



## The Place of Renewable Energies in Global Energy

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Energy is a major challenge for humanity, with needs constantly increasing according to demography but also to a certain quality of life. In 40 years, humanity has doubled its energy needs which are estimated today at nearly 170,000 TWh, of which approximately 30,000 TWh are consumed in electric form. Approximately 90% of the total energy comes from fossil resources with the inherent problems of pollution and limitation of reserves leading to an irreversible increase in energy prices and an ecological policy that is most often punitive. Faced with this, renewable energies are emerging as an inevitable alternative. The estimates (Fig.1) clearly show the abundance of these natural resources which can theoretically cover several thousand times the needs of humanity [1]. However, technical constraints and profitability thresholds limit the possibilities of exploiting these resources. Today, approximately 29% of electrical energy comes from renewables if one includes hydraulic resources. The announced development objectives seem more than uncertain and the development of nuclear power seems inevitable.

This work draws up a state of the art of renewable electrical energies: Photovoltaic [2-3], wind [4-5], marine energies [6-8], mentioning the resources, the technical limits and the profitability thresholds and the installed powers in the world.

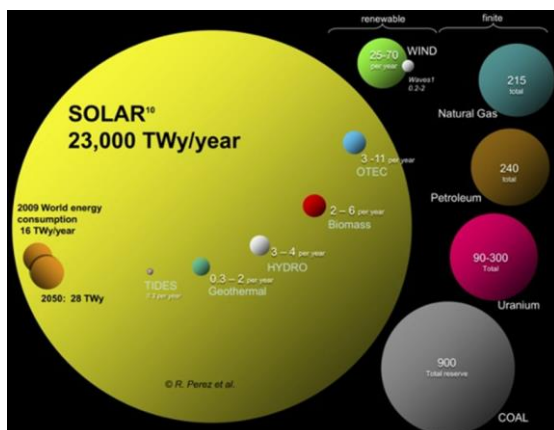


Fig. 1. Energy reserves of the planet [1]

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