

Algae Fuels – One simple solution to our fossil fuel crisis?

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India's energy power requirement today is around 170 GW even though the installed power capacity is of around 340 GW. India fulfils 80% of its power requirements by use of coal, natural gas and liquid fossil fuels. Thanks to the growing economic and industrial development, it only keeps increasing at a rate of around 7% year-on-year. India's heavy dependence on fossil fuels is directly responsible for our spending over 70% of foreign exchange earnings to meet the imported crude fuel costs.

The steady increase in the global price of petroleum crude visibly indicates the impending crisis we are going to face in the future and reducing India's dependence on fossil fuels by building power capacity based on alternative renewable sources of energy alone can provide significant power relief in tackling our country's impending fossil fuel crisis. We as consumers need to recognize this fact by taking earnest efforts to reduce fossil fuel consumption by replacing it with appropriate alternate energy source in sync with our environmental conditions.

The situation facing India is indeed grave; and most people still zealously believe that boosting production of alternative solar and wind power capacity could provide relief from the looming fossil crisis. Solar power generation in India is about 3800 MW of power, which is only about 30% of the installed capacity of 25 GW. In case of wind power generation, the installed capacity is around 33 GW and generation a poor 9800 MW. In contrast, the capacity utilization of coal power projects is about 60% and in case of hydropower, it is only 50%.

PM Narendra Modi dreams of building a 175 GW power generating capacity plant to fulfil India's future energy requirements. However, in light of the current processing constraints, it would merely generate 35 GW of power making the overall project benefits remain only as a daydream.

Electrifying railway network or promoting electric cars for transportation are seemingly

impressive options; however, the fact remains that all this needs lithium ion batteries that need electric power for charging. Using fossil fuels to generate this power defeats the basic purpose of reducing fossil crude consumption, clearly indicating that apart from solar and wind power projects, we should also look at other options to fulfilling our energy requirements. One available choice is algae derived biofuels! USA and other developed countries are already successful in commercially operating and licensing creditworthy proven technologies in the cultivation of algae for biofuel production as an alternative for fossil fuels, unlike in India where unfortunately very little efforts are seen.

India has tropical climate, an appropriate environment for algae farming. Algae' cultivation takes less than 2 months to grow and certain algae species could even contain up to 30% oil. Algae only require sunshine and carbon dioxide as inputs apart from other minor nutrients, all richly available in India. Additionally, algae do not require good quality water as it can easily grow in brackish and sewage water, that too exists abundantly in India. Furthermore, one can also ferment the biomass left after oil extraction for producing ethanol for industrial use.

India is a country with many young people looking for jobs and setting up several hundreds of MSME (Micro, Small & Medium Enterprises) for cultivation of algae and ethanol production, could turn out to be a significant opportunity to generate ample employments both in the agricultural farming setups and in the industry. Optimizing algae cultivation and producing biofuels is an obvious requirement that Indian scientists, development chemists and researchers should quickly engage in without wasting any further valuable time as efforts in this direction could not only solve India's future fossil fuel crisis but also successfully resolve our country's human resource employment issues.