Route

INDIA'S DEPENDENCE ON FOSSIL FUELS FOR its energy needs is clearly unwelcome from the environmental standpoint. But how can the aspirations of over a billion people be met without damaging the environment? *BW*'s Srikanth Srinivas moderates a roundtable that seeks to find out how the government and industry can work together to provide impetus to green energy solutions. The panelists were K. Jairaj, principal secretary of energy to the Karnataka government; Ajay Mathur, director general of the government of India's Bureau of Energy Efficiency; Rohit Modi, president of India business at Suzlon Infrastructure Services; Anjan Ghosh, senior general manager for sales marketing at Tata BP Solar; M.V. Ramana Rao, MD and CEO of MIC Electronics; Rajaram Pai, senior general manager of Moser Baer Photovoltaic; Ashok Hattangady, technical director of Conzerv Systems; and Biswadip Mitra, MD of Texas Instruments India. Excerpts:

BW: What role must government, industry and consumers play in ensuring India remains committed to ecological sustainability, as it must?

Ajay Mathur: We first need to understand what the barriers to green energy are, and what kind of initiatives the government has taken. Only 40 per cent of India's population has access to electricity or LPG, and economic development is largely driven by lack of electricity rather than (the presence of) adequate electricity. As the economy and incomes grow, energy demand by 2030 will be three times what it is today, making us highly vulnerable to international fuel prices and stocks. We have to focus on promoting energy efficiency and renewable energy.

But if the drivers are so strong, why is it that green energy is not taking off faster than we see today? The first problem is that of informing the consumer. For example, when you go to buy a refrigerator, buy an energy-efficient one. But the consumer does not have such information or, sometimes, no choices.

The second issue is that of cost. Almost every green energy product costs more than its non-green alternative. In some cases, there is a higher absolute cost. For example, electricity generated from wind costs more than electricity from a conventional pole. There is a higher direct financial cost, which does not even mean the total cost including environmental cost. In other cases, the capital cost is higher but there are savings in energy bills in life-cycle terms. These two separate scenarios require different kinds of policy interventions.

The third issue is that of bearing the cost. If a builder offers an energy-efficient building, the buyer is unwilling to pay a higher price for it — the buyer enjoys the benefits of low energy costs, but it is the builder who pays for making them available. How do we manage this issue of split incentives? To me, these are the major barriers.

And what has the government done? We have started the process of putting labels on some commonly used appliances — refrigerators, air conditioners and tube lights. Soon, we will be putting labels on ceiling fans, LPG stoves and so on. In other words, you have a choice (and more information). That leads to market transformation.

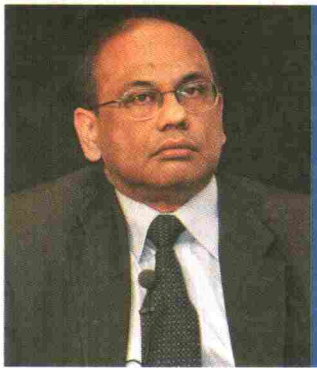
Next comes the issue of whether a new device/technology will work for me. I, therefore, need somebody to help, and provide the service and a guarantee that it will work. To do this, we are promoting energy service companies that would install, for example, efficient lighting, make the air-conditioning better, and get paid from the savings.

Through the Electricity Act of 2003, we created a provision for the state regulators to ask distribution firms to buy a minimum amount of electricity from renewable energy sources.

What about non-grid connected renewable electricity? Again, it is a question of finding a sustainable business model. At the moment, the government is willing to provide up to 90 per cent capital subsidy (for this). However, there have been no takers for this as yet. Obviously, the per unit price itself is a greater problem than it has been thought to be.

Finally, our energy conservation code for new, large commercial buildings ensures that energy efficiency is taken into account at the design stage. By doing this, we reduce consumption by up to or even more than 50 per cent.

How successful have we been? From our installed capacity of 130,000-140,000 MW, about 11,000 MW is renewable. An impact analysis carried out for 2007-08 showed that the government's initiatives have resulted in savings to the order of 3.7 million tonnes of oil equivalent. That is about 1 per cent savings from India's total



Ajay Mathur, Bureau of Energy Efficiency

"If we do not provide subsidies, this market will not develop."

EXPERT SPEAK: (From left) K. Jairaj, Ajay Mathur, Rohit Modi, Anjan Ghosh, M.V. Ramana Rao, Rajaram Pai, Ashok Hattangady, Biswadip Mitra and Srikanth Srinivas

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To Green India

energy consumption of about 400 billion tonnes of oil equivalent. It is a small number on both sides. Scalability is important.

BW: Let us hear from the companies involved in the business of energy-efficient alternatives.

Rajaram Pai: There is no denying that renewable energy is the way to go forward. The government has already taken some steps. But we require something more. States such as Punjab, Karnataka, Chandigarh and Rajasthan have been very progressive. What is required here is that once you have an incentive, it should also be backed up by state agencies. Moreover, it would help if government incentivises generation of alternative energy rather than its installation. Also, we have to adopt newer technologies with proven reliability, and improve our R&D efforts to achieve world-class energy efficiency.

BW: Now, can renewable energy alternatives be economically feasible?

M.V. Ramana Rao: Yes, all solutions taken as a total are sustainable, and can even create wealth for the organisation. If we go green with our lighting needs — street, home, offices, railway platforms, hoardings, and in villages — the savings will be enormous. We can also award attractive prizes for efficient solutions.

BW: But how do we translate all these ideas into something actionable?

Rohit Modi: Unfortunately, nobody looks at the lifecycle cost of alternative energy. The quality of alternative energy equipment in India is also not on a par with the world's best. Logistics is a huge crunch. Getting land to put up windmills is a problem, power purchase agreements are difficult to sign, grids trip, there are corruption issues, and financing issues — the Indian Renewable Energy Development Agency, which is actually supposed to be facilitating the green energy process, is asking for 14 per cent rate of interest, so it makes no sense at all. Moreover, single-window clearance is an absolute must. The power ministry and the ministry of alternative energy should not be apart. The state governments are still to accept the Electricity Act of 2003 in the right spirit. They still want to flex their muscles; they want to interfere in tariff settings. They take their minimum purchase obligation as a maximum.

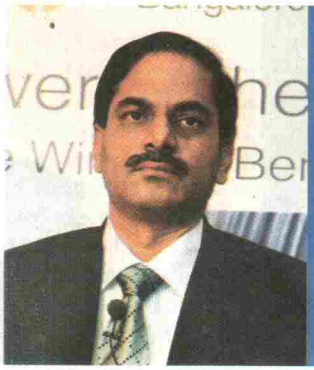
In Chennai, maybe in Bangalore, rainwater harvesting is mandatory. Any new hotel or large apartment complex has to harvest its water. I

Anjan Ghosh, Tata BP Solar

"We must keep in mind that initial cost of a solution is always high."

Rohit Modi, Suzlon Infrastructure Services

"States still want to flex their muscles, and interfere in tariff settings."



M.V. Ramana Rao, MIC Electronics

"If we go green with our lighting needs, the savings will be enormous."

think we also need to ensure energy harvesting, whether solar or wind. I am also impressed with the idea of a green cess that Maharashtra is putting together to fund renewable energy.

Ashok Hattangady: One point that is already becoming clear is that we need a paradigm shift in envisioning that there is no such thing as an alternative source of energy. These alternative sources today are mainstream and, without them, we cannot progress. It is no longer a question of conventional energy versus alternative energy but a mix of both. India's energy costs are such that electricity is about the second-highest in the world, oil prices in only India and Japan are in the bracket of Rs 45-56 per litre if you look at the exchange rates. Our energy costs are twice that of Canada's or South Africa's. Unless we find ways of improving efficiency in utilisation, there is no way that we can become more competitive.

I think carbon trading is a very powerful tool because people actually see value in reducing carbon emissions. The only problem is that it is very difficult to implement unless there is a carbon trading exchange pretty much like the Bombay Stock Exchange.

Also, bodies such as the Confederation of Indian Industry and Renewable Energy Action Forum, which are working towards green energy goals, are fragmented because they represent a particular industry. We need to see all these constituents integrating together. If not, there is no way for a cohesive effort to succeed.

Anjan Ghosh: There are technologies available, but we cannot get an additional 100,000 MW of energy immediately through renewable resources. So there has to be a lot of R&D. But companies are not doing enough, and there is not enough support from the government.

Solar energy is a decentralised solution — it can be generated quickly and is available everywhere. More than 50 per cent Indian households do not have access to electricity. Some of us would recall that just 10 years ago, we were paying Rs 16 per minute for mobile connectivity, and only a few could afford it. Today, the same service is available for 10 paise, and everybody uses it. We must keep in mind the fact that the initial cost of a solution is always high.

K. Jairaj: From the planner's perspective, the problem with solar energy is one of scale. Even today, we have not gone beyond solar lanterns and solar lamps. It is only now that we are knocking the grid connecting system. As most of the states face a paucity of resources, how do we provide a subsidy in order to make good the high costs of solar power generation?

In the area of wind energy, the kind of entrepreneurship we have is very limited. It is restricted presently to the manufacturers. But we need to broadbase this entrepreneurship. The average time taken to complete a wind project in our state today is anywhere between four to seven years. I will admit that government's cumbersome procedures take time to fulfill.

BW: Technology has always been very significant factor in the renewable energy revolution. Let us address this aspect of the discussion.

Biswadip Mitra: The semiconductor industry connected the world in the last decade, and it will make the world greener in the next. We can help move energy from point A to point B efficiently, and address questions such as quality of power, minimising losses, and monitoring. Semiconductor technology has a huge role to ensure that any appliance used at home or elsewhere has the best energy efficiency.

At the centre of these huge opportunities are semiconductor chips, analog chips, digital controllers and GSPs. Also, the pay-back period for renewable energy used to be three years, then 18 months and, now, we want pay-back in six months. As expectations rise, there are two things needed: legislative support from the government, and an efficient road map.

Mathur: Energy costs in India are amongst the highest in the world. They are even higher when you compare it with our incomes. Use a very simple affordability index: cost of electricity in rupees per kilo watt hour divided by our national income or per capita GDP, or the cost of petrol divided by per capita GDP. Compare this ratio for different countries in the world. It is the highest in India. This shows that there is little scope for increasing the price of electricity and petrol. It is one of the challenges that green energy faces.

To the question of how we promote energy efficiency, if I put it an investment now and I am going to get energy benefits later, it is going to be cost-effective. Why on earth should I provide incentives first? But I do realise that in order to climb over the hill, to overcome the barriers of people not being used to this technology, we have to do something.

When we say that we should provide huge subsidies for renewables, the subsidy will ultimately have to come from you and me, either through taxes or as higher prices of electricity. But how much more can we afford to pay? This is the problem that regulators face. This is not to say we should not provide subsidies. If we do not provide subsidies, this market will not develop, and we all agree it is the future.