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Power Generation from Nuclear and Other Renewable Energy Sources

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Abstract

Consumption of power is very linked with the material standard of living and growth of population. The probable world reserves of fossil fuel, (coal, oil and natural gas) may be exhausted sometime by the mid of this century. Therefore, developments of alternative sources of power are required. This can be achieved from new and renewable sources such as nuclear and solar energy and its manifestation, (wind, wave, biomass, biofuels and hydropower).

Nuclear energy based on nuclear fission is the worldwide most developed and promising source which is capable to provide power for different applications. The cost of electricity generation from nuclear power plant is quite comparable with that produced using conventional power stations fired by fossil fuels. In addition, it isrelatively cheaper than that produced from other renewable energy sources. Moreover, it is more friendly to the environment where much less or no greenhouse gases and radioactive materials are emitted when compared with a power station fired by coal. Also, it is worth to mention that future nuclear power station based on fusion will generate powerwith efficiency higher than that from fission and with capital reserves of fuels which can be sustained for billions of years.

The second most promising renewable source which is used for power generation is solar energy. Although the amount of solar heat received at the surface of earth is enormously large, it is still difficult to make use even of small fraction of solar energy for generating electricity by the developed and applied methods. Moreover, these methods (steam generator and solar cell) generate electricity with higher cost compared with that from fossil or nuclear fueled power stations.

Accordingly,the use of the previously mentioned sources of power will be given and discussed with emphasis on their potentiality, reliability, sustainability, cost and environmental impact.

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