Mr. David Garza, Session Chairman

Our final speaker of this session is Mr. Arup Ghosh. He is a power sector veteran of three and a half decades. He has been extensively engaged in all facets of transmission and distribution operations, restructuring of the power sector and institutional strengthening of electricity utilities to enable them to cope with regulatory controls. He has worked with electricity utilities in India and Mauritius and has been with North Delhi Power Ltd. (NDPL) of the Tata Group since November 2005.

Mr Ghosh is an alumnus of Indian Institute of Technology, Kharagpur. Subsequently he has received formal training in general management at Administrative Staff College of India, Hyderabad (MDP), Indian Institute of Management, Kolkata (EDP) and Xavier Labour Relations Institute, Jamshedpur (EDP). He has also received training in regulatory matters from Institute of Public-Private Partnerships Inc (IP3), Washington D.C.

Please, let us welcome Mr. Ghosh.

Mr. Arup Ghosh

Delegates of ICF, ladies and gentlemen, a very good afternoon to you!

I will speak about whom I work for and what we do. Then I will sketch a brief scenario of the Indian Power Sector. Then I will focus on what the power sector means for the cable manufacturers and finally, what we can do for our mutual benefit. But before I begin my talk, one small caveat: Whatever I speak of today are my own views and not necessarily those of my

employer, so if you want to hurl any brickbats, aim them at me, not my employer.

The item on your program says NDPL/Tata Group, so I will talk a bit about the Tata Group. In India, we have several business houses and Tata is one of them. In terms of market capitalization, turnover, etc. we are amongst the top three in the country, if not the largest. We have 90 odd operating companies within the group, 30 of those are listed. Market capitalization of those 30 listed companies is about $100 billion. Lately, it has come down a bit from $107 or $108 billion because of the ongoing market crisis. The group turnover at the end of this fiscal year would have been $115 billion, but because of the slowdown around the world it will probably be a shade over $100 billion. The two largest group companies are on the Fortune 500 list. They are Tata Steel and Tata Motors and both are around 350 on the Fortune 500 list in terms of turnover.

We jokingly call ourselves a Group, which is into everything from salt to software. This is true, the largest selling brand of salt in India and the country's largest software company are part of our group. The group has several verticals. It has steel, it has motors, software, hotels, chemicals etc. And then there is the energy, the power vertical, headed by Tata Power Company, which is the largest private sector power company in the country. During last fiscal, Tata Power had a turnover of $4 billion. It is mostly into generation of electricity and has a smaller presence in distribution of electricity.

North Delhi Power Limited (NDPL), is 51% owned by the Tata Power Company and 49% owned by Government of Delhi. I work for NDPL. NDPL distributes electricity in the northern part of Delhi and will have a turnover of about $700 million by the end of this Fiscal.

If we look at the distribution business in India then we have about 45 or 50 of Distribution Companies, or Discoms, as we call them. Each state has at least one and sometimes there may be five or six depending on the population, the demand, size of the State and other factors. About 5 or 6 of these are privately owned and managed and all the rest are owned and managed by various State Governments. All these Discoms are at the end of the value chain of the electricity business in India. Together, these 45 – 50 Discoms distribute something like 180 GW of electricity. In addition, because we have a shortage of electricity, there is also a lot of captive generation, some of it is tracked and some of it is in the unorganized sector. A very conservative estimate would put captive generation in India at 40 GW. Hence India has somewhere around 220 GW of generation capacity.

In spite of all of that, the peak demand shortage is estimated at 13% and the shortage in terms of energy is something like 6% - estimates vary 6.5% to 7%. Let's assume it to be 7%. But more than shortage, for all the distribution companies combined, there is a total Transmission and

Distribution loss of 35%. That means, in India one-third of the electricity generated is not accounted for or lost and does not bring revenues to the distribution companies.

So we have a peculiar situation in India. On one hand this is an economy of 1.3 billion people growing at a rate of 8% to 8.5%, last year it was more than 8% but we are not quite sure how this year will end. In any case it will be more than 7%. So you have that kind of growth taking place and on the other hand we have a massive shortage of electricity and huge inefficiencies in the distribution companies. And everybody would agree that efficient availability of electricity is one of the pre-requisites of sustained growth. Hence it would seem that we in India are rapidly getting into a contradictory situation. A situation where growth would get affected due to unavailability of electricity.

In Delhi, we also had this huge inefficiency problem, which is the reason why the state-owned electricity company was privatized. I think w can all agree that Governments can be very good at governing, but they are not that great when it comes to managing businesses. In fact, it is pretty bad at this task.

In India the power sector is still managed predominately by the Government. It is changing and one of those early harbingers of change was Delhi, where the government decided to privatize and that is how we stepped in, in 2002. Since then, we have improved. When we started, we had a transmission distribution loss of 53%, i.e. 47% of the electricity was billed and 53% vanished. Nobody knew where it went. Customer service and reliability figures were in terrible shape. But in the last ten years we have done pretty well. We have exceeded regulatory targets every year. By and large, everyone in the electricity sector would agree that North Delhi Power could be a model, has set a benchmark, on how to reform the electricity sector in India. Our transmission and distribution losses have come down to less than 13%. In nine years we have gone from 53% to 13%, quite an achievement. Reliability figures have improved by a factor of more than 100 etc.

Now, how does all of this tie into your core business – manufacturing cables? It does and let me explain how.

The situation in India has reached a critical stage. As I mentioned before, the State Governments control something like 180 to 190 GW of electricity distribution out of the 220 GW total. All of those Discoms are bankrupt now. The State Governments, there are 26 states in our country, have been funding them, trying to keep them afloat, but because of structural issues and political considerations, they don’t seem to want to privatize them. Now they have reached such a critical stage, that it is beginning to hamper further economic growth of the country. It is failing to meet expectations of consumers.

Dissatisfaction is building up. They are bankrupt and they can't provide enough electricity to fulfill the need of the nation. There is a huge amount of load shedding taking place, service levels are abysmal and the country's economic growth is in danger, so a huge momentum towards privatization of distribution has developed all over the country.

Some states are more progressive than others and some have already enacted measures and put processes in place, to begin privatization. The moment privatization happens, you will see in India a huge spurt in demand for all kinds of electrical equipment. That is because the Discoms did not have money for the last ten to fifteen years for meaningful capital expenditure and hence the distribution network is essentially falling apart. Reliability is a huge problem. The concept of N-1 does not exist in most of these Discoms.

When privatisation happens, and that is inevitable, whoever takes over these companies would have to launch a massive capital expenditure program. The new managers of the Discoms would be buying huge quantities of cables, switchgears, transformers etc. The money to fund that asset creation would be available since the distribution business is entirely regulated. As long as a Discom proposes an investments which can be recouped within a reasonable time frame, the regulator will allow the investment. So funding is not the issue. The issue is finding someone with managerial skills and the ability to do it, stepping in from the private sector.

My personal belief and certainly that of my employers, we do believe that the reforms in the electricity sector should start picking up from the middle of next year. Within the period of two to three years from now, probably by the year 2014, we're going to see that the electrical equipment requirements should be about four times what it is today from this sector. Now I fully understand that as cable manufacturers you would not be selling cables only to the electrical sector, there are several other sectors as well. But the distribution business is an important segment for low-voltage and medium voltage cables. The transmission segment would be a somewhat important segment too, probably the only segment for high-voltage and EHV cables. That is another story, but if you look at the low voltage and the medium voltage segment, from the distribution companies the demand should increase by about four times by the year 2014 or 2015 at the latest. We are certain of this from our own experience. In the last nine years since privatization, we have spent six times on cables on a per year basis as compared to what the previous managers of the State owned Discom spent in the nine year just prior to privatization.

So there is a huge business opportunity. Whether a cable manufacturer decides to set up shop in India or whether the cable is manufactured outside India and then imported into India, it doesn't really matter as long as it is economically competitive. The demand is certain to shoot up.

So there is an opportunity here, but that opportunity also comes with a huge amount of problems. That is the last part of my talk here. The distribution business in India is a regulated business. The rate at which we sell our electricity is regulated, it is fixed by the electricity regulator. The profits we make are fixed by the regulator. So our top line is regulated, our bottom line is regulated and all the cost elements in between are scrutinized by the regulator. Typically, the distribution business buys its cables on an L1 basis. Cables are treated as a commodity rather than as a unique piece of plant and equipment by the distribution business.

That is unfortunate and we learned this the hard way. Incidentally I have been in the power sector for about 35 years and I have gone the full circle. At the time when I started as a young rookie engineer fresh out of college, a long piece of cable, a circuit, would be treated with reverence, we knew it was as important a plant as say, a generator. Then we got into a situation where I saw everybody around me treat cables as commodities. It comes by tons or kilometers or whatever. But when it comes to transformers or a switch or generator we still treat it as something special and as a unique piece of plant.

The specification we use for cables is very similar to what other Discoms use. Nobody tracks the life-cycle costs of the cables they buy, what would be the total ownership costs etc. No one tracks whether the cable lasts for ten years or forty years. There is no investigation when a water-treeing happens and the cable fails or some other aspects of the quality of the cable comes to light. There is very little respect in the manner a cable is handled, the way a cable is laid, is installed etc. We have found that this sort of careless attitude towards cable is actually affecting our costs. So what we did at North Delhi Power was to try to educate ourselves, to improve our specifications and to restrict our purchases to quality manufacturers. We have also tried to treat our cable as a plant and equipment, which is as important as a very large transformer or a whole substation.

We are also exploring if we can do residual life assessments and take precautions so that the cables last a bit longer. A cable circuit is not only the cost of the cable, its also the cost of installation. In most metros in India, it costs 1½ times as much to actually lay that cable and restore the surface. So if I am going to buy a cable at say 100 rupees per meter, my final cost is going to be 250 rupees per meter, because I am going to pay 150 rupees for excavating and restoring the pavement or the tarmac, plus the splicing costs. So the differential between the cost of the cable and the final installed costs is perhaps much more than the equivalent amount of money spent on a transformer, switch gear or even a generating plant.

It is really funny that after doing all that we don’t really bother about how

long that cable will last.

For preventive maintenance, we have started doing signature analysis of cable circuits, using essentially the same technology as we use for fault location. This shows us how healthy the cable is. With many of these cables we cannot do a partial dscharge test because it is a long circuit, but we can certainly send a signal in and see the signature, how the signal behaves along the route length etc. The objective is to find out the weak points of the cable circuit and thus take measures to prolong the cable life, reduce outages and thus minimize the lifecycle owning costs.

The other problem associated with this is that people tend to take advantage of the lax procurement processes. On one hand we have generalised specifications. On the other hand there is a kind of casual attitude toward cable, i.e. life cycle costs are not really being tracked.

Given this scenario, I do believe that what the Discoms require from cable manufacturers in India is education. There is a crying need to improve the specifications that we use in our country. There are many cable manufacturers in India, who – for obvious reasons – do not want these specifications revised. We believe that an international forum like this can make a difference, because if you gentlemen speak to the Bureau of Indian Standards and to the Central Electricity Authority, i.e. the people who make the specifications, they will sit down and listen. We have been trying to talk with them and we join with three or four other like-minded distributors to talk to them. But when only three people are speaking and 45 others are not, nothing happens. So my first request is, help Discoms in revising cable specifications.

When I speak of revising our specifications, it is often just simple little things. Most manufactures agree that there is an improved version of the XLPE-compound, it goes by the name of Tree Retarding Compound, which is made by Dow Chemical and also by a Japanese manufacturer. People tell us that this is a better compound, than the XLPE we would otherwise get. So maybe we need to revise our specifications to mention that cables will have only Tree Retardant Compounds. Take another example, when you manufacture a cable in a CCV-line, the product is far better in terms of voids, as compared to the Silane - water cured process. If that is really something good, something which will extend the longevity of the cable, then probably an august gathering like this could lobby for Discom’s cable specifications to say that cables from CCV lines only will be accepted.

If purchase specifications are improved then the better manufacturers would get a larger market share and all these marginal players who dominate the market today and are always looking at compromise, cost-cutting and the like, would be forced to mend their ways.

From the Discom’s perspective, there is very little knowledge on cables and cable handling practices, so my request would be, that some kind of formal knowledge transfer should take place. Maybe your marketing people could

take on this task. It is a fact that in the electrical engineering courses, they don't talk very much about cables. But it would be important to transfer the knowledge about what would be a good cable, what would be good installation practice etc. This kind of knowledge transfer would help Discoms immensely, if it could be done. So that is the second request.

The third request I have is that we as a distribution company have been around for nine or ten years and are now setting benchmarks in the country. If such an initiative for improving specifications, practices, working standard, monitoring life-cycle costs of the cable were started by a body like ICF, we with our limited knowledge of cables, but a good understanding of the distribution business, would be willing to work with you as partners at any time. I am not talking about profitable commercial partnership. We would be happy to do it, just to improve the distribution business scenario in India. We would do it just because we do believe that unless the energy business is reformed in India, the 8% to 9% growth that is expected in India over the next several decades will not happen.

Those three are the requests from the perspective of the distribution industry.

Thank you!