. This can be fulfilled by just joint efforts of the specialists of neighboring republics.

Key words: *generation, daily peak, semi-peak, basis, deficit zone, power flow.*

In the conditions of free market economy the growth of electric power generation takes place if the cost of new generated electric power does not exceed the purchasing capacity of consumers and, along with this, an investor is granted a chance to receive dividends on the invested capital at a fixed interest rate.

The level of purchasing capacity in Georgia is determined by the Independent Regulating Commission on Electric Power of Georgia. In Azerbaijan and Armenia, an admissible level of the electric power cost is controlled by the respective legal authorities of these countries.

It goes without saying that the leaders of the Transcaucasian countries are aware that electric power is an essential commodity, the cost of which should be as minimal as possible. Therefore it makes sense to plan the growth of electric power generation in these neighboring countries taking into account the fact that the resources of each of these countries should be developed at such a commercial level that minimizes the cost of electric power as much as possible.

For example, it is well known that Azerbaijan possesses relatively large thermal power resources – oil and gas. Georgia has a relatively small oil resource but has a large quantity of hydropower resources. In Armenia, thermal and hydro power resources are relatively scarce and so atomic energy has to be used there.

The above-mentioned sources of electric power demand different expenses for the production of electric power and, accordingly, the electric power generated owing to these expenses has a different cost. Along with this fact, it is necessary to take into account that such expenses cover with different effectiveness different zones of the load schedule of the electric power system.

Hence it is appropriate to note that during daily peak hours, especially in the autumn-winter period, the energy consumption is much higher than during half-peak hours or the base energy amount. In that case, thermoelectric power stations generate electric power at a higher cost than hydro power stations. Therefore it will be more cost-effective if peak loads both in Georgia and in Azerbaijan are covered by by hydropower stations built in Georgia.

In the half-peak zone the load schedule is more effectively covered by thermoelectric power stations due to a large amount of fuel available in Azerbaijan.

In the base zone, the load schedule is covered nearly with equal effectiveness by atomic, thermal and hydraulic power stations which have no controlling water storage reservoirs of sufficient capacity.

Therefore it makes sense that for each country the expected deficit would be covered on load schedules by an electric power station – no matter where it is located – for which a weighted average cost of electric power is minimal. It is understood that the use in that case of a high-voltage transmission line will somewhat increase the cost of electric power, but such an increase will not lead to an essential rise in the electric power cost as compared with the cost which will be observed when rush peaks are covered by thermal or gas-turbine electric stations.

The above-described approach to the covering of deficit zones of daily load schedules, which we propose for the future construction in Georgia and Azerbaijan, will possibly decrease tariffs of generated electric power and therefore will make it possible for an investor to sell the generated commodity.

It should also be said here that the tariff level of generated electric power must be such that an investor would be able to receive dividends on the invested capital at an agreed interest rate.

All the above-mentioned estimations could be carried out jointly by specialists of the neighboring countries. This means that when designing new electric power stations, especially in Georgia and Azerbaijan, it is advisable to use perspective daily and autumn-winter load schedules worked out for Georgia and Azerbaijan and to cover these schedules taking into consideration the requirements to lower the cost of generated electric power.

An amount of electric power received by cross-transmission and the respective tariffs will be determined separately by managers in charge of the operation of the electric power network of each country.

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