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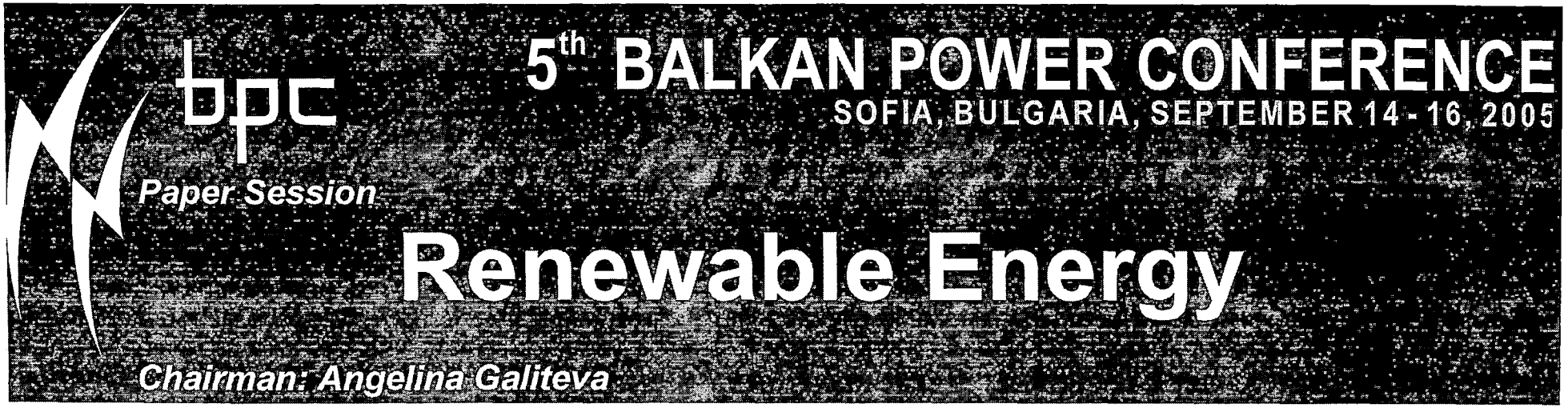

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THE INFLUENCE OF THE ORGANIZED INVESTMENT IN SMALL HYDRO POWER PLANT BUILDING ON THE DEVELOPMENT OF DEREGULATING ELECTRIC ENERGY MARKET IN SERBIA WITH THE ANALYSIS OF POSSIBLE ENERGETIC-ECONOMIC-ECOLOGICAL BENEFITS

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***Abstract*--The influence of organized investment in small hydro power plant building on the development of deregulating electric market in Serbia is presented in this paper. The results of analysis of energetic, economic and ecological benefits that can be derived from the process are also presented. In the process of initiation, preparation and forming of such approach participants were Ministry of Mining and Energy of Republic of Serbia, Electric Power Industry of Serbia, Energy Efficiency Agency of Republic of Serbia and Energy Regional Euro Efficiency Center Kragujevac. They prepared comprehensive pre-study entitled "The Master Plan for Small Hydro Power Plants Building in Serbia". The aims of that pre-study were to:**

- **preliminary investigate the influence of organized investment in small hydro power plants building on the development of deregulating electric market in Serbia;**
- **simulate energetic, economic and ecological possibilities of different variants of such approach for the next fifteen years;**
- **establish the optimal scenario for organized building of small power plants.**

All necessary political and administrative decisions related to the future development of Serbian national energetic sector are made and Electric Industry of Serbia had been already restructured. In this work, it has been attempted to identify methods for optimal management of the small power plants building in this new and for Serbian surrounding yet unsatisfactory clear economic conditions.

Besides the results of simulation of potential energetic, economic and ecological benefits from the Master plan realization, basic characteristics of original simulated mathematical model and developed software for determination of these characteristics are shown in this work.

***Index Terms*--Costs, CO_x, electric power, ecological advantages, master plan, economic advantages, small hydro power plant, mathematical modeling, NO_x, optimization, ash, income, profit, reduction of the emission, scenario, simulation, power, SO_x, tempo of the building, expense, water flow**

I. INTRODUCTION

Since the first big oil crises during the 1970-s, there were few campaigns related to the problem of utilization of small water flows in Serbia. The campaigns were initiated by the government and they were ended as media events. The only exception is one such campaign in the 1980-s, when the Cadastral with about 800 location for the building of small hydro power plants (SHPP). Today, this result serves to all persons that try to admonish that at the Serbian territory unused energy resources with 500 – 600 MW of power exists so the views of state planners must be direct toward it.

For the first time the Energy Law instituted SHPP as future reality in Serbian Electric Energy System (EES) and stated true energy significance of small water flows. Benefits of SHPP use in the Law present challenge to business people and capital but in order to achieve organized exploitation of this renewable energy potential the relevant state agencies must support a series of directed steps.

Therewith, it should be mentioned that present and future investors in energy of small water flows are interested in:

- precise locations for SHPP building;
- the amount of energy that can be produced at every location;
- building costs of every concrete SHPP;
- payback time of the investment;
- estimation of the profit that can be earned during the time of SHPP exploitation.

This does not complete the list of potential equations that interested investors and businessmen can ask. They will be interested in:

- geo-morphological characteristics of the site;
- hydrological characteristics of water flows;
- the ownership of the land where small hydraulic accumulation and SHPP can be built;
- methodology, terms and conditions for obtaining the concessions from the competent state agencies;
- the position of the nods of distributive electro-energetic network where SHPP can be connected;

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