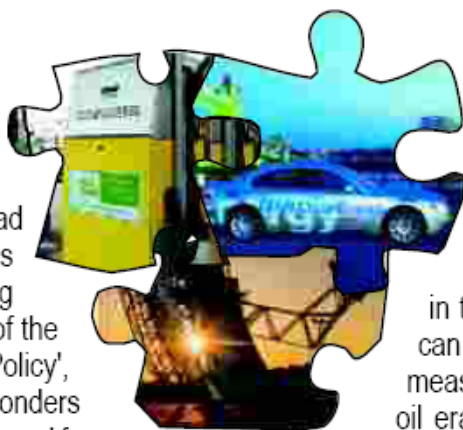


## THREE TECHNOLOGY MISSIONS FOR: BIOFUELS, HYDROGEN & SOLAR ENERGY

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In the previous issue of *Green Energy*, I wrote about the need and rationale for a Renewable Energy Law for India. The proposed model law drafted by WISE, has a very significant provision for creating technology missions in certain critical areas. Three separate, time-bound technology missions have been proposed, to begin with, to achieve the objectives of energy independence in the areas of: **Hydrogen, Biofuels** and **Solar Energy**. These are the three key areas that will power our future economy. Intensive research, development, and commercialisation of various applications of these technologies would be critical to ensure sustainability of our development process, including environmental security.

These missions can be established, even without a law. After all, we have had technology missions for subjects not as crucial as new forms of energy. After reading the Planning Commission's 'Draft Report of the Expert Committee on Integrated Energy Policy', which covers the period upto 2030, one wonders whether we have correctly understood the need for new and renewable forms of energy. While making all the politically correct noises about renewables and environmental sustainability, it goes on to chart a 'business-as-usual' scenario for energy development. The detailed views about dangers of such an approach is a subject I shall revisit in a future issue of *Green Energy*. Suffice now to quote Hon. President of India's call in his 2005 Independence Day speech: "The strategic goal for energy independence by 2030 would thus call for a shift in the structure of energy sources... The most significant aspect, however, would be that the power generated from renewable energy technologies may target 20 per cent to 25 per cent against the present 5 per cent." The Draft Report published by the Planning Commission visualises that renewables 'can account for around 5 per cent to 7 per cent of India's energy mix by 2031-32'. This assessment is based on a monolithic prediction of the future, without building alternative scenarios. The undue optimism regarding fossil fuel availability and the treatment of renewables as 'insignificant' is alarming. Any future energy planning needs to be based on achieving technology advancements in the field of renewables. And what better way to leap forward than time-bound technology missions!



But by proposing such technology missions, are we putting the cart before the horse? Because, even though a draft renewable energy policy was presented to the cabinet in 2000, we still do not have a policy. Our research efforts have largely remained fragmented. True, something is happening in the case of hydrogen – a road map has been drawn up by a high-powered group, various institutions are involved in research, and some pilot scale applications are being tried out. In the case of biofuels, we are yet to put our act together. Besides announcing a procurement price, which many feel is very low, and fixing certain percentages for

blending, no coherent policy has been enunciated so far. USA and Europe are making great strides in biofuel production. Sweden has declared that it wants to be 'oil-free' by 2020 and has charted out a plan for the same. India is already dependent on imports for 70 per cent of its oil requirements. This dependence will gradually climb to 90 per cent in the next few years. Securing external supplies can only be a medium-term energy security measure. Isn't it time we put together plans for a post-oil era? Phenomenal research is happening in the area of solar energy. In 2003, I had the occasion to visit the largest such solar research project located at Almeria in Southern Spain. More than photovoltaics, concentrating solar technology is the big thing for the future. Scaling up of concentrating solar technology for electricity production through the thermal route is already happening. The day is not far off when mega thermal power projects based on this technology become feasible and viable. Again, we have not even sensed this huge opportunity. One project planned at Mathania in Rajasthan has not taken off for the last so many years. The untapped opportunities for using solar thermal applications for industrial heat is also large. There is an urgent need to approach solar research in a mission mode.

Our over-optimism about fossil fuel availability should not result in our ideas and strategies becoming fossilised. It is not enough to wax eloquent about information technology and biotechnology – the current rages – if you believe in the future. Energy independence is the key to sustaining our development process; strategic research and development of renewables are critical for the same. It is high time we thought of time bound technology missions in the three areas of hydrogen, biofuels and solar energy.