

Abstract of HYDROPOT

Government agencies estimate Turkey's economically feasible hydropower potential to be 125 TWh/year. Small waters as well as upper elevations of major water basins, which are the ideal locations for small hydropower facilities, are omitted from these estimates.

Innovative IT (Information Technology) approach, technical know-how and corporate experience will be brought together to develop a comprehensive scientific methodology for calculating Turkey's hydropower potential more reliably. Digital maps covering whole Turkey, satellite data for topography and ground cover, hydrological and meteorological data as well as measurements on river flows will be collected, correlated and used to develop flow and gradient information of every possible creek and river, from which more realistic gross and economically feasible hydropower potential will be calculated.

Project involves very intensive use of physical and demographic data and GIS (Geographic Information System) platforms, as well as development of new special SW (software) for assessment and engineering computations. IT methods will be developed to evaluate all the key parameters of hydropower potential of Turkey over the entire topography. These parameters will be stored and interrelated in a spatial database, which will provide the basis for all subsequent evaluations. A SW simulation tool will also be developed for the selection of optimum hydropower scheme.

As a result of this comprehensive study, economically feasible hydropower potential of Turkey's surface waters is expected to be much higher than the currently accepted value of 125 TWh/year. The estimated additional capacity of at least 75 TWh/year will be a new renewable energy source.

This project will help to achieve EU's renewable energy targets as set out in the Directive 2001/77/EC and will provide an economical and renewable alternative for electricity imports of member states. It will also help to achieve EU's GHG (Green House Gasses) emission targets under Kyoto Protocol.

This project will provide the IT based methodology for assessment of the economically viable hydropower potential of any part of Europe in particular and of the world in general and will make rural communities raise their living standards by new employment opportunities and supply cheap decentralised electricity supply.