INDIA
ENERGY
FORUM

21st India Power Forum

27th November 2018, Hotel Le Meridien, New Delhi

Proceedings and Recommendations

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FOREWORD

B Bhambhani, Convenor, Power Group, IEF and Former ED, BHEL and Founder Member, India Energy Forum

India Energy Forum conducted its yearly flagship event, 21st India Power Forum, on 27th November 2018 at Hotel Le Meridien, New Delhi. The theme selected this year was **"Revitlisation of Indian Power Sector".**

The Conference received a strong support from Ministry of Power, Government of India, NITI Aayog, and private and public sector organisations in the field of power equipment manufacturers, plant operators, EPC companies, and financing institutions.

Private developers invested 8L cr and have created more than 6 Lakh direct and indirect jobs in the private sector. This investment has resulted in significant production in deficit which means the power is now assessable to all, leading to inclusive growth in the country.

However, the IPPs are currently in deep stress – potentially heading towards loss of 3.5L jobs and Rs 3 L crore of public money. Hence, it is absolutely critical that the central and state government work proactively towards relieving the above stress on an urgent basis. Prompt payment of regulatory dues by the DISCOMs will significantly ease the stress in the sector. To create demand for stressed capacity, it is necessary that Ministry of Power consider deferring development of Government owned power plants in early stage of construction and service supply obligation through stranded capacity. Government also needs to incentive flexible operations of TPPs and consider including IPP units in the ancillary services framework to increase flexible utilization. It is also necessary to revive the gas plants. We need to sustain gas based plants for Grid balancing in future by resuming subsidized gas supply through pooling mechanism.

This document aims at capturing the key highlights, Proceedings and Recommendations of the Conference.

Steering Committee

Mr. Anil Razdan
President, India Energy Forum
Former Secretary, Power

Mr. H. L. Bajaj
Chairman, Power Group, IEF
Former Chairperson, CEA &
Ex-Officio Secretary to Govt of india

Mr. B Bhambhani
Convenor, Power Group, IEF
Former ED, BHEL

Mr. P S Bami
President Emeritus, IEF &
Former CMD, NTPC

Mr Praveer Sinha
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Tata Power Ltd

Mr. V.S. Ailawadi
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HSERC

Mr. S N Roy
CEO
L&T Power Ltd

Dr. C.R. Prasad
CMD
Everest Power Private Ltd.

Mr. R N Nayak
Former CMD
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Mr. V. Raghuraman
Independent Director
Suzlon Energy Ltd.

Mr. Goapl Saxena
Director
BSES Rajdhani Power

Mr. S R Sethi
Former Member
DERC

Mr. A B Agarwal
Former Chairman, BBMB &
Fomer ED, NHPC

Mr. Rachit Verma
Energy and Urban Infrastructure, ICRA
Management Consulting Services Limited

Mr. Amarjit Singh
MBE, SG, IEF

Mr. S C Sharma
Former Director
THDC

INDIA ENERGY FORUM

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21st India Power Forum 2018

Tuesday, 27th November 2018, Hotel Le Meridien, New Delhi

Theme: "Revitalising the Power Sector"

P R O G R A M M E

09.00 – 10.00 a.m. Registration & Welcome Tea

10.00 a.m. – 11.30 a.m. **Inaugural Session**

- **Introductory Remarks by Shri B Bhambhani,** Convenor, Power Group, IEF
- **Introduction of the Summit by Shri H L Bajaj,** Chairman, Steering Committee of the Summit, Chairman, Power Group, IEF and Former Chairperson, CEA and Ex Officio Secretary to the Government of India
- **Welcome Address by Shri Anil Razdan,** President, IEF& Former Secretary, Ministry of Power, Government of India
- Address by **Prof Deepak Sharma,** Director, Centre for Energy Policy, University of Technology Sydney, Australia on **"International Perspective".**
- **Theme Presentation by Mr Sabyasachi Majumdar,** Senior Vice President & Group Head, ICRA Ratings
- **Special Address by Shri Gurdeep Singh,** CMD, NTPC
- **Inaugural Address by the Chief Guest, Shri Amitabh Kant,** CEO, NITI Aayog
- **Vote of Thanks**

11.30 a.m. – 12 Noon **T E A**

12.00 Noon – 1.30 p.m. **Roundtable on "Stressed Assets : Impact of New RBI Guidelines for Revival of the Power Sector"**

Chairman: **Shri Rajeev Sharma,** CMD, PFC

Moderator: **Shri Hitesh Sachdeva,** Partner, KPMG

Distinguished Panelists:

1. **Shri Pankaj Batra,** Former Chairperson, CEA
2. **Smt Pallavi Chelluri,** Head Asset Management Services, Siemens Ltd
3. **Shri Ashok Haldia,** Former MD & CEO, PTC India Financial Services
4. **Shri S N Roy,** Director, L&T and CEO & MD, L&T Power
5. **Shri A K Gupta,** Director (Comm), NTPC

Rapporteur: **Shri B Bhambhani**, Convenor, Power Group, IEF

1.30 p.m. – 2.30 p.m. **L U N C H**

2.30 p.m. – 4.00 p.m. **Session I: Development of Hydro Power Projects – Issues and Possible Solutions**

Chairman: Shri P S Mhaske, Chairperson, CEA

Distinguished Speakers:

1. **Shri D Chaudhary,** Director (Tech), NHPC
2. **Shri Jayant Kawale,** MD, Rattan India Ltd
3. **Shri R N Misra,** Former CMD, SJVNL

Rapporteur: **Shri S C Sharma,** Former Director, THDC

Tea will be served on the table

4.00 p.m. – 5.00 p.m.- **Session II : Health of Distribution Sector**

Chairman: **Dr Pawan Singh,** MD, PFS

Distinguished Panelists

1. **Ms. Ann Josey**, PRAYAS
2. **Shri Sanjay Banga**, CEO, TATA Power DDL Ltd
3. **Shri Gopal Saxena**, Director, BSES Rajdhani Power Ltd
4. **Shri Vikash Gupta,** Uttarakhand Power Corpn.
5. **Shri Rajesh K. Mediratta,** Director (BD), India Energy Exchange

Moderator: **Shri S R Sethi**, Former Member, DERC

5.00 p.m. **Summing Up and Vote of Thanks**

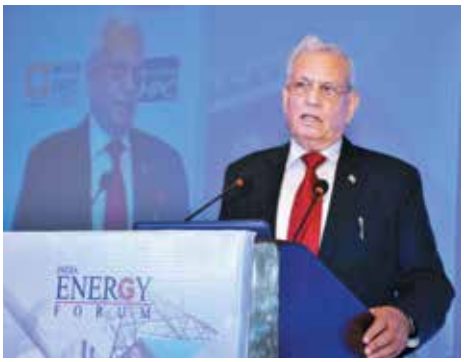
Followed by Lucky Draw

PROCEEDINGS

The conference had an inaugural session and three focused sessions. Inaugural session focused on laying the background of the conference and presented key guiding on the challenges of the three focus areas of stressed assets in powers sector and development of hydro power projects and health of distribution companies.

Inaugural Session

Mr. H L Bajaj, Chairman, Power Group, India Energy Forum & Former Chairperson, CEA



Mr. H L Bajaj began his address by mentioning that the first India energy summit was held in 1998 and since the past 20 year the summit is being conducted every year. Mr Bajaj further illustrated the growth of Indian power sector during the same period of past years in which it has grown from 88,000 Megawatts to 315,000 Megawatts. He further said that it is matter of pride that during the same period the power generation capacity has almost tripled from 400 billion units and so has the per capita consumption and the ability to meet peak power demand has gone up from 65,000 megawatts to 175,000 megawatts.

Mr Bajaj emphasized that despite the growth achieved by the Indian Power Sector in the past 20 years, the cost of supply of power per unit has always remained higher than average revenue realised per unit. Citing the latest CEA report, he said that average cost of power supply per unit is 5 rupees and 43 paise and average revenue realised is 4 rupees and 23 paise which means a loss of 1 rupees and 20 paise on every unit electricity supplied.

Mr Bajaj opened the upcoming deliberations in the backdrop of above scenario along with impact of RBI guidelines on power sector revival, the development of hydropower and health of distribution sector will get much attention to them.

Mr. Anil Razdan, President, India Energy Forum and Former Secretary, Ministry of Power

Mr. Anil Razdan stated that the motive of this conference whose theme is “Revitalising the Indian Power sector” is to take stock of the future of power and citing a report from International Energy Agency, he mentioned that whether it is lighting or mobility of heating, the future is electric.

He stated that though the main focus is on meeting the energy needs of world population, the transition in terms of greater concerns of pollution and climate change has to be acknowledged referring to the proceeding of G20 summit, he highlighted that the developed economies having slow on the agenda, a developing nation like India has been one the best performers on NDCs as our action suggest that rise in temperature is going to be less than 2 degree centigrade while for Europe, UK, Australia, Brazil and Mexico it is going to less than 3 degree centigrade. He said that if we move to countries like China, Canada, Japan, South Africa and Argentina

the temperature drop is going to be less than 4 degree centigrade while in case of some of the richest and strongest nations in the world like Russia, Saudi Arabia, US, Turkey and may be Indonesia the rise in temperature is going to be around 4 degrees centigrade by 2030.

He opined that globally by the current actions the expected rise is 3.2 degrees though my suspicion is that when COP24 meets we are going to scale down this 2 degree target to 1.5 degrees.

He stated that in future the scenario of electricity is going to be containment of emission and abatement of pollution for the longevity of life and the summit is being held to assess the future of Indian growth in that context. He said that in the year 2000, Europe and North America accounted for 40% of global energy needs while Asia accounted for 20%, the situation evened out by 2017 and by 2040 it is projected to get reversed. In this changing situation, the only constant is the need to meeting energy needs for transportation, work, factories etc. He said that coal has been dominant source but gradually it is going give way for renewables which is in sync with man's vision of achieving growth without impeding health and future of planet.

Citing the recent example of improving the constant of measurement of Kilogram and Metre, he said that power sector too is harmonising with nature in the context of use of renewables and while going through this transition, we as a nation must marry the gradual change with our manufacturing capacity. We must do this to generate manufacturing jobs, intelligent, implementation and maintenance jobs for our nation and not just be a mere trader which is crucial to our future.

Prof. Deepak Sharma, Director, Centre for Energy Policy

Prof. Deepak mentioned about his perspective on power sector, which he said is founded on three propositions.

1. Electricity business is rather complex with deep geopolitical, socioeconomic and cultural connects.

2. Our present discourse on electricity issues in my view is insular limited to the immediate confines of the electricity industry and hence in my view it is inadequate to provide deeper insights into these issues.

3. Only by extending the present discourse can we get a deeper understanding of these issues and find ways to repress the challenges that confront the industry.

Elaborating on the above perspectives through three distinctive shift over past hundred and fifty years in power industry, Mr Sharma spoke of the neo classism of the late 19th century to the Keynesianism of the mid-20th century and finally the emergence of neo liberalism in the 1980s and beyond. He said, the west in the last 19 centuries, emerging with neo classical beliefs, private interest was promoted through market mechanisms. As a result of this electricity industry was concentrated around city centres and industrial hubs. In developing countries electricity was introduced only to serve colonial interests. Hence the rural settings in developing economy remain untouched from electricity.

He further said that the first half of going through socioeconomic turmoil of two world wars, the great crash of 1929 and the demice of world standard witnessed a shift from neo classical principles to Keynesian principles.

This resulted in nationalisations and centralisations of economic institutions including electricity industry. Mr Sharma further pointed out that with the perception of failure of socialism in late 70s and 80s, a global shift of back to neo classical principles with market reforms came in play. Mr Sharma highlighted that the objectives of these reforms were economic revival and continuous prosperity but how these objectives were going to be achieved for developed and developing economies differed. He said that while in developed countries these reforms were aimed at lowering the cost of production and cheaper rates, in developing countries the reforms were aimed at attracting the much needed investments whose benefits can trickle down further and decimating the chronic power shortages in many part of the developing world.

Mr Sharma said each can have their own view if these reforms have worked or not but according to him they have not and there can be individual views for the reason of it as well like the greed of private industries or the incompetency of governments.

Mr. Gurdeep Singh, CMD, NTPC

Mr. Gurdeep Singh started his address by highlighting how remarkable it is that by 31st of December 2018 every household in the country is going to get connected to power supply, which means those who deserve can finally get the due benefits. Mr Singh said this also means that the focus should now be on to provide 24X7 and affordable power supply to these consumers within the norms of protection of environment.

Mr. Singh said in order to cut down emission and achieve affordable cleaner energy we have incrementally gone to the renewables but at the same time the demand is also increasing like this quarter it has been 10% higher. Mr Singh said to meet this growing demand new projects have to be conceived weather it is solar, wind or coal based power plants. He in said NTPC is already working BHEL & IGCAR on advanced technology or ultra-super critical power plants with an improved efficiency of 46% as compared to existing 42%. He said even with the advent of renewables, reliance on coal will be there for the next two to three decades and the thrust will be to meet growing energy demand in affordable manner taking care of environment concerns.

Mr. Amitabh Kant, CEO, NITI Ayog

Mr Amitabh Kant started his speech with the first point about the disruption that he is seeing to be happening in power sector in the coming 5 years. He stated that disruption would come from storage battery and we would require doing a lot of business process reengineering in this sector. Citing studies from Morgan Stanley and Bloomberg, he said cost of $ 276 Kilowatt/hour battery would come down as low as $70 Kilowatt/hour in next five years. This would imply that the cost of most electric vehicle would be on par with combustion vehicle and that is why we can see an increase in investment in the segment of electric vehicles.

The next key challenge that Mr Kant spoke about was urbanization. He mentioned that every minute 30 Indians are migrating to the cities which mean by 2050, 700 million Indians will

be moving to cities. This means the challenge for India will be to create two and a half Americas. Cities are drivers of global economy and by 2050 they would account for 3% of land mass, 85% of GDP and 75% of total emission. He said the process of urbanization has ended in United States and Europe, in China it is nearing to its end while in India it has just begun. Therefore it is mandatory for sustainable urbanization the trajectory of meeting energy demands is changed towards renewables. In the context of both automobiles and urbanization, India's vision should be in terms of time, speed and scale for storage batteries. He said China has seven Giga factories while US has six and India needs to strategize as the world of energy would disrupt itself.

Mr Kant further said on the topic of revitalising of power sector that as of now 66 gigawatts of conventional energy is under various degree of financial stress, which includes almost 54 gigawatts of coal based power almost 44 assets, which are under stress, in coal base almost 6.8 gigawatts of gas based power plants, nine assets, and about 4.5 gigawatt of hydro power which are about close to 13 assets. He said that the primary reason of stress is because power is not sold at the right price. He said while states like Andhra Pradesh, Gujarat, Maharashtra, Himachal have done well under Uday scheme, some others states like Jharkhand, Tamil Nadu, Telangana, Uttarakhand, Jammu & Kashmir, Meghalaya have done extremely poorly because of lack of proper metering, failing to install and monitor meters. He said it is absolutely critical that power is sold at right prices in the view of stress in the industry.

Mr Kant mentioned that though The Electricity Act, 2003 was envisaged to promote efficiency, competition and affordable power for all but now we would have assessed how far those objectives have been achieved and in Mr Kant's opinion it is not to the extent which was earlier thought of. Mr Kant said the legacy of long term PPAs are prohibiting the evolution of open markets. Open access is still restricted for consumers with greater than one 1 megawatt demand.

Mr Kant spoke of underutilization of the existing capacity reflective of the fact of lack of demand in the market on one hand and use of gensets and captive assets running on diesel kerosene and petro furnace oil on the other hand which are detrimental to environment. He said the reason for this has been the inefficiency of distribution companies to provide 24X7 supply to consumers and called upon the government to take a series of tough measures by making distribution companies strengthen their distribution networks, penalising them for their inefficiencies and prohibiting the use of gensets.

Mr Kant spoke of evaluating the continuation of powers plants more than 25 years old, many of which are depreciated plants and do not meet environmental norms. He touched upon necessity of measures like centralized power clearing corporation, swapping of coal linkages and lowering of taxation levels required to keep pace as technology disruption in the power sector through battery storage and electric vehicles would be very rapid and major policy transformation is required, if we don't want our power sector to be left stranded.

Mr. Sabyasachi Majumdar, Senior Vice President & Group Head, ICRA Ratings

Mr Majumdar discussed about the development in power sector where we have left the persistent power shortage situation behind and have moved to a near power surplus situation which has of course brought its own set of challenges. He mentioned about the impressive addition of transmission capacity in the country along with aspirations growth of renewables in the energy mix and schemes like UDAY which look to

perpetually deleverage the distribution companies. He spoke of the challenges, mentioning that we need to acknowledge that AT&C losses will be greater than the targetted 15% for many states along with the issue of demand stagnation as compared to the generation capacity augmentation.

Mr Majumdar said that though a demand growth rate of five to six percent would be considered very healthy globally but considering the capacity addition that we have experienced in recent years at an average of 20 GW per annum, the demand growth may appear to be weak with low PLF.

He spoke of the stagnation of share of hydro power in India's energy mix and the reasons of it. The share of hydro powers is projected to be around ten to eleven percent only by 2030 and the sluggish capacity augmentation in hydro sector is be held accountable for it. The challenges holding up the capacity augmentation ranges from inflexibility of tariff design which fails to accommodate the merit of hydroelectricity, long gestation period due to pre project clearances and lack of infrastructure where government needs to pitch in like roads and power evacuation set up.

Mr Majumdar discussed about the health of distribution sector and mentioned how UDAY has enabled them in deleveraging their position. He said though considerable progress has been made as compared to 2012-13 when the losses were around INR 70000 crore to 2018 where the total losses are estimated to be around 2018. He said the private sector participation and distribution franchise model though not successful at every juncture have shown impressive performances in loss reduction in many urban centres around the country. It is to take critical learning from these interventions by distribution companies while designing their policy frame work.

Mr Majumdar discussed about the stressed assets in the thermal sector which is of the capacity of around 60GW as of now. He said this is mainly due to the lack of PPAs in the sector due to which the fixed cost is getting amortised over a small number of units and subsequently generation of NPAs. He further spoke of inefficient distribution system of coal allocation to adding the burden of logistics. He mentioned that on one hand imported coal is being moved to main land and on the other hand domestically mined coal to being transported to costal and southern regions from pit head, so the optimal reallocation of coal is required to minimize the logistics costs. He also mentioned of the need to discourage aggressive biddings in favour of competitive biddings to avoid the chances of NPAs.

Roundtable on "Stressed Assets : Impact of New RBI Guidelines for Revival of the Power Sector"

Mr Rajeev Sharma, CMD, PFC

Mr Rajeev Sharma spoke of pre April 2011 situation where due to lucrative scenario, many developers set up power plant without PPA. He pointed out that lenders were sanctioning these project on the strength of coal block but the honourable Supreme court cancelled all the coal blocks allocated post 1993 in Sept 2014.He said post this cancellation RBI implemented many schemes to restructure the stressed projects for the lenders and many lenders in their endeavour to ease out the stress implemented these schemes. He pointed out that in the month of April 2018, RBI withdrew those schemes and instructed bankers and lenders to resolve the issue within 180 days or approach the NCLT but since the joint lender forum has been withdrawn by RBI, it has been very difficult to arrive at a consensus among lenders.

He pointed out the importance of connecting every household to power supply for demand creation. Stating the example of Bihar he said that demand has gone up by 70GW only due to household connection and if every household in country can be connected then an additional demand of 28GW can be generated.

Mr. Hitesh Sachdeva, Partner, KPMG

Mr. Hitesh Sachdeva pointed out that of 90 GW thermal capacities in private sector, 60 GW of capacity is under stress. He said that the above fact shows that there has been a failure of market mechanism in the power sector and it is also indicative of the fact that there has been failure at multiple levels of value chain in the power sector. He said that though some of the stressed assets have found buyers but the issue of working capital and coal supply may still be there. Referring to recommendation of High empowered committee he said, that they have path changing and seem to be only way forward to revive the stressed assets which may otherwise lead to liquidation and that does not augur well for the economy.

Dr. Ashok Haldia, Former MD & CEO, PTC India Financial Services

Mr. Haldia mentioned about complex structure of value chain of Indian power structure due to which stress resolutions get difficult. He mentioned the market mechanism is not allowed to tackle stress in the power sector but there multiple stakeholders involved from coal producers to distribution companies to regulators in Indian power sector which makes stress resolution complicated.

He said that policy revision of RBI on 12 February 2018 was stern move by the RBI which was required to correct a faulty ecosystem. He said though the government wanted, the RBI did not budge as the portfolio of the banking sector was getting worse by the day. He said that post the decision by the RBI, lenders started to looking into the issue with far more conviction and seriousness. Mentioning of procedure at NCLT, he pointed out that NCLT may have overrun issue that might have been left to COC and it is important that resolution of issues in legal purview come in time bound manner.

Mr. Pankaj Batra, Former Chairperson, CEA

Mr. Pankaj Batra mentioned about approval of power exchange by CERC in 2008 after which short term power sale came into picture. At that time rate of short term sale at power exchange was twice as much as the long term rates. Many private players made big profits due to this and this lured lot of entities into venturing in power generation from 2008 onwards.

Mr Batra said due to this the generation capacity zoomed by 2011-2012 and the situation changed from power deficit to power surplus initiated the discussion by mentioning about the impacts of decommissioning the coal plants. He further said that large scale renewable energy will have two major impacts on the market – first will be on the cost of tariff supplied to the grid and second will be on flexible operation of the plants.

Mr Batra said it is important that institutions like CEA provide long term view and scenario for businesses and investors to take rational decision as it is the public money that is involved.

Mr. S N Roy, Director, L&T and CEO & MD, L&T Power

Mr S N Roy spoke of the requirement of synchronizing the power sector capacity with the Industrial growth of the city. He added since the GDP growth of past four to five years were not as much as projected due to lack of industrialization, the demand generation has not been enough. He said that generally the green field project of various industries like steel or cement take 3-4 years from scratch to commissioning while the some tenure for power projects is about 6-8 years so there is gap of 3-4 years which creates a perception of possible power shortage for that time in the mind of investors and hampers industrialization. Therefore it is important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AMITABH KANT


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S N ROY
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RAJESH K MEDIRATTA
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to marry industrial growth with power sector be it thermal or renewable.

Mr Roy pointed out the challenges due to which the 34 thermal projects are currently stressed from lack of coal linkages due to coal block cancellation, issues of working capital to delay in project execution from the promoter.

He suggested the following pointers for tackling the situation of current stress.

1. Growth of new project to avoid further stress

2. Reconsideration of closure of old plants if they are still efficient.

Mr. A K Gupta, Director (Commercial), NTPC

Mr A K Gupta started by discussing about five elements essential for an investment decision which are land, coal linkage, PPA, water and clearances. He mentioned that looking the current scenario of the stressed assets most of them are lacking in at least one of the five mention essential requirements due to which stressed has crept into these assets. He said that NTPC has offered its expertise whether it is project management domain or operations to support these stressed assets and have done stress assessment for the same on the request of the lending banks.

Mr Gupta emphasized that for easing out the stress, the coal production has to increase and the demand for power generated has to be there which is critical for the viability of the asset. He further pointed that closure of plants should be linked to their performances and not age as cost of power from these plants are very less.

Ms. Pallavi Chellani, Head Asset Management Services, Siemens Ltd

Ms Pallavi Chellani discussed about the treatment of assets from the purview of RBI guideline.

Elaborating on her view she mentioned that assets, of which many are stressed today, are treated as financial assets but not as commercial assets and it is time when this has to be reviewed. She mentioned about the importance of power plants and said that these assets are also public assets and their importance is required to be comprehended from the point of view of their contribution towards the GDP. She further discussed about the importance to integrate the renewable energy generation with the thermal to attain long term sustainable benefits saying that thermal plants will be playing an important role and their significance cannot be undermined.

Session I: Development of Hydro Power Projects – Issues and Possible Solutions

Mr. Prakash Mhaske, Chairperson, CEA

Mr. Mhaske discussed about current share of hydropower in Indian power sector. He said out of 359 Gigawatt installed capacity, the share of hydro power is 45 Gigawatt, a capacity of 11 Gigawatt is under construction and CEA has concurred for the DPRs for the construction of 25 Gigawatt Hydro capacities. He mentioned that generation of hydropower in country started well before independence and by 1962-63 it had a share of 50% in total power production which has now reduced today to 13%.

He also said that CEA has assessed the Hydro potential capacity of 148 Gigawatt in the country. He mentioned about benefits of hydro power like black start, reactive power, ramping along with water management in flood control and irrigation. He said since the other source of renewables like wind and solar have variable inputs, the storage ability of hydropower makes them perfect for optimising renewables energy, thus highlighting the importance of hydropower in enabling India of meeting its target to cut down emission by 30% till 2030.

He mentioned about the challenges that the hydro sector is facing since 1990, the time of liberation which is making impeding investment in this sector. He talked about issues of land acquisition, rehabilitation, disaster management to having a realistic economic model with appropriate risk sharing among stakeholders and hoped that dignitaries can present their opinion for these issues in the upcoming session.

Mr. Jayant Kawle, MD, Rattan India Ltd

Mr Jayant Kawale started by speaking about the NGT clearance of Debang which had taken 10 years since the time of inception. Similarly he mentioned about the delay in other promising hydro projects in the country due to delay of clearances citing the example of Subansiri and etalin 3097 MW project of Jindal which would have been the largest hydro project in the country. He said that owners of hydro project need to go through three public hearings for obtaining clearance for the project which may take multiple years as studies for the same are required to be presented. This not only drains capital and time of the owner of the project but draws away distribution companies for the project who are not willing to wait multiple years for the project to see the light of the day. He said this

has been the reason that private investment in the sector has been lacking and only entities like NHPC and SJVNL are doing projects in the sector and due to the distress of pending clearance's even NHPC wanted to venture in to thermal and unless the process of clearances is streamlined, the prospect of hydropower is country will not be very promising.

Mr Janardhan Chaudhary, Director (Tech), NHPC

Mr. Janardhan Chaudhary started by mentioning the decline of share of hydro power from over 40% in 1960 to 13% in present day. He said the target of the government to reach 175 GW of renewable energy in the country may create an opportunity for the hydro sector as hydro power can be used for balancing the grid when 175 GW of power is added through renewables.

He said the government is thinking of some policy reforms with respect to growth of hydro sector as safety and reliability of grid is required and hopefully the corrective action will follow. He spoke of issues like environmental clearances, forest clearances and opposition from civil society as factors impeding the growth of hydro sector and suggested the clubbing of multiple hearing for clearances in to one for streamlining the process and the same has been pitched to Ministry of environment through via NHPC through Ministry of Power.

Mr Chaudhary spoke of multiple challenges with the projects in hydro sector face from land acquisition to lack of accessibility due to remote location. He mentioned of geological risks which have to be managed contractually. He spoke of other cost factors such as water cess, long term soft loans and high gestation periods. He said all these issues have made hydro power an unattractive investment proposition especially for the private sector due to which out of the potential 148 GW ,we are harnessing only 45GW of hydropower as of now and the DPRs of 26GW concurred by CEA are yet to obtain environmental and forest clearances along with financial closures. He said due to this cost and time overruns of which are sometimes to the tune of 100%, the tariff also overshoots of what it was earlier submitted to CEA, even getting doubled in some cases.

Mr Chaudhary said as the government is envisaging addition of 175 GW to power system from renewables known for their variability and there would be ample opportunity for hydropower for its ability of balancing and reliability in the grid. Mr Chaudhary said that we as a nation have the technology and resource to harness the hydro power without relying on any foreign entity. He said elaborating the benefits of hydro powers of adding reliability and stability to the power sector are in addition to other social benefits like creation of infrastructure, health care, tourism and other benefits to remotes area which are generally economically deprived. He also highlighted other benefits of hydro project connected to water management for flood moderation, irrigation and fisheries.

Mr Chaudhary called upon states like Anurachal Pradesh, Himachal and Uttrakhand with abundant hydro power potential include it in their development budget and synchronise their water policy with central government to streamline the clearnences process. The long delay in hydro project makes it unviable and hinders in closures of PPAs as well. He said that states should look in reforms at the level of issues such as capital cost, depreciation and soft loans as well the benefits of which could be passed of affront tariff. He spoke of direct benefit transfer to the

affected families in term of LADF, which will enable the local population to realise importance of the completion of project on time.

Mr Chaudhary further spoke of sharing of various costs and monetizing the unique benefits of hydro projects to increase its affordability. He mentioned measures toward reducing the soft cost component and employing component contractors who use state of the art technology to finish the project in a time bound manner so that the construction is not left languishing. He said it also the responsibility of states to ensure

Mr. R. N. Mishra, Former CMD, SJVNL

Mr R N Mishra stated about what impact global warming and the effect climate change is having in India and globally. Citing a report of 2005 from World Bank about water economy of India he mentioned that the reservoir capacity of India is as it is low and the climate change the variability in rain fall is only going to increase. He spoke about melting of glaciers due to global warming and opined that storage projects must be taken as a preparation for hard days.

Mr Mishra emphasized upon the requirement to change the view with which hydro projects are looked at. He said the displacement of local populace is very less in hydro project along with economic and social benefits that are realised in the society. He said hydro power ability to complement the intermittent nature of other renewables and the view about the high cost of hydroelectricity can be resolved considering the other benefits like flood moderation that it brings to the plate which is generally not considered while doing competitive assessments with other energy sources. Mr Mishra further discussed about synchronizing investigation project studies and investigation with DPR apprising authorities to tackle delays due to resubmission. He spoke of capital cost treatment and requirement of acquisition of knowledge of contract management for all stakeholders to avoid delays arising out of fear of audit and vigilance.

Mr S C Sharma, Former Director, THDC

Mr. Sharma started by focusing on requirement of policy framework by government to support hydropower. He said about decline in share of hydro power in country's power system and untapped potential of hydro power in Northern and North east part of the country. He spoke of pending implementation of project with capacity of 27GW that have been cleared by CEA. He discussed about simplicity of hydro project as compared to other energy sources such as solar which are still under development and the ability of hydroelectricity to serve peak load.

Mr Sharma spoke about the tariff system due to which the rate of return in hydro is not as lucrative as in other sources. He further highlighted the benefits and potential of 94GW energy from pump storage in India which is yet to be tapped. He illustrated about far less incremental cost required to renew a hydro project after it's useful life of 35 years. He further pointed out if governmental support and vision is not there to deal with challenges that have been outlines in the sector then hydro sector will further decline to 8% by 2030.

Session II: Health of Distribution Sector

Ms. Ann Josey, Prayas

Ms Ann Josey discussed about the chronic problems that that been associated with distribution companies. She pointed how challenges like high cost of power procurement, cross subsidy, skewed tariffs and operational inefficiency have been affecting the health of distribution companies for long. She pointed towards the following other challenges that may further the adverse effect on the distribution companies.

(i) Surplus capacity loading augmentation would lead to higher fixed cost charges due to low PLFs. This may lead to more non-performing assets.

(ii) An increase in captive consumption due to non-competitive tariffs of distribution companies would create further stress in distribution companies.

(iii) Migration of distribution companies to open access would lead to lowering of demands and subsequently the revenue generation.

(iv) Average cost of supply is currently INR 7 per unit which is too much for highly competitive industries, which might find it more viable to go for captive set up contracts with open access generators.

Ms Ann Josey further mentioned that an improvement in efficiency might reduce the average cost of supply but rate of growth rate of average cost of supply has been very high in recent years. She said that increasing fixed cost charges are further alienating the consumers to switch to renewables and the distribution companies have tried tariff reduction to check consumer attrition, however it has not been entirely successful as the cost of renewable energy still provides the lower cost benefits to the consumers. Referring to the technology evolution and the effect it may have on costing like storage charges are projected to below $100 per kilowatt hour by 2025, she said that this must be accounted while planning for not only long term but medium term as well. The issues of consumer migration due to open access and cross subsidy are other major challenge that distribution entities are facing.

Ms Josey suggested following reforms that could be looked into to meet the discussed challenges.

- Cost plus tariff determination should be re-considered as the cross subsidy tariff may not work anymore.
- Consumer migration should be accounted for in base load planning to avoid stress.
- Concentrated efforts to ensure migration of large consumers so that demand forecast and contracting can be done more accurately.
- Agricultural demand has been a vexing issue due to the AT&C losses and solar energy can be used to meet the demand as most entities have a separate feeder for solar demand.

- Considering the uncertainty in demand, the long term base load PPA may not be a suitable idea anymore.
- Rationalization of tariff design considering that cross subsidy is on its way out of the power sector.
- Developments of robust market mechanism having flexible instruments in power procurement and contracting.
- Development of accountability through monitoring and controlling of the quality of supply.

Mr. Gopal Saxena, Director, BSES Rajdhani Power Ltd

Mr Saxena mentioned that though the recognition of emerging challenges in power sector be it generation, transmission, coal availability, financial turnaround strength investor sentiment is very heartening but the overall scenario is not very rosy. He pointed out that there are very few private player as the sector is dominated by government entities (90% of energy coverage) and these government entities have been facing multiple challenges as below.

- High cost of supply and losses
- Higher tariffs
- Low on operational efficiency, network reliability
- Minimal adherence to SOP
- Lack of 24x7 supply and innovation for customer convenience.

Mr Saxena said that a sum of almost three hundred thousand crores has been pumped in to these distribution entities through various schemes but that AT&C losses are still around 22% for most of distribution companies in the country. He said with the rise in population and growth in per capita consumption and additional capacity of 45% may be required by 2025. The issue is that renewables alone cannot fulfil this upcoming demand of 45% and many thermal assets are stressed. In addition to this the existing transmission network may not be able to support the increased demand and planning needs to start now for augmentation of additional transmission capacity.

Mr. Sanjay Banga, CEO, TATA Power DDL Ltd

Mr Sanjay Banga discussed loss reduction has been achieved in centre like Delhi and Ajmer within the existing regulatory framework through strong leadership and correct processes.

Discussing the way forward for distribution entities, he mentioned about following measures.

- The leadership should be committed and sustainable with a long term vision, frequent change of leadership cannot solve any issue.

- Processes existing within the distribution companies should be strong to monitor and control the activities of the entity.
- Loss reduction is the only way forward as the existing tariffs are too high to be sustainable and cross subsidy is not possible.

He said that the target loss should be less than 10% and the tariff design has to be cost reflective. He mentioned that technology will be disruptor but it is the responsibility of entities to maintain it well and replace it on time. Mr Banga stressed on the participation of private players in rural segments and the need to look into the separation of wire and supply business. Then he also mentioned about the possibility of adoption of outsourcing model by distribution companies in short to medium term.

Mr. Vikas Gupta, Uttarakhand Power Corpn

Mr. Vikas Gupta discussed about the measures taken by UPCL that have enabled them to reduce their losses from 52% to 16%, mentioning that it is vision of the management that is important and it must be reflected through every employee associated with a distribution company. He said that it is important to understand the requirement of the consumer and implement processes to fulfil those requirements efficiently through technology. He mentioned about the following four consumer specific processes that UPCL has made efficient through information technology that has helped UPCL in reducing losses.

- Monitoring the billing process so that it is correct and timely
- Ensuring qualitative supply of power to consumer.
- Implementation of digital mechanism for bill payments.
- Efficient redress of consumer complains.

Mr Gupta then spoke of the measures being taken on technical side for loss reduction efficient. He spoke of measures like GIS mapping and feeder monitoring to locate the centres in need of improvement and then work upon them. He also mentioned of step like banking power with other states for optimal utilization.

Dr. Pawan Singh, MD, PFS

Dr Singh spoke about the benefits of privatization in Delhi which has led to easing of financial burden on state that used to be there to account for the losses of distribution entities. He said this outlay of almost INR 70000 crores was subsequently used for infrastructure development in Delhi. He said that it is reported that schemes like UDAY have contributed to reduce the gap between ARR and ACS but the delay in payments to the lenders is still significantly high and to his opinion this is an anomaly. The anomaly is there because the ARR is accounted including regulatory assets and subsidy payments.

Dr Singh mentioned about the need to look into PPP model for distribution reforms to improve upon the finances and system efficiency and probably the PPP model will be a lot prevalent owing to the benefit of releasing the state from the burden of power purchase

Mr. Rajesh Mediratta, Director (BD), India Energy Exchange

Mr Mediratta discussed regarding the market operations of the entities related to procurement of power. He opined that market tools utilization has been below par by distribution companies. 15 minute procurement needs to be done more efficiently to optimize the procurement cost which forms 60% to 70% of the ARR. He said a 10% of procurement cost optimization through market tools would lead 6% to 7% saving in the ARR which can create a significant impact but this is not being done well by distribution companies.

He said one of the reasons for high tariffs other than the losses were the high prices of the day ahead as preferred paying mode to avoid load shedding and the lack of easy availability of coal despite of the e-auction has also contributed to the high tariffs.

Mr. Mediratta mentioned of two tools, smart contracting and smart procurement that could be used by distribution companies to enable them to optimize the power procurement cost. Smart contracting will enable the distribution companies to look in to 15 minutes time slots and optimize their purchase accordingly, while smart procurement, distribution companies while going for PPA should do long term procurement only for base demand and leaving the higher demand for short term procurement or through exchange.

Mr. S R Sethi, Former Member, DERC

Mr Sethi discussed mainly about two constituents of distribution tariff in two parts, one is for the network and one is for the power purchase and then they are mixed together to make the final tariff order. He said that the distribution companies should not need any working capital requirement because they collect consumption deposits in advance from each consumer which is the average of last year's consumption, highest consumption and then they pay six percent interest which is basically working capital for them and it is much cheaper than when they go and buy borrow from the market. So this can be one of the factors when analyzed that by how much the working capital has gone beyond the advance deposit collected can indicate about the gaps in requirement.

KEY RECCOMENDATIONS

- The increase share of renewables in India's energy mix must be coupled with the manufacturing capacity with in the country. Augmentation of manufacturing capacity is critical from the perspective of creating jobs in the economy instead of being mere traders.
- It is important for government to prohibit the use of gensets and captive assets using diesel kerosene and petro furnace oils as not only these are impeding demand creation for generation capacity but are in violation of the environmental norms.
- Development of policy framework to synchronize the power sector with an imminent disruption through the evolution of storage battery technology and electric vehicles.
- The coal linkages across the country could be swapped to optimize the logistics cost as the current coal distribution system is not efficient enough.
- Institutions like CEA must provide long term vision of the sector to investors and lenders as huge amount of public money gets involved in building assets and the sector has to face stress when these assets turn into NPAs.
- In order to address 'stress' in the sector, it is important that continuation of old assets must be decided based on their performance and efficiency instead of their age.
- The existing coal production capacity in the country must be increased as due to non-availability of coal, many assets are experiencing stress.
- The thermal power segment must be integrated with the renewable capacity that is getting augmented in order to make the ease stress and make the power sector sustainable.
- The three different public hearings, currently in practice to provide clearance for hydro projects, must be merged in to one as the lengthy clearance process impacts the gestation period in such a way that the project becomes unviable for the owner.
- Provision of direct benefit transfer to the local populace getting affected should be used to align their interest with the timely completion of project.
- The benefits of hydro projects such as flood moderation, water management, fisheries and tourism should be monetized as well to increase the viability of hydro project. The tariff design could be made flexible accommodating the merits of hydro projects.
- The states with potential of hydro power must synchronise their water policy with the centre and should keep a provision for hydro projects in their budget development.
- Knowledge acquisition of Contract Management must be done by all stakeholders as due to lack of knowledge of contracts the fear of auditors and vigilance arises which further delays the project.

- The use of digital technology must be enhanced in consumer interface in order to enable the consumer to easily deal with the distribution entities.
- Participation of private players must be encouraged in rural areas and key learning from franchisee models must be taken into account where the interventions have been successful in reducing losses.
- While planning for the base load, the consumer migration must be taken into consideration to avoid low PLFs.
- The PPP model must be looked in to by distribution companies for the benefit it provides to the state by release of the burden of power purchase.
- Distribution companies must utilize the market tools better to optimize their cost of procurement. The tools of smart procurement and smart purchase are available to enable the distribution entities to optimize their procurement costs.
- Distribution companies tariff should be cost reflective and not less than the per unit Acreage cost to supply.




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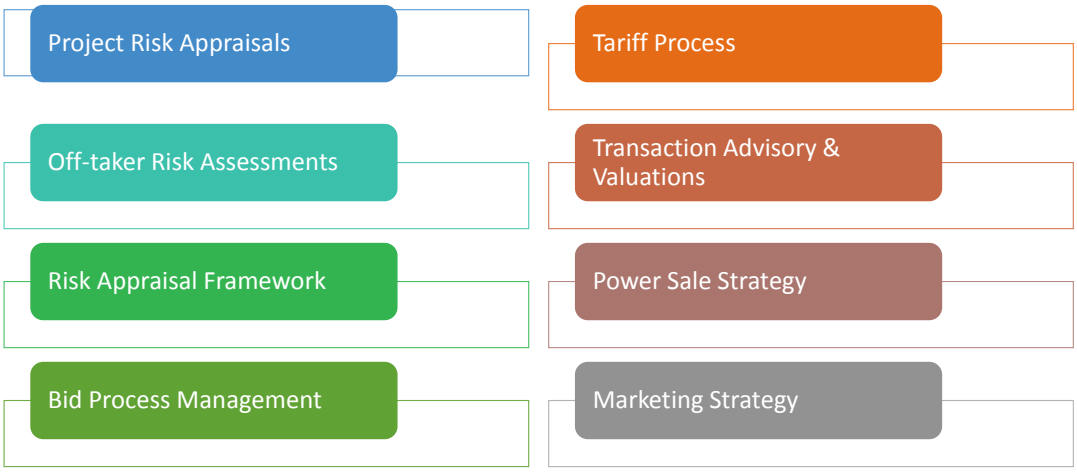

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