

EXCLUSIVE INTERVIEW

'We can use co-generation and other energy efficient measures to reduce our load'

**Dr. Ijaz Hossain, Professor, Department of Chemical Engineering, BUET, talks to A.B.M Shamsud Doza and Zaheen Zaema Khan of The Daily Star on problems of our power sector, and evaluates government measures, particularly rental power plants, taken to manage power crisis.**

**The Daily Star (TDS): How do you evaluate the role of rental power plant projects in managing our power crisis?**

**Ijaz Hossain (IH):** Rental power has been used all over the world purely for crisis management. I do not like the word rental power, and as an energy analyst I prefer the word liquid fuel power plant. You use a liquid power plant in two cases: One is to supply very short-term peak demand, for instance, one hour a day you can run a diesel generator. This is used in many countries in the world. The other is being used by developing countries, such as the Philippines and Sri Lanka, to overcome a primary fuel crisis, a power plant crisis or issues related to a shortage of power. But in all cases they kept in mind that these were temporary measures.

They also planned for it. They made an estimate of how much it would cost and kept a budget allocation for the extra expense. In fact, our finance minister also said that there would be a separate budget allocation for rental power plant because prices would go up but would not burden the consumers. But they did not do that and are now trying to put the burden on consumers. Now, the thing is that burdening the consumers can also be a tactic, and is being used in Sri Lanka. In Sri Lanka, the power price was very high because 30% to 40% of their power was based on liquid fuel. If you look at the world energy scenario, roughly twenty years back all countries which were using liquid fuel to generate electricity started closing them down. Oil today is targeted towards the transport sector because in that sector you can sell fuel at a very high price and there is a huge demand. So, almost of the oil is going towards that. Now, if a country decides to generate electricity using oil there is absolutely no doubt that it will create a huge financial burden on it. So, what did our policy makers do? The plan to build rental or oil fired power plant was actually taken in the last stages of the BNP government. They approved a few hundred MW but they did not tell us how far they would go. The caretaker government approved another 800 MW, and this government took it as a policy to supply energy to the people. My first comment is that these cannot be called power plants; to me they are like big generators. Instead of setting up large power plants they are building small generators around the country to meet demand. That is fine from their point of view because the government was saying that for every dollar of energy not generated the country loses twenty five dollars. Whether that is correct or not, one thing is for certain, if you do not supply energy economic growth will be hampered. So the government took all measures to supply electricity but they did not keep enough budget allocation to pay for the fuel. That was a big mistake.

**TDS: Did our decision to go for rental power plant take into account market fluctuations in international oil prices?**

**(IH):** Today, they are saying that the price of furnace oil was Tk.26 per litre when they did the contract, but when one looks at the oil price over a five year period it will be absolutely clear that the price of oil is volatile, it will go up and down, for example, today it is down to \$90, it had gone up to \$110 and is coming down even more. Therefore, sometime the oil price will go up, sometime it will go down, and volatile nature of the market will persist for a long time. So, Bangladeshi policy makers' not taking that into account is inexcusable.

On the issue of how many rental power plants to build: I was in support of rental power plants mainly because you cannot do anything very quickly but you can build oil-fired power plants,

but I told everybody that the maximum should be 1,500 MW. If they had stuck to 1,500 MW and used their own money to improve their own plants things would have been much better. By retrofitting some power plants and building high efficiency gas turbines in other power plants, they could probably add another 1,000 MW. So 1,500 MW rental or oil fired power plants and 1,000 MW of new or improved efficient power plants would have brought us to the same capacity today and the impact on the economy would have been much less because we would have been able to afford the oil for 1,500 MW. But all this is still a picture of short-term or temporary measures of how to go from a crisis to a manageable situation.

**TDS: What are the long-term solutions?**

**IH:** This is not the long-term solution for Bangladesh. For long-term they needed to be very firm about deciding where the primary energy would come from. We have very little option as our primary energy now is gas or coal. We have to find new gas and I believe there is gas, but to find it we cannot rely only on Bapex, we cannot rely on the kind of drilling that is going on. In my estimation we need to do ten exploratory wells per year, and in these three and a half years we have not even done ten exploratory wells. We have done wells but they are not all exploratory wells. Therefore we are falling far behind in our gas exploration. The reason why I want to see a lot of exploration of gas is because there is a good chance of finding a lot of gas. It is important to go out and do a lot of drilling either for finding the gas or knowing that we do not have enough gas. If you know that you do not have enough gas then you can make plans for an alternative fuel. We are still thinking we will find gas and if that is so then we should be doing a lot of drilling, but we are not doing that. Our drilling programme in my mind is less than one third of what is required.

**TDS: What is your opinion on importing coal for power generation?**

**IH:** Next, in terms of coal, what have we done? Absolute disaster! We had an expectation with this government that they will be able to mine our own coal and they decided that they will leave it for the future generations. If you know that you won't be able to mine your own coal then go all out and get imported coal from India if necessary; maybe 1,000 MW from Indian coal, 1,000 MW from Indonesian coal, etc. By now at least there should have been a firm plan of 3,000 MW of coal power plants. But we notice there are only MoU signings. Price and source of coal has still not been fixed. It may be expensive as the latest data shows that it may cost \$170 per tonne of coal, which means that the power price will increase. The price may be two to three taka more than if we used our own coal. Therefore, how to get imported coal should have been the biggest priority of this government. Except for few seminars and few trips of officials to foreign countries I have not seen any seriousness. Look at the contract with NTPC we still do not know where the contract is.

Therefore, I personally believe that in three and a half years we should have seen about 500 to 600 MW coal-fired power plants near completion so that they could start production in about six to seven months, or maximum of one year. But where are we now? Not a single brick has been placed to build a coal-fired power plant and not a proper contract has been made to import coal. Even the NTPC contract has not been fully finalised and the private sector contract has just been finalised, but we do not know whether they have the money, technology or capability. If they can build and operate smoothly a 300 MW power plant then we can probably hope that maybe we can get more. But we must remember one thing, we do not have good port facilities so, if we have 2,000 to 3,000 MW coal-fired power plants, the

required coal coming in may completely clog up the river channels.

These are the issues which should have been worked upon and sorted out. If the government believes that we can develop without our own coal then I think it will be a very expensive path for development.

Three years, the government has been talking about bringing 250 MW of grid electricity through transmission lines, but that has not yet happened. So, in the areas where we can get cheap and reliable electricity, the government has been very slow. Right now, the government has given contract to a private company to build more than 1,000 MW of coal fired power plant. My question is, has our private sector become so matured that it can build and run a coal-fired power plant? The logistics are huge and I am not even sure that they will be able to make a good contract to procure coal. So, you see again what these people will be doing. They will be running all over the world looking for money because they don't have own financial resources, they will be looking for investors. This is precisely what happened with Bibiyana. They said that they are going to build a power plant and after getting the contract they are now looking for money. Why would they need World Bank's guarantee? It is only because nobody wants to give them money. So, what kind of private power plant building is that? The government should have used their own money to build at least one of the Bibiyana power plants. For three years, the government has been giving nearly one billion dollars every year. They have built very few power plants with their own money. Maybe about 400 MW power plants, so where has the money, the three billion dollars spent over the last three years, gone?

You see they are again investing in distribution line, transmission line and other things, but in all the power plants that they have built, including rental and non-rental, most of the money came from the private sector. So, the government does not want to spend its own money to build power plants. If you don't then you do not have control, you will not have a good share in the market and you will always rely on the private sector. I am not against the private sector but the problem is that the main power generating utility, Bangladesh Power Development Board (BPDB), must remain healthy. If it doesn't, then it won't be able to control the private generators. So, I think in many ways we have lost about three years in the power sector and we have actually gone backwards. All we have is some very expensive oil generators. We will get electricity for a few years from these but it will remain a huge burden.

**TDS: Many say that due to rental power plant we have earned billions of dollars and kept the growth machine running. What do you think?**

**IH:** If there are people who say that because of these rental power plants we have got energy which has sustained our growth and we have earned so many billion dollars, that may be so but we have also paid a heavy price. So, maybe the net effect, in my mind, is probably zero. They can claim that at least it is zero, and not negative but we are supposed to develop, which we are not doing. Our development is really at the same point. You see load-shedding has started again. Now it is a bit cool so the load-shedding has stopped. A big portion of our demand is due to air conditioning and other cooling needs. More than 1,500 MW of our supply is spent here. Just because it has cooled down, 1,000 megawatt of demand has come down and the load-shedding situation has improved.

**TDS: We hear the government often boasting of doing a lot for the power sector, but on the ground we see very little has changed. How do you look at this gap?**

**IH:** I do not believe that any government ever had a group of people who understood all the issues and also how to manage an energy supply system efficiently. On top of that you put in corruption and on top of that you add system loss. So, we have a situation where the government is probably giving several billion dollars and you are losing some due to corruption, and then losing some due to

inefficiency and actual theft of electricity. So, maybe in the end we are not even getting benefit of one third or more than 40% of our money.

We are looking at a certain amount of investment

when we look at the budget but actual work and what we actually get is probably 30% to 40% of that, and that cannot be enough. So, the first thing is that not enough money is being injected correctly into the system.

Secondly, what happened during the early '90s is that the World Bank and other multi-lateral organisations decided to pull out funding from the energy sector because they said that the private sector, both local and foreign, was very eager to invest, and that has happened. We got two very good power plants. They are still supplying huge amount of electricity at a very good cost. So, we could have tapped that source.

The other problem is the Independent Oil Companies (IOC). There was a government case against allotting new PSCs onshore. We want Bapex to do exploration, but it has suffered greatly due to neglect for more than ten years. It is just now beginning to get some money but it cannot deliver the goods so easily. Onshore, we have restricted all the international oil companies. The debate on gas export has set us back at least five years because either we need the foreign countries to do exploration or we need to do it with our own money. Foreign countries were excluded because export did not take place, but we did not use our own money either. Right now, this government is putting in a little bit of money but I don't think it is enough.

Lastly, we must understand that we live in a global world and that the price of energy is going up and it is now a very valuable and expensive commodity. Previously, regardless of the price of oil and other things, we could rely on a very good quantity of our own gas. It was very cheap so we used it recklessly and now it has become very scarce. So, there is a three-fold problem, which I have discussed, and I don't think any government has been able to handle it properly.

**TDS: Another issue is efficiency of the power production system. What steps could be taken to increase our efficiency in power production?**

**IH:** We are using oil-fired power plant but these are small, inefficient generators. If you use oil-fired power plant in a combined cycle configuration then your cost of electricity will come down to half. Right now the total cost of electricity is Tk.14 which will come down to Tk.7. So, if we do want to use oil we can use the best technology to bring cost down. But because we are doing this for a short term we did not think of that. So, my suggestion is that if we feel the need for oil-fired power plant then we should have the best oil-fired technology for baseload so that the price comes down and our burden decreases considerably.

We must do huge amount of exploration and I believe strongly that we will find gas, and if we find gas then we can have more gas-fired power plants. We must also have good contracts for importing coal, based on the fact that the government is failing in mining its coal, so that our coal-fired power plants can run.

Lastly, we must practice energy efficiency. We must force the consumers to buy efficient devices and, we must have a law in the country that we cannot have inefficient air conditioning equipments. We can also use co-generation and other energy efficient measures to reduce our load.



Dr. Ijaz Hossain