

# Making Indian Industry, Energy Sustainable

An Interview With Mr. G.M. Pillai, I.A.S.  
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Mr. G.M. Pillai, I.A.S.

**What are the challenges that you foresee for the future with regards to the energy scenario in India?**

The main challenge is to overhaul, transform, and replace the present fossil-fuel based energy economy with a sustainable energy economy. This transition needs to be effected in the shortest possible time. Because, as oil and other fossil fuel depletion deepens, oil-dominated financial systems will collapse, with severe curtailment of travel and transport by air, sea, and roads resulting in systemic breakdowns. The spectre of climate catastrophe, economic collapse, shrinking and failing cities, large-scale unemployment and the resultant widespread civil unrest looms over us—perfectly avoidable if we make the right choices now. The current strategy of trying to securitize the external supply of fossil fuels will not work in the long-term due to high political instability in the producing countries, price volatility, increasing intense global competition for access to these resources etc.

Most of the current modern governmental and civic institutions were shaped during, by and for the fossil-fuel economy and they enabled its reign over people's lives, over societies, countries and the global economy. To facilitate the creation of a sustainable energy economy, drastic overhaul of the political, civil, and economic institutions and structures at the local, state, national, and international levels as well as the nature of their response mechanism would be required.

After a century of fossil-fuel-fired hypergrowth, the hydrocarbon economy is in its last embers. The process of gradually replacing it with a solar economy has begun. A solar economy will exemplify a completely new paradigm of decentralization, regional self reliance, equity, and autonomy and will have to be a sustainable one. The most significant challenge for economic policy today is not to pursue the mindless drive towards double-digit growth at the cost of destroying the ecosystems and

natural resource base on which all economic activity depends. Rather, economic policy today should engineer a soft landing of our society into a sustainable steady-state economy over the next few decades.

**How geared up is India for the energy requirements and what is the role of Renewable Energy in India?**

Despite many proactive actions in the last two to three years to catalyze the growth of sustainable energy, India continues to rely on its faith in business-as-usual. There is no genuine belief in the emergence of a sustainable energy economy. The honourable Minister for Environment Mr Jairam Ramesh recently remarked that "it is a romantic dream that India can meet all its energy requirements from renewables." Most of the world is moving towards a 100 percent renewable electricity system by 2050. There is no other option. And as I will explain in the answer to your next question, such a full sustainable energy system is possible for maintaining a sustainable economy.

Energy profligacy has no future in a world staring at depletion of fossil fuels in the next 3 to 4 decades. Renewables are the future and the earlier we realize it, the better so that we can plan a structured transition.

**Of all the RE options available, which you feel is most promising and why?**

It is inappropriate to classify any one RE source as 'most promising.' We need a basket of all RE sources including hydropower, to provide energy security in a post-fossil fuel world. Having said that, some distinctions can still be made. For example, at present the most commercially viable RE technology for grid-connected power generation is wind power. This may remain so upto around 2020. The potential for wind power in India is much more than the 45000 MW projected by MNRE. The realizable potential would be above 100000 MW. The preeminence of wind power may change around 2017, when solar power is expected to achieve grid parity. Post-2017, solar power is expected to become commercially viable and could then be scaled up significantly. Also, in terms of huge realizable potential, solar power is very promising. Using different solar technologies in the grid and off-grid mode, India can easily generate upto 500000 MW solar power. Biomass based power (including co-generation and waste-to-energy), small hydro and geothermal can add another 50000 MW. We will have to add maximum realizable medium and large (human and eco-scale) hydropower also for grid stability. This is required because wind and solar power are infirm and hence addition of a base-load source like hydro would be essential. It would also be essential to develop large concentrated solar power projects in our desert areas, with storage. However, a 100% renewable power grid is possible in India with infusion of upwards of 700000 MW of renewable power, including hydropower.

**How do you see the global market for small wind and hybrid systems, how can Indian players tap global business opportunities?**

Small wind-solar (and other RE) hybrid systems have great potential for rural electrification, in off-grid or micro-grid

mode. They can even be deployed in smaller-size urban buildings or for providing back-up power in high rises.

There is a latent market waiting to be discovered in India and abroad. The real problems in market expansion are many, including high costs and inability to assure the generation. India does not have a strong manufacturing base for small wind turbines. The machines sold are mostly imported or assembled from imported kits. So, for Indian players to emerge in the global market, we should have a strong manufacturing and R&D base. Improvements in quality and cost-reduction would be critical. Solar PV panel prices have fallen significantly in the last two years and there are high-grade manufacturers in India. It is the small wind turbine manufacturing sector which needs attention.

**On the low carbon development front, are the people in the value chain aware of the various incentives available from the Government for taking green initiatives**

The question is not whether people are aware of the incentives. Many industrial houses have been quick to respond to mechanisms like CDM, for creating additional revenue streams by resorting to low-carbon production routes like energy conservation, creating captive RE power generation facilities etc. More than awareness, what is needed is for the government to create level-playing field for low-carbon or clean energy technologies through market mechanisms. First of all, subsidies to fossil-fuels will have to be phased out. Secondly the cost of externalities of fossil-fuel generation will have to be factored into their price. Considering a carbon tax is also an option. So many such facilitating policies to create a level-playing field

For clean technologies will have to be enacted. Then the market distortions will be removed and market expansion of low-carbon growth will happen automatically. You cannot expect awareness generation in a artificially subsidized high-carbon growth economy. Once policies change and market distortions are removed, awareness will follow. In the last two years, a lot has been done to promote clean energy technologies. But a lot more remains to be done.

**What are the first 5 things the Indian industry needs to do with respect to energy requirements to make India more sustainable?**

The first 5 things the Indian industry should do are:

- (i) Recognize that green is also profitable, besides being essential to building a sustainable economy.
- (ii) Achieve energy conservation not only by tweaking the power system, but by adopting less energy-intensive modes of production.
- (iii) Invest in green power for future energy security and risk management.
- (iv) Even though it may sound like a cliché, adopt the '3R' system of manufacturing viz. Reduce, Recycle and Re-Use.
- (v) Recognize that a prosperous agricultural system is the bedrock of a sustainable industrial economy and avoid converting productive agricultural land for industrial development.