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MAXIMIZING THE PROFIT OF A HPP CASCADE CONSIDERING HYDRAULIC LINK VIA RESERVOIRS

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Abstract

At the conditions of market relationships and economic and financial independence of power companies, these are guided by the principle of achieving maximum efficiency in their actions. In the article is considered the problem formulation of HPP cascade operational mode determination, ensuring maximum profit from the sales of the generated electric power at the day-ahead market. Dynamic volumes of reservoirs are taken into account using the lag time

between the waves of HPP water flow. The problem solution using the method of statistical modelling is approbated on the example of hypothetical cascade of three HPP. The results of the modelling of cascade operating regime are illustrated graphically. References 5, figures 2, table 1.

Key words: HPP cascade, regime, capacity, head level, time flow lag of water.

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References

- 1. Gornstein V.M. Optimal Operation Hydro Power Plants in Power Systems. Moskva: Gosenergoizdat, 1959. 248 p. (Rus)
- 2. Reznikovskii A.S., Rubinstein M.I. Modes Control of Hydroelectric Power Plants Reservoirs. Moskva: Energiia,1974. 176 p. (Rus)
- 3. Tsvetkov E.V., Alyabysheva T.M., Parfenov L.G. Optimal Regimes of Hydropower Plants in Power Systems. Moskva: Energoatomizdat, 1984. 304 p. (Rus)
- 4. Radu Popa, Florica Popa, Bogdan Popa, Manuela Nicolescu. Optimal Operation of Cascade Hydropower Plants.

 U.P.B.
 Sci.Bull.

Series D. 2010. Vol. 72. Iss. 1. P. 93-100.

5. Mahnitko A., Gerhards J., Linkevics O., Varfolomejeva R., Umbrasko I. Small Hydropower in Latvia and Intellectualization of its Operating Systems.

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. 2013. Vol. 50 (6). P. 3-15.

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