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SUMMARY

OF THE

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BULGARIA \*

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## USE OF NEW AND RENEWABLE SOURCES OF ENERGY IN BULGARIA

The years of socialist construction after the Second World War witnessed high rates of development of the energy sector in Bulgaria as the result of the overall growth of the national economy and the raising of the standard of living of the population. Total energy consumption and primarily that of electric energy rose time and again. Almost all possible local energy resources are being presently used in this country. The use of the conventional sources has been accompanied by a programme for the utilization of new and renewable sources of energy such as solar, wind, geothermal etc. Irrespective of the fact that their relative share is not large and that they have a predominantly local importance their significance will continue to increase in the future because of the limited available energy resources. Studies are now under way in this country to use solar energy by converting it into electricity. Certain experience has already been gained in the manufacturing of units and systems permitting its use in households, industries and farming. Economically favourable possibilities to utilize the energy contained deep underground, mainly through the mineral waters, are at hand. Some interesting projects to supply households are already in existence. The problems of wind energy are viewed in the light of its statistical evaluation, developing of mathematical models and finding optimum system and design methods of its utilization. Wood mass used as a fuel remains beyond the scope treated. It is quite possible and a scheme has been developed to use wastes from wood processing as a substitute of liquid fuel.

One third of the electricity generated comes from low calorie solid fuels. Until recently, considerable amounts of such fuels with calorific value below 5200 kJ/kg were regarded as technically unusable. However, the use of coals with less than 2700 kJ/kg is forthcoming now. In this sense, they can be regarded as a new energy sources whose utilization has been preceded by solving many new technological problems. Irrespective of the fact that Bulgaria does not possess large hydroelectric resources,

their present role is significant. The energy programme provides for an increased use of the hydroelectric potential. The point is that the economically favourable hydroelectric potential is presently approaching a technically favourable one as a result of the increase in fuel prices. Hydro-electric development in Bulgaria is characterized by unique engineering projects (mainly water catchment areas) in the country's mountains and the strict adherence to all environmental protection regulations.

Research work is focused in state-owned research institutions whose activities are co-ordinated by the State Committee for Science and Technical Progress. The basic institute in this field is Energoproekt; however, the Bulgarian Academy of Sciences, the universities and the specialized institutes such as New Energy Sources, Industrial Energy, Techenergo etc. work on a number of more concrete tasks.

Bulgaria is interested in and proposes development of international co-operation in research and development in this field through participation in projects of international organizations, bilateral co-operation, export of know-how, engineering, design work and construction projects.

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