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STANDING COMMITTEE ON ENERGY

(2016-17)

SIXTEENTH LOK SABHA

MINISTRY OF POWER

NATIONAL ELECTRICITY POLICY – A REVIEW

THIRTIETH REPORT



**LOK SABHA SECRETARIAT
NEW DELHI**

August, 2017/Sravana, 1939 (Saka)

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(SIXTEENTH LOK SABHA)
MINISTRY OF POWER
NATIONAL ELECTRICITY POLICY – A REVIEW

Presented to Lok Sabha on 10.08.2017

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LOK SABHA SECRETARIAT
NEW DELHI

August, 2017/Sravana, 1939 (Saka)

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**COMPOSITION OF THE STANDING COMMITTEE ON ENERGY
(2016-17)**

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INTRODUCTION

I, the Chairperson, Standing Committee on Energy having been authorized by the Committee to present the Report on their behalf, present this Thirtieth Report on 'National Electricity Policy – A Review' pertaining to the Ministry of Power.

2. The Committee had a briefing on the subject by the representatives of the Ministry of Power on 12th May, 2017. The Committee, with a view to examining the subject in detail, had further discussions with the representatives of the Ministry of Power on 29th May, 2017.

3. The Committee wish to express their thanks to the representatives of the Ministry of Power for appearing before the Committee and furnishing the desired information on the issues relating to the subject.

4. The Report was considered and adopted by the Committee at their sitting held on 4th August, 2017.

5. The Committee place on record their appreciation for the valuable assistance rendered to them by the officials of the Lok Sabha Secretariat attached to the Committee.

6. For facility of reference and convenience, the observations and recommendations of the Committee have been printed in bold letters in Part-II of the Report.

NEW DELHI
4th August, 2017
Saravana 13, 1939 (Saka)

DR. VIRENDER KUMAR
Chairperson,
Standing Committee on Energy

REPORT

PART-I

NARRATION ANALYSIS

I. INTRODUCTORY

Section 3 (1) of the Electricity Act, 2003 provides that “The Central Government shall, from time to time, prepare the National Electricity Policy and tariff policy, in consultation with the State Governments and the Authority for development of the power system based on optimal utilization of resources such as coal, natural gas, nuclear substances or materials, hydro and renewable sources of energy.” Section 3(2) of the Act also provides that the Central Government shall publish National Electricity Policy and tariff policy from time to time.

1.2 In compliance of section 3 of the Electricity Act. 2003, the Government of India, after consultation and taking into account views of the State Governments, Central Electricity Authority (CEA), Central Electricity Regulatory Commission (CERC) and other stakeholders, had notified the National Electricity Policy on 10th February, 2005.

1.3 The National Electricity Policy aims at laying guidelines for accelerated development of the power sector, providing supply of electricity to all areas and protecting interests of consumers and other stakeholders keeping in view availability of energy resources, technology available to exploit these resources, economics of generation using different resources, and energy security issues.

1.4 The National Electricity Policy aims at achieving the following objectives:

- ❖ Access to Electricity - Available for all households in next five years
- ❖ Availability of Power - Demand to be fully met by 2012. Energy and peaking shortages to be overcome and adequate spinning reserve to be available.
- ❖ Supply of Reliable and Quality Power of specified standards in an efficient manner and at reasonable rates.
- ❖ Per capita availability of electricity to be increased to over 1000 units by 2012.
- ❖ Minimum lifeline consumption of 1 unit/household/day as a merit good by year 2012.
- ❖ Financial Turnaround and Commercial Viability of Electricity Sector.
- ❖ Protection of consumers' interests.

1.5 The policy seeks to address the following issues:

- ❖ Rural Electrification
- ❖ Generation
- ❖ Transmission
- ❖ Distribution
- ❖ Recovery of Cost of services & Targeted Subsidies.
- ❖ Technology Development and Research and Development (R&D)
- ❖ Competition aimed at Consumer Benefits
- ❖ Financing Power Sector Programmes Including Private Sector Participation.
- ❖ Energy Conservation
- ❖ Environmental Issues
- ❖ Training and Human Resource Development
- ❖ Cogeneration and Non-Conventional Energy Sources
- ❖ Protection of Consumer interests and Quality Standards

1.6 The Power sector in the country has developed in a manner wherein the balanced and coordinated approach to all segments is missing. Generation has been de-licensed leading to sudden spurt in its growth. However, the other ingredients associated with it have not been given due attention. Availability of electricity at affordable rates is still elusive. A tendency is observed wherein the sanctity of the PPAs is being questioned. This kind of move is fraught with ramifications which is injurious to the entire sector. Long term PPAs are not being signed. Demands of the electricity by the Discoms has not registered a growth, there is no solution to regulatory assets of the Discoms, element of balancing power to maintain stability in grid in view of the huge upcoming renewable energy is also not being attended to in a desired way. Around 4 crore households are yet to be electrified and the issue of NPA in the electricity sector are the problems which require urgent attention for resolution.

1.7 The Government has taken a number of initiatives to address the issues of the power sector which inter alia include the schemes of DDUGJY, IPDS, UDAY and slew of other measures with a view to introduce course correction in the electricity sector. These steps have also started showing their results and the scheme of UDAY has led to decrease in burden of interest of Discoms and their financial liabilities have consequently been reduced. The introduction of feeder separation under IPDS will help in reducing the AT&C losses of the distribution companies and thus leading to the financial health of the distribution companies. All these efforts will add to the health of the electricity sector.

II. ELECTRICITY ACCESS

2.1 The National Electricity Policy recognizes that the key development objective of the power sector is supply of electricity to all areas including rural areas as mandated in section 6 of the Electricity Act. Both the central government and state governments would jointly endeavour to achieve this objective at the earliest. Consumers, particularly those who are ready to pay a tariff which reflects efficient costs have the right to get uninterrupted twenty four hours supply of quality power.

2.2 The policy also state that about 56% of rural households have not yet been electrified even though many of these households are willing to pay for electricity. Determined efforts should be made to ensure that the task of rural electrification for securing electricity access to all households and also ensuring that electricity reaches poor and marginal sections of the society at reasonable rates is completed within the next five years i.e. by the year 2010.

2.3 The National Electricity Policy provides that reliable rural electrification system will aim at creating the following:

- (a) Rural Electrification Distribution Backbone (REDB) with at least one 33/11 kv (or 66/11 kv) substation in every Block and more if required as per load, networked and connected appropriately to the state transmission system
- (b) Emanating from REDB would be supply feeders and one distribution transformer at least in every village settlement.
- (c) Household Electrification from distribution transformer to connect every household on demand.
- (d) Wherever above is not feasible (it is neither cost effective nor the optimal solution to provide grid connectivity) decentralized distributed generation facilities together with local distribution network would be provided so that every household gets access to electricity. This would be done either through conventional or non-conventional methods of electricity

generation whichever is more suitable and economical. Non-conventional sources of energy could be utilized even where grid connectivity exists provided it is found to be cost effective.

- (e) Development of infrastructure would also cater for requirement of agriculture & other economic activities including irrigation pump sets, small and medium industries, khadi and village industries, cold chain and social services like health and education.

2.4 The policy also state that particular attention would be given in household electrification to dalit bastis, tribal areas and other weaker sections.

2.5 As per Ministry of Power letter No 42/1/2001-D(RE) dated 5-2-2004 and its corrigendum dated 17-2-2004, the definition of village electrification is as below:

“A village is declared ‘electrified’ if:

- i) *Basic infrastructure such as Distribution Transformer and Distribution Lines are provided in the inhabited locality, as well as the Dalit Basti/hamlet, where it exists (for electrification through Non-Conventional Energy Sources, a Distribution Transformer may not be necessary);*
- ii) *Electricity is provided to public places like schools, Panchayat Office, Health Centres, Dispensaries, Community Centres etc; and*
- iii) *The number of household electrified should be at least 10% of the total number of households in the village.*

2.6 When the Committee pointed out that with the above mentioned criteria a village could be declared as electrified with only 10% of households being electrified and asked for its justification, the Ministry have stated that presently village are being declared electrified based on the above definition. Further, the Government of India has now taken up joint initiative with all States/UTs for preparation of States specific documents for providing 24 x 7 power supply to all as per State policy. “24 x 7 Power for All” documents have been signed with all the States/UTs. Government of India supports States with schemes such as Ujwal

DISCOM Assurance Yojana (UDAY), Integrated Power Development Scheme (IPDS) and DeenDayal Upadhyaya Gram Jyoti Yojana (DDUGJY), to help them to achieve the objective of providing uninterrupted power supply to every households. As the focus is now on Power for All, definition of electrified village becomes irrelevant.

2.7 In regard to targets under village electrification programme, the Secretary Power deposited before the Committee as under:

“In 2015 the hon. Prime Minister gave a mandate to the Ministry that in 1,000 days that is by May 2018 18540 villages which were un-electrified as on 1.4.2015 should be electrified. So, I am happy to place on record that we are on track. आज की तरीख में जो चार हजार के करीब गांव रह गए हैं, उनका इलैक्ट्रीफिकेशन करना बाकी है। हमें जो समय –सीमा दी गई है, उसके अंदर we will try to electrify. That only provides access of availability to the villages. जैसे आपने प्रश्न रोज किया कि it does not mean की हम हाउस होल्ड्स की एक्सेस देते हैं। As far as the BPL families are concerned, there is a scheme where government funds the connection to the BPL families. नान बी पी एल फ़ैमिलिज के लिए भारत सरकार की कोई स्कीम नहीं है। उन्हें खुद कनेक्शन चार्ज पे करके लेना होता है। काफ़ी राज्य सरकारें have taken out the scheme. I understand that there is a scheme running in Bihar. राज्य सरकार की स्कीम है। In Odisha they give connections to APL families also.”

2.8 He further added:

विलेज का इलैक्ट्रीफिकेशन करना एक बात है, within the village there are hamlets, उन्हें भी हमें पहुंचाना पड़ता है so that household electrification becomes easy. It is in three phases –

electrification of villages, intensive electrification of villages and household electrifications. We are almost achieving the target of electrification of villages. Already we have taken up intensive electrification of villages. At the moment you are absolutely right, the Ministry and the Government is thinking to come out with focus and emphasis on household electrifications. अगर हम पावर फ़ार आल की बात करते हैं, we are aiming to provide household connectivity to all the households by 2019. That is the target we are setting. वह टारगैट हम सैट कर रहे हैं। लेकिन हमें इस कान्टैक्स्ट में देखना है कि जो पहले किया था, यह कन्करेंट सब्जेक्ट है। हाउसहोल्ड कनेक्शन की रिस्पॉसिबिलिटी राज्यों की है। The Government of India can facilitate, handhold, and support but the States have to do it. We have taken up with the States to go for household electrifications. if you look at the total number तो पाएंगे कि इतने हाउसहोल्ड बाकी है। अज की तारीख में तकरीबन 2.3 करोड़ हाउसहोल्ड्स are yet to be sanctioned. यह 7-8 राज्यों में डामिनेंट है। बहुत से राज्यों में सौ प्रतिशत हो चुका है, बहुत से राज्यों में 90 प्रतिशत हो चुका है। बेसिकली हमें उन्हीं राज्यों पर कनसैट्रिट करके, उनके साथ काम करके एचीव करना है। हम उस पर काम कर रहे हैं। हम यह भी टारगैट रख रहे हैं कि वर्ष 2019 तक हाउसहोल्ड्स को कनेक्शन देंगे।“

2.9 In reply to the query of the Committee relating to data related to households/villages electrification, the Ministry have stated that in view of the federal structure of the country, electricity being on the concurrent list of subjects and the fact that the Distribution Companies are primarily responsible for village electrification and custodian of related data. The Central Government rely upon the data submitted by the State DISCOMs/ Power Department for updating the status of village/household electrification.

2.10 It has been further stated by the Ministry that in order to have effective monitoring of electrification of remaining un-electrified households, the States were requested to compile the list of such un-electrified household duly identified by the Census code of 2011. Further, a new feature has been added to mobile App 'Garv' to facilitate near real time monitoring and updating of status which has been launched in public domain so that public at large can also view the status of such villages. The progress can be viewed by the concerned officials as well as the public at large and discrepancies noticed, if any, can be reported which are rectified from time to time, thus facilitating sensitization of data on regular basis. The 'Garv' App has not only brought transparency in the process of village electrification/household electrification but also enhanced accountability of the various stakeholders."

III. POWER GENERATION

3.1 The National Electricity Policy, 2005 states that in order to fully meet both energy and peak demand by 2012, there is a need to create adequate reserve capacity margin. In addition to enhancing the overall availability of installed capacity to 85%, a spinning reserve of at least 5%, at national level, would need to be created to ensure grid security and quality and reliability of power supply.

3.2 It further provides that the progress of implementation of capacity addition plans and growth of demand would need to be constantly monitored and necessary adjustments made from time to time. For increasing new generation capacities, appropriate technology may be considered keeping in view of the likely widening of the difference between peak demand and the base load.

3.3 The present installed power generation capacity (as on 31.05.2017) is as given below:

Sector	Thermal				Nuclear	Hydro	RES	Grant Total
	Coal	Gas	Diesel	Total				
State	65145.50	7113.95	363.93	72623.38	0.00	29730.00	1976.90	104303.28
Private	75212.38	10580.60	473.70	86266.68	0.00	3240.00	55283.33	144790.01
Central	55245.00	7490.83	0.00	62735.83	6780.00	11651.42	0.00	81167.25
All India	195602.88	25185.36	837.63	221625.88	6780.00	44594.42	57260.23	330260.53

3.4 The Growth of the installed capacity since 6th Plan is as given below:

Plan/Year	Thermal				Nuclear	Hydro	RES(MNRE)	Total
End of 6th Plan	26310.83	541.50	177.37	27029.70	1095	14460.02	0	42584.72
End of 7th Plan	41237.48	2343.00	165.09	43745.57	1565	18307.63	18.14	63636.34

End of 8th Plan	54154.48	6561.90	293.9	61010.28	2225	21658.08	902.01	85795.37
End of 9th Plan	62130.88	11163.10	1134.83	74428.81	2720	26268.76	1628.39	105045.96
End of 10th Plan	71121.38	13691.71	1201.75	86014.84	3900	34653.77	7760.6	132329.21
End of 11th Plan	112022.38	18381.05	1199.75	131603.18	4780	38990.4	24503.45	199877.03
End of 12th Plan	195602.88	25185.38	837.629	221625.88	6780	44594.42	57260.23	330260.53

3.5 The details of electricity generation (conventional sources) are given below:

Year	Energy Generation from Conventional Sources (BU)	% of growth
2009-10	771.551	6.6
2010-11	811.143	5.56
2011-12	876.887	8.11
2012-13	912.056	4.01
2013-14	967.150	6.04
2014-15	1048.673	8.43
2015-16	1107.822	5.64
2016-17	1160.141	4.72
2017-18*	307.663	3.74

* Upto June 2017 (Provisional)

3.6 The details of per capita consumption of various developed countries in the year 2013 and 2014 is given below:

Sl. No.	Per Capita Consumption (kWh)			% Growth
	Name of the Country	2013	2014	
1	Canada	15520	15544	0.15
2	USA	12987	12962	-0.19
3	Australia	10067	10002	-0.65
4	Japan	7836	7829	-0.09
5	France	7382	6955	-5.78
6	Germany	7022	7035	0.19
7	Korea	10428	10564	1.30
8	UK	5409	5131	-5.14

9	Russia	6562	6603	0.62
10	Italy	5124	5002	-2.38
11	South Africa	4328	4240	-2.03
12	Brazil	2583	2578	-0.19
13	China	3766	3927	4.28
14	India*	957	1010	5.54
15	World	3026	3030	0.13

Note :- 1. Basic data obtained from IEA Website (except) India.

2. Both figures in respect of India pertain to the financial year 2013-14 & 2014-15 for 2013 & 2014 respectively.

Hydro Power

3.7 The National Electricity Policy, 2005 gives much emphasis on optimum development and utilization of hydro power in the country. The relevant portion of the Policy has been quoted below:

- ❖ *Hydroelectricity is a clean and renewable source of energy. Maximum emphasis would be laid on the full development of the feasible hydro potential in the country. The 50,000 MW hydro initiative has been already launched and is being vigorously pursued with DPRs for projects of 33,000 MW capacity already under preparation.*
- ❖ *Harnessing hydro potential speedily will also facilitate economic development of States, particularly North-Eastern States, Sikkim, Uttaranchal, Himachal Pradesh and J&K, since a large proportion of our hydro power potential is located in these States. The States with hydro potential need to focus on the full development of these potentials at the earliest.*
- ❖ *Hydel projects call for comparatively larger capital investment. Therefore, debt financing of longer tenure would need to be made available for hydro projects. Central Government is committed to policies that ensure financing of viable hydro projects.*
- ❖ *State Governments need to review procedures for land acquisition, and other approvals/ clearances for speedy implementation of hydroelectric projects.*
- ❖ *The Central Government will support the State Governments for expeditious development of their hydroelectric projects by offering services of Central Public Sector Undertakings like National Hydroelectric Power Corporation (NHPC).*

- ❖ *Proper implementation of National Policy on Rehabilitation and Resettlement (R&R) would be essential in this regard so as to ensure that the concerns of project-affected families are addressed adequately.*
- ❖ *Adequate safeguards for environmental protection with suitable mechanism for monitoring of implementation of Environmental Action Plan and R&R Schemes will be put in place.”*

3.8 As per the survey carried out in 1987, total Hydro Electric Power potential in the country when fully developed would result in an installed capacity of about 1,48,701 MW on the basis of probable average load factor. Against the hydro potential the actual capacity that could be harnessed as on 31.03.2017 is 44,478.42 MW which is about 30% of the Hydro potential. The share of Hydro capacity in the total installed capacity was 25.86% in 2007-08 which has decreased to 13.61% of the total Installed capacity. The year wise hydro capacity addition during the year, the Installed Hydro Capacity as on 31st March of each year and percentage of hydro capacity w.r.t. total installed generation capacity is given below in Table below:

Year	Hydro Capacity addition (MW)	Installed Hydro Capacity (MW)	Total Capacity Renewable Sources (MW)	Installed incl. Energy	Hydro as %
2007-08	2423	37002		143061	25.86
2008-09	969	36846*		147917	24.91
2009-10	39	36863		159398	23.13
2010-11	690	37567		173626	21.64
2011-12	1423	38990		199877	19.51
2012-13	501	39491		223344	17.68
2013-14	1058.01	40531		243029	16.68
2014-15	736.01	41267		267637	15.42
2015-16	1516	42783		302088	14.35
2016-17	1659	44478.42		326848.53	13.61%

* Capacity in 2008-09 has been reduced w.r.t 2007-08 as all hydro plants upto capacity of 25 MW was put under the head "Small Hydro Electric Plants" which is shown under total installed capacity.

3.9 The Ministry have stated that it may be seen that there has been low capacity addition from Hydro Power as the development of hydro power projects are fraught with a number of uncertainties. They have further apprised that broadly, the problems faced by developers can be grouped into those related to the project location, to its geology, and to issues of resettlement and rehabilitation. Typically, hydro projects are high cost, long gestation projects and are highly vulnerable to any uncertainties.

3.10 When the Committee raised the issue of falling share of hydro power in total energy mix which is not good for grid balancing, the Secretary Power admitted before the Committee as under:

"for the grid for the grid balancing, there should be an ideal mix. Maybe hydro is the best; maybe open cycle gas is the bet; but we can only do whatever is given to us. Our share of hydro is about 13 per cent and the gas power plants are not viable because we do not have gas supply. So, we do not have an option. We are not doing it by choice, but by compulsion we are using thermal to do the grid balancing. If we manage to get hydro into the system, it will be more useful and hopefully, if the price of gas falls in the international market and the gas plants become competitive, we will use them. It is only choosing one of the options that is available to us. I fully agree with you that it is not an ideal situation but we not have a choice."

3.11 When the Committee desired to know the reasons for negligence of hydro power in the country, the Secretary Power stated as under:

“यह बात सही है कि पिछले सालों में it has gone to the backburner because of various reasons. अब जब रिन्यूएबल एनर्जी का शेयर बढ़ रहा है and there is emphasis to bring in renewable, उसकी ग्रिड की बैलेंसिंग के लिए hydro power is considered to be essential. We have got enough potential and there is a need to harness this potential both from the water security point of view and from energy point of view also.”

3.12 In regard to bringing more transparency in awarding hydro power projects he deposed as under:

“You have raised a very important issue saying how we are going to award the Hydro Projects. As per the tariff policy that we did in 2016, the hydro policies have been exempted from the process of competitive bidding. बाकी जो प्रोजेक्ट्स हैं हमने हाइड्रो पालिसी को 2022 तक एग्जेंप्शन दे रखी है। So, it is not through a competitive bid. It has to be awarded and the tariff has to be determined on cost plus basis. But the issue still remains. The tariff can be determined on cost plus but the way we award the project to somebody, broad principles are there in the tariff policy. As per your suggestion, we will make sure saying that when you come out with the hydro policy we will explicitly mention it so that everybody understands how the project is to be awarded and there is enough transparency. We will do that.”

3.13 When the Committee desired to know the issues that marred the hydro power sector and the possible solutions to them, the Secretary during the sitting of the Committee deposed before the Committee as under:

“हाइड्रो प्रोजेक्ट की जो बात हुई है उसमें काफी सारे ईशूज हैं। किसी विभाग, मंत्रालय और किसी एजेंसी या कोर्ट को हम ब्लैम नहीं कर रहे हैं लेकिन ईशूज है,

उनको हमें एड्रेस करना पड़ेगा। अगर हाइड्रो प्रोजेक्ट्स को हमें आगे बढ़ाना है तो इन ईश्यूज को एड्रेस करना पड़ेगा। पहली बात यह है कि काफ़ी सारे पुराने प्रोजेक्ट्स अरुणाचल प्रदेश में हैं, जम्मू कश्मीर में ज्यादा हैं। पहला तो यह है कि राज्य सरकारों को प्रोजेक्टिवली इसमें काम करना पड़ेगा क्योंकि राज्य सरकार के सहयोग के बिना यह प्रोजेक्ट होगा नहीं। First, the State Government has to take interest. दूसरा उसकी पर्यावरणीय क्लीयरेंस, इकोलाजिकल क्लीयरेंस वगैरह है। काफ़ी सारे पुराने प्रोजेक्ट्स अवार्ड किए गए थे, उसके बाद एन्वायरमेंट नार्म्स में चेंजेज आए। The project viability is affected that is the second part. हमें एन्वायरमेंट क्लीयरेंस ठीक टाइम पर मिले और जो नार्म्स है, उसी हिसाब से मिले कुछ प्रोजेक्ट्स की क्लीयरेंस के बाद फिर उसमें नार्म्स चेंज किए गए, the viability of that project was affected. दूसरा, काफ़ी सारे ईश्यूज कोर्ट्स में जाते हैं, एन जी टी में जाते हैं, हाई कोर्ट में जाते हैं, सुप्रीम कोर्ट में जाते हैं, हीयरिंग होती रहती है, उसका कोई टाइम नहीं रहता, तीन चार साल हो जाते हैं तो the whole cost changes and it becomes unviable. These are issues beyond the Ministry of Power. हमारे ईश्यूज है कि हमारे हाइड्रो पावर प्रोजेक्ट्स हैं, जिसकी इनिशियल कास्ट ज्यादा है। हम मानते हैं कि इसकी कास्ट ज्यादा है, लेकिन लांग टर्म में उसकी लाईफ़ 100 साल होती है तो in the long term, it becomes cheaper. हम सोच रहे थे कि हम कुछ कर सकेंगे, मिनिस्ट्री आफ़ पावर रेगुलेटर्स के थ्रू और बाकी सभी स्टेकहोल्डर्स को मिला कर स्ट्रक्चरिंग ऐसा किया जाए कि जो टैरिफ़ फ़्रंट लोडेड है, वह न होकर बैक लोडेड हो और समान डिस्ट्रिब्यूट हो ताकि लेवलाइज्ड टैरिफ़ कम हो जाए।

3.14 He further added:

“There are financial instruments for which intervention of the Ministry of Finance, the Ministry of Power and the Government as a whole is required. For environmental clearance, the Ministry of environment and forest is required. लेकिन कोर्ट का भी इंटरवेंशन जरूरी है। तीसरा जो हमारे डोमेन में हैं, जैसा मैंने बताया कि

मिनिस्ट्री आफ पावर और रेगुलेटर्स और राज्य सरकार मिल कर हम प्रोजेक्ट को कैसे स्ट्रक्चर कर सकें, ताकी टैरिफ कम हो। उसके बाद इंप्लिमेंटेशन का सवाल आता है। हम प्लान करते हैं लेकिन वो प्रोजेक्ट खत्म ही नहीं होता है, बीच में स्टे आ जाता है, रुक जाता है, फिर लोगों के ईश्यूज खड़े होते हैं, कंसर्न होते हैं वह एड्रेस करते करते टाइम चला जाता है, उसका कास्ट बढ़ जाता है तब it becomes very difficult to implement the project. क्योंकि इसके इंप्लुएंस् एरिया इतने ज्यादा हैं कि more agencies are involved, unlike a thermal power project. थर्मल पावर प्रोजेक्ट्स एक छोटी सी जगह पर खड़ा है, वहाँ पर इंप्लिमेंटेशन आसान होता है लेकिन हाइड्रो प्रोजेक्ट्स इंप्लिमेंट करने में वर्षों लग जाते हैं। This is one part. लेकिन कुछ खामियाँ हमारी भी है। We are implementing projects in Himalayan region where there are geological surprises. How are we going to address that? उसमे कुछ कांटेक्टुअल ईश्यूज होती है, कुछ हमने विजुअलाईज करके एंटीसिपेट कर सकते हैं। That is purely implementation and contractual issues between the Ministry of Power and our own agencies. उसमे तो हम भी काम करेंगे, लेकिन जो मैन डिपार्टमेंट है जिसके साथ हमे लिंक करना है, the Ministry of Finance is the first one. The Environment Ministry, The States and The Ministry of Water Resources have their own issues. ये चार एजेंसिज अगर ईकट्ठा आकर एक मत न हो तो हाइड्रो प्रोजेक्ट बनेगा नहीं।“

3.15 In response to the specific query of the Committee in regard to consideration of all hydro power irrespective of their capacity, the Secretary Power deposited before the Committee as under:

“You have made certain suggestions that the Government has to intervene or get support in whether hydro can be called renewable. The draft hydro policy that we are preparing, we have to go to the Government and Cabinet to get it approved, I do not know in what form finally it will be approved, but we are proposing that hydro power projects should be treated as renewable. I understand, all over the world, all the hydro projects are treated as renewable. It

gives a message to the world, and probably they can access the international green fund, which is cheaper. So, we are proposing it. As and when the proposal goes to the Government and it gets debated and decided, we will communicate it. But the Ministry of Power is proposing that this should all be treated as a renewable power and also some sort of the Government funding should be provided.

Thermal Power

3.16 Coal Based Power Plants constitute the major portion of the Installed capacity of the country. The installed capacity of Coal based Power Plants has reached 1,92,162.88 MW as on 31.03.2017 which is 58.79% of the total Installed capacity.

3.17 During the 11th Plan, the total generation capacity addition from conventional sources was 54,964 MW which includes 41,894 MW coal based capacity. The private sector contribution was 18,649 MW which is 44.5% of the coal based capacity addition. During the 12th Plan the total generation capacity addition from conventional sources was 99,209 MW which includes 91,730 MW coal based capacity. The private sector contribution was 53,660 MW which is 58.5% of the coal based capacity addition.

3.18 When the Committee desired to know the reasons for over emphasis in the development of thermal capacity as against the other forms of electricity, the Ministry have stated as under:

“The Coal Based Power Plants constitute the major portion of the Installed capacity of the country. The installed capacity of Coal based Power Plants has reached 192162.88 MW as on

31.03.2017 which is 58.79% of the total Installed capacity. The reasons for the proliferation of the coal based Power Plants in the Country are the comparatively lower gestation period and lower installation costs as compared to Hydro or Nuclear Power Plants.

Further, after the enactment of Electricity Act, 2003 generation has been de-licensed and therefore, any corporate body or individual can invest in Thermal Power Generation without seeking permission from the Government, other than complying with the statutory clearances and technical standards relating to connectivity with the grid. As a result of this, private Sector participation in Thermal Power generation has increased manifold.

As per Section 7 of Electricity Act 2003, Any generating company may establish, operate and maintain a generating station without obtaining a licence under the Act if it complies with the technical standards relating to connectivity with the grid referred to in clause (b) of section 73.

For the 12th Plan period, the thermal capacity addition target was 72.339 GW. Actual thermal capacity addition is around 91.730 GW. Further, 67.221 GW thermal plants are presently under construction. Out of this, around 50 GW of under construction thermal plants are likely to be commissioned by 2022.”

3.19 Natural Gas is one of the cleanest fuel with less carbon dioxide per joule delivered and Gas based Power Plants due to their inherent nature of quick start and fast ramp up/down are well suited to provide balancing requirement into the grid. However, the Ministry have stated that due to shortage of Gas in the country the existing gas based plants are running at a low PLF, and no new gas based capacity is planned for future. Due to this, India’s energy mix is skewed towards coal compared to other countries, with gas based power share in India only 7.7%.

3.20 The year wise gas capacity addition during the year, the installed gas capacity as on 31st March of each year and percentage of gas capacity w.r.t total installed generation is given below in Table below:

Year	Gas Capacity addition (MW)	Installed Gas Capacity (MW)	Total Installed Capacity (MW)	Gas as %
2007-08	1000	13408.92	143061	9.37
2008-09	474.70	13599.62	147917	9.19
2009-10	2116	15769.27	159398	9.89
2010-11	890.50	16639.77	173626	9.58
2011-12	674.70	16926.27	199877	8.47
2012-13	1456.8	18362.27	223344	8.22
2013-14	1672	20385.27	243029	8.39
2014-15	1280.3	21665.57	267637	8.10
2015-16	1545.6	23075.57	302088	7.64
2016-17	925.75	25,329.38	326848.53	7.75

3.21 In regard to nuclear power, the Ministry have stated that the growth in the nuclear Installed capacity has been less due to various issues inherent with the nuclear power plants viz. long gestation periods, fuel sourcing etc. The installed capacity of nuclear energy has reached 6,780 MW as on 31.03.2017 which is 2.01% of the total Installed capacity and there has been a nuclear capacity addition of only 2,000 MW during the 12th plan.

Non-Conventional Energy Sources

3.22 The National Electricity Policy, 2005 states that feasible potential of non-conventional energy resources, mainly small hydro, wind and bio-mass would also need to be exploited fully to create additional power generation capacity. With a view to increase the overall share of non-conventional energy sources in the electricity mix, efforts will be made to encourage private sector participation through suitable promotional measures.

3.23 The Committee have been informed that to meet the INDC (Intended Nationally Determined Contribution) commitment of 40% cumulative power installed capacity from non-fossil fuels by 2030, Government of India has planned an ambitious capacity addition target of 175 GW from Renewable Energy Sources (RES) by the year 2021-22. The installed capacity of renewable in India was 10,252 MW as at the end of 10th plan (i.e. on 31.03.2007) and the same had grown to 24,920 MW at the end of 11th plan (i.e. on 31.03.2012). With a consistent growth, the installed capacity of renewable energy sources has reached 57,260.23 MW as on 31.03.2017 which is 17.52% of the total Installed capacity.

3.24 When the Committee desired to know that the fall in solar tariff is on sustainable basis or there are chances of backtracking by the successful bidders later on, the Secretary Power deposed before the Committee as under:

“The prices for solar power projects have come down जैसा कि शुरुआत में बताया गया कि सोलर की बिड होती थी लेकिन बिंड की बिड नहीं होती थी। अब बिंड में भी बिड कंपल्सरी हो गया है। The prices have come down after bidding. There are the rates which are fixed for 25 years. The levelised tariff gets indicated. But every year, tariff is fixed. If for a certain reason, they are not able to supply in future, the contractual provisions are there the performance guarantee is there, bank guarantee is there. So, enough provisions will be there in the PPA to take care of any default because every bid document, agreement and PPA to take care of any default because every bid document, agreement and PPA have commercial elements in that. I am not particularly sure about what specific provisions are there. Ministry of New and Renewable Energy handles it. But, I understand that there will be commercial provisions that, in case of default, there are provisions in the agreement which take care of those default and sufficient curative period is provided and if they do not improve the performance, the penalty and other damages will

kick in. Those are the standard practices and I presume that those provisions are there. These are the broad issues that you have raised and I have responded to that.”

Issues of Generation Sector

3.25 When the Committee pointed out that electricity sector is marred with multiple problems and one of the problems afflicting the sector is the absence of buyer of electricity from the market and desired to know that whether it is due to the surplus availability of power. They also asked as to why the rates of electricity are not becoming competitive for the benefit of the consumers despite increase availability and completion in electricity sector. The Ministry in their written reply have stated as under:

“With the enactment of Electricity Act, 2003, generation has been de-licensed. Therefore, as far as generation is concerned, only an indicative planning is carried out. However, actual investment and type of technology depends on market forces. Taking a cue from shortages prevailing earlier, many developers have set up generation capacity. However, as most of the Discoms have already tied up sufficient power through long term PPAs they are able to meet marginal shortages/surpluses by buying from or selling in the short term market. Therefore, at present Discoms do not feel need to enter into long term PPAs.

Overall, there are three primary reasons for the imbalance of demand and supply in the power sector today, are given below-

(i) While our demand has grown at the rate of 6%, the growth of installed capacity has been of the order of 9 to 11% over the last 5 to 6 years. This has created a situation where we have excess capacity and thermal power plants are operating at 60% PLF.

(ii) The retail tariff which has been prescribed by Regulatory Commissions is not remunerative enough and is leading to cash flow problems in the distribution companies. In order to overcome this, the distribution companies are scheduling less power and limiting themselves only what other can buy given their resources. Consequently, they are resorting to load

shedding in areas where the revenue collection is relatively lower.

(iii) Demand growth has been somewhat constrained because of poor industrial activity. A look at the IIP index over the past 24 months or so indicates that industrial growth in India at best is sputtering. There is no indication of a sustained increase or decrease in growth.

3.26 The PLF in the country (Coal & Lignite based) from the year 2009-10 to 2017-18 is as under:

Year	PLF	Sector-wise PLF (%)		
	%	Central	State	Private
2009-10	77.5	85.5	70.9	83.9
2010-11	75.1	85.1	66.7	80.7
2011-12	73.3	82.1	68.0	69.5
2012-13	69.9	79.2	65.6	64.1
2013-14	65.60	76.10	59.10	62.10
2014-15	64.46	73.96	59.83	60.58
2015-16	62.29	72.52	55.41	60.49
2016-17	59.88	71.98	54.35	55.73
2017-18*	64.49	73.75	59.17	57.20

* Upto June 2017 (Provisional)

3.27 When the Committee raised the issue of falling PLF of thermal power plants and asked the Ministry about its impact on electricity tariff, they replied as under:

“The Plant Load Factor (PLF)” has been defined in the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 for a thermal generating station or unit, for a given period as the total sent out energy corresponding to scheduled generation during the period, expressed as a percentage of sent out energy corresponding to installed capacity in that period.

The fixed charge of a generating station when expressed in per kWh terms varies corresponding to the level of PLF. In other

words, the higher the PLF, lower the fixed charge per kWh terms, and lower the PLF, higher the fixed charge per kWh terms.

Very small portion of electricity procured by Discom is through short term market or short term bilateral contracts. Most of the power procured by Discoms is through long term PPAs with two-part tariff having fixed and variable charge. Payment of fixed charge depends on availability and not on actual energy generated. Therefore, if the generating station makes available its capacity but the procurer chooses not to despatch it or despatch it only partially, the fixed charges will still have to be paid. In case of low generation, fixed charge per unit would increase. On the other hand, the variable charges are calculated on per unit basis. Thus, the overall tariff per unit would increase in case of lower PLFs.”

3.28 While explaining the phenomenon of falling PLF, the Secretary Power stated as under:

“आज की तारीख में एवरेज पीएलएफ़ 60 के आसपास है। Whether it is good or bad is a relative matter. It depends on how you look at it. When we talk of 175 GW renewable, PLF operates on an average 60 per cent. This PLF will basically favour us as an asset to use the capacity to ramp up and down to stabilize the grid system. Five years ago when there was a shortage the PLF was quite high. Average PLF used to be 80 per cent. Today in a surplus scenario, excess capacity is there. It is a matter of debate now whether it is good or bad for the system as a whole we do not consider it as bad. Maybe it brings in flexibility to the system to integrate the renewable. I will put on record saying that if the average PLF is 60 per cent and there is a perception of surplus capacity in the market and the energy demand is growing at 6.5 per cent, it gives a signal to market on whether there is need for investment in private sector or not. जो कैपसिटी एडिशन दो साल में हुई थी पिछले साल 16 हजार मेगावट की कैपसिटी एडिशन हुई थी, उसके पहले 26 हजार मेगावट हुआ था उसके पहले 23 हजार मेगावट हुआ था। so, the capacity addition has tapered down gradually. This gives a signal. The capacity addition dropped this year and last year also. So, if the demand grows at six per cent, the PLF will get adjusted automatically. डिमांड कितने परसेंट ग्रो कर रहा है, कैपसिटी एडिशन कितन परसेंट ग्रो कर रहा है, चार साल में

करीब एक लाख मेगावाट की कैपसिटी एडिशन हुई थी। so, capacity addition was growing at 10 per cent and demand was growing at about six per cent. So, PLF was bound to come down purely mathematically. This will get corrected automatically. As on today the Ministry of Power does not take this in a negative sense. This surplus at the moment is welcome. Market will correct itself in a year or two.”

3.29 In regard to impact of upcoming huge renewable energy capacity which is intermittent in nature, on the power system, the Secretary Power explained as under:

“CEA has been working on the National Electricity Plan, and it also indicates that हमने जो भी एग्जेंपशन लिया है अगर रिन्यूएबल 175 गीगावाट वर्ष 2021-22 तक आएगा तो हमारे थर्मल पावर प्लांट की जो एवरेज पीएलएफ़ है, यह करीब करीब 50 प्रतिशत के आस पास रहेगा If somebody looks at it and says it has a cost, it has a cost. it is a cost that we pay for bringing renewable. अगर हमें रिन्यूएबल इनकरेज करना है और पाल्यूशन कम करना है तो the cost has to be borne by somebody. May be, this is the cost that the system has to pay. We have to look at it from that point of view. The other is that you do not push renewable and leave it as it is and ramp-up the PLF of the thermal and leave it as it is and ramp-up the PLF of the thermal to 70-80 per cent. This is one option. So, we are hoping saying that as the economy grows and as the GDP grows, the demand will go up and with the demand coming in, this PLF, that we have already projected based on the particular demand projections, if the things improve can go up. But the assumption that we have made at 6.5 per cent or 7 per cent growth with renewable and with thermal capacity that exist today and those who are in the pipeline, this will be the scenario and we have to leave at it. If it has the cost, then we have to bear the cost and the society has to bear the cost.”

3.30 When the Committee raised the issue of higher generation cost, the Secretary Power stated before the Committee as under:

“There is also a need to increase our efficiency of generation to reduce the cost of generation so that benefit is passed on to the

consumers. Because of the improvement in the quality of coal and reduction in slippage, if you look at the NTPC plant itself who generates 50000 capacity, their cost of generation has come down because the specific consumption of coal, that is the amount of coal required to produce one unit of electricity has come down just because of quality. The benefit has accrued out of it has been passed on to the distribution companies. Similarly, we are rationalizing the coal linkage so that the transportation cost is minimum. These are efforts that the Government is making. Policy says that you become consumer centric; now consumer centric has an open-ended thing in whatever you want to do. So, we are bringing in efficiency into the system so that the cost of generation comes down.

3.31 When the Committee pointed out that despite having adequate generation capacity, still there is a gap between demand and supply and also many parts of the country still do not get the desired amount of electricity supply, the Secretary Power explained to the Committee as under:

“You rightly said that energy shortage is 0.7 per cent and peak shortage is 1.6 per cent as you rightly pointed out, there is latent demand in the system which has not, as on date come in to the grid, because access to electricity is a major area of concern. From the Ministry and Government of India's side, we can say that even if the unconnected households, which number between 3.5 crore to 4 crore, are connected today, hypothetically speaking that we can provide them with connections, we have enough generating capacity in the country to produce electricity to meet the additional demand. As far as generation capacity is concerned, there is no dearth of capacity and we can always produce electricity to supply. The issue still remains, which you have pointed out in the later part, in the form of distribution where the power is to be bought and procured by the Discoms and made available to the consumers. There, the shortcoming of the system is there. As far as generation capacity is concerned, the Ministry is very confident. Today, our demand is growing at about 6.5 per cent. Even if it goes to eight or 8.5 per cent, we are in a position to meet the requirement through generation. We have already built enough capacity for transmission to take the power to the regions where there is shortage. There is shortcoming or problem in the system as far as distribution is concerned, which we are addressing.”

3.32 When the Committee desired to know as to how the demand of electricity in the country is assessed, the Ministry, in their written reply have replied as under:

“Electricity demand of the country is assessed periodically by Central Electricity Authority through the Electric Power Survey Committee having wide representation from Transmission Companies, Distribution Companies, Electricity Departments of States/UT's, members from various Ministries, CMD's of NTPC, NHPC, REC, DVC, Power Grid; Director General, BEE; representatives from TERI, IPP's and industry bodies.

The electricity demand projection is carried out by partial-end use method, which is a combination of time-series and end-use method. Electricity demand projection is based on the trend of actual electricity consumption in the past and growth of electrical energy requirement in future keeping in view the developmental activities envisaged by States/UT's in future. Partial-end use method is a “bottom -up” approach focusing on end-uses or final electrical energy needs of different categories of consumers.

Besides, the partial-end use method of electricity demand projection, electricity demand projection is also now being carried out by Econometric Modelling.”

3.33 The Committee was informed that the Compound Annual Growth Rate (CAGR) of peak demand for the period 01.04.2012 to 31.03.2017 is 4.18% whereas the CAGR of capacity addition for the period 01.04.2012 to 31.03.2017 is 10.34%. Hence, it is evident from the above figures that the electricity generation capacity addition has outpaced our electricity demand.

3.34 The Committee was further informed that electricity demand of the country is periodically re-assessed by the Electric Power Survey Committee. The latest in the series of Electric Power Survey (EPS) Report is the 19th EPS Report, which was brought out in January, 2017. The earlier Report, 18th Electric Power Survey (EPS), was brought out in December, 2011. The projection of electrical energy

requirement and peak electricity demand during the year 2016-17 as per 18th EPS Report was 1355 BU and 1,99,540 MW respectively. The actual electrical energy requirement and peak electricity demand during the year 2016-17 was 1143 BU and 1,59,542 MW respectively.

3.35 The CAGR of electrical energy requirement as per 18th EPS for the period 2011-12 to 2016-17 works out to 7.60 % and CAGR of peak electricity demand as per 18th EPS for the period 2011-12 to 2016-17 works out to 8.50 %. CAGR of actual electrical energy requirement for the period 2011-12 to 2016-17 has been 4.05% and the CAGR of peak electricity demand for the period 2011-12 to 2016-17 has been 4.18 %.

3.36 In regard to the reasons for low growth in electricity demand as compared to the projected values (as per 18th EPS), the Ministry have stated as under:

“GDP growth rate assumed in 18th EPS was 8 % -10 % during 12th Plan period, whereas the actual growth of GDP has been low. GDP growth during the years 2012-13, 2013-14, 2014-15 and 2015-16 has been 5.62 %, 6.64 %, 7.24 % and 7.57 % respectively.

It was presumed in 18th EPS that almost all the households would be electrified by the year 2016-17, however, till the year 2016-17, 100% electrification could not be achieved and almost 5 crore households are yet to be electrified.

3.37 It was stated that the aim of the Electricity Policy, 2005 to meet the demands of power in full along with adequate reserves stands achieved in 2016-17. This has been substantiated by the statement that the demand-supply gap in terms of energy is only 0.7 per cent which is not on account of inadequate availability of power, but due to transmission/distribution/ commercial /financial constraints. Surplus power is also available in reserve.

3.38 When the Committee enquired about the actual demand of power in the country and on what basis the demand has been projected, the Ministry replied as under:

“The Energy Requirement in the country during the year 2016-17 was 1,142,928 MU. SLDCs work out the Energy Requirement by adding the quantum of energy not supplied due to the various factors i.e. Notified Power cuts /restrictions on HT/LT Industries, unscheduled Load shedding, Staggering of Power Supply and Frequency Correction to the quantum of energy actually supplied i.e. the energy as recorded by the meters.”

3.39 In reply to the specific query of the Committee as to whether State Governments, Distribution companies are reflecting the actual demand of electricity based on the needs of their consumers, the Ministry have stated as under:

“No, It is learnt that most of the States/UTs are not reflecting the actual demand of electricity based on 24X7 needs.”

3.40 When the Committee further questioned that in this scenario how the situation of non-projection of actual demand and surplus availability of power be defined and addressed appropriately, the Ministry in their written reply have stated as under:

“As per the Report of 18th Electric Power Survey (EPS) brought out in December, 2011, the projections of electrical energy requirement and peak electricity demand during the year 2016-17 was 1355 BU and 1,99,540 MW respectively. The actual electrical energy requirement and peak electricity demand during the year 2016-17 was 1143 BU and 1,59,542 MW respectively. Subsequently, the 19th EPS Report has been brought out in January, 2017. The method of electricity demand projection is based on the trend of actual electricity consumption in the past and growth of electrical energy requirement in future, keeping into account the developmental activities envisaged by states/UT's. The projection of electrical energy requirement and peak electricity demand during the year 2021-22 as per 19th EPS Report is 1566 BU and 2,25,751 MW respectively. The projections of 19th EPS would be reviewed after two years, so

as to make necessary adjustments to the forecast, in case there is wide deviation between the projections and actual figures.”

IV. TRANSMISSION

4.1 The National Electricity Policy, 2005 states that the Transmission System requires adequate and timely investments and also efficient and coordinated action to develop a robust and integrated power system for the country. Some of the important provisions made in the Policy relating to transmission have been quoted below:

“Keeping in view the massive increase planned in generation and also for development of power market, there is need for adequately augmenting transmission capacity. While planning new generation capacities, requirement of associated transmission capacity would need to be worked out simultaneously in order to avoid mismatch between generation capacity and transmission facilities.

Open access in transmission has been introduced to promote competition amongst the generating companies who can now sell to different distribution licensees across the country. This should lead to availability of cheaper power. The Act mandates non-discriminatory open access in transmission from the very beginning. When open access to distribution networks is introduced by the respective State Commissions for enabling bulk consumers to buy directly from competing generators, competition in the market would increase the availability of cheaper and reliable power supply. The Regulatory Commissions need to provide facilitative framework for non-discriminatory open access.

To facilitate orderly growth and development of the power sector and also for secure and reliable operation of the grid, adequate margins in transmission system should be created. The transmission capacity would be planned and built to cater to both the redundancy levels and margins keeping in view international standards and practices. A well planned and strong transmission system will ensure not only optimal utilization of transmission capacities but also of generation facilities and would facilitate achieving ultimate objective of cost effective delivery of power.”

4.2 When the Committee desired to know that whether thrust to renewable will not tend to interfere in the smooth transmissions of electricity due to its intermittent nature, the Ministry in their written reply have stated as under:

“The transmission systems are planned and operated keeping in view the generation and load scenario and adequate margins are kept in transmission system as per the Transmission Planning Criteria of CEA, at the planning stage itself. Thus transmission system development is undertaken in commensurate with the system requirements, keeping in view the development of Renewable Energy Sources (RES) as well. In order to minimize the impact of variability of generation from renewable energy Sources (RES) in the grid, depending upon the quantum of generation from RES, various types of balancing and energy storage sources such as Storage/pondage hydro projects including Pumped Storage Plants (PSPs), Energy Storage Systems, support from Gas Based Power stations and control/regulation of generation from flexible thermal power plants would be required to be in place. In addition to that rostering of loads (i.e. demand side management) by encouraging the power consumption by the consumers during high RE generation period and battery charging for Electrical Vehicles (EVs) and other storage applications would be required.

The present ancillary service Regulations of CERC permit only the un-requisitioned surplus power from central Generating stations (CGS) for balancing. However, a more refined ancillary service Regulations would be needed in future to allow all the above sources to compete with each other in order to provide their services at the cheapest cost.

Thrust on renewable (grid connected) will not interfere in the smooth transmission of electricity. However, due to intermittent nature of renewable generation, the direction / quantum of power flow on transmission system may change.”

4.3 When the Committee further desired to know as to how the balancing element in transmission will be factored in to offset the affect of renewable into transmission system, the Ministry in their written reply have stated as under:

“Transmission planning is a continuous process of identification of transmission system addition requirements, their timing and need. The transmission requirements could arise on account of:

- (a) new generation additions (including renewable generation) in the system,
- (b) increase in demand;
- (c) system strengthening that may become necessary to achieve reliability as per the planning criteria under changed load-generation scenario.

These transmission addition requirements are identified, studied and firmed through the transmission planning process. The Peak demand and its variation over various seasons are taken into account in the planning process. Normal and worst credible scenarios are considered in transmission planning.

The renewable generation has been granted must run status. During intermittency / non-availability of renewable generation, the generation from conventional resources will be ramped up / ramped down / put on bar to cater to the system demand.”

4.4 When the Committee desired to know the impact of so far developed renewable on transmission system as on date and how it is proposed to be addressed in view of the huge possibilities from renewable, the Ministry have stated as under:

“There is no impact on the transmission system because of existing renewable generation addition. Further, it is observed that already planned transmission corridors between various regions is sufficient to cater to renewable generation of 160 GW (wind and solar projects) for 2021-22 time frame.

Further, in order to facilitate integration of large scale renewable generation capacity in 12th plan, a comprehensive transmission plan comprising Intra-state and Inter-state transmission system strengthening has been identified as a part of “Green Energy Corridors” scheme. Further, to address intermittency of such energy resources, other control infrastructure like forecasting of renewable generation, dynamic compensation, establishment of Renewable Energy Management centers (REMC) at SLDC/RLDC/NLDC level etc. have also been identified as part of the Green Energy Corridors.”

4.5 They have further stated:

“The Green Energy Corridor inter-state transmission scheme comprising high capacity transmission lines which shall facilitate transfer of power outside the Renewable Energy resource rich states with reliability and security as well as enlargement of balancing area to address variability and intermittency issues of renewable. The inter-state scheme is under various stages of implementation by POWERGRID while Intra State Transmission system is being implemented by respective State Transmission Utilities (STU).

In view of the expected increase in penetration of renewable into the grid, there is a need to equip Power System Operators with additional State-of-the-Art tools along with real time monitoring of generation from RE sources. Considering above, establishment of Renewable

Energy Management centers (REMC) equipped with advanced forecasting tools, RE scheduling solutions, real time monitoring of RE generation, closely coordinating with SLDC/RLDC is being implemented as part of Green Energy Corridor scheme.”

4.6 They have also added:

“Further, Government of India has an ambitious plan to establish total 1,00,000 MW Solar comprising 20,000MW ultra mega solar power parks capacity in 21 states by 2022. To evolve plan for Grid integration of solar power parks, POWERGRID has evolved comprehensive transmission plan for evacuation of about 20,000 MW capacity envisaged through Intra state & Interstate system as part of **“Green Energy Corridors-II ”**

Out of above, scheme for eight (8) solar parks viz. Ananthapur (1500 MW) in AP, Pavagada (2000 MW) in Karnataka, Rewa (750 MW) in MP, Bhadla-III (500 MW), Bhadla-IV (250 MW) and Essel (750 MW) in Rajasthan, Banaskantha (700MW) in Gujarat & other solar parks in MP (750MW) is being implemented by POWERGRID as part of ISTS and under various stages of implementation. Scheme for balance solar parks are being implemented by respective states.

Further, comprehensive studies covering balancing and stability studies in increased Renewable Energy penetration scenario has been carried out and outcome is covered in the report titled **“Renewable Energy Integration – Transmission an Enabler”.**”

V. DISTRIBUTION

5.1 The Electricity Policy while recognizing the Distribution Sector as the most critical segment of the electricity business chain and states that the real challenge of reforms in the power sector lies in efficient management of the distribution sector. It further states that the Act provides for a robust regulatory framework for distribution licensees to safeguard consumer interests. It also creates a competitive framework for the distribution business, offering options to consumers, through the concepts of open access and multiple licensees in the same area of supply.

5.2 In regard to Distribution Sector, some of the important provisions mentioned in the Policy have been quoted below:

“A time-bound programme should be drawn up by the State Electricity Regulatory Commissions (SERC) for segregation of technical and commercial losses through energy audits. Energy accounting and declaration of its results in each defined unit, as determined by SERCs, should be mandatory not later than March 2007. An action plan for reduction of the losses with adequate investments and suitable improvements in governance should be drawn up. Standards for reliability and quality of supply as well as for loss levels shall also be specified, from time to time, so as to bring these in line with international practices by year 2012.

One of the key provisions of the Act on competition in distribution is the concept of multiple licensees in the same area of supply through their independent distribution systems..... The Government of India would notify within three months, the requirements for compliance by applicant for second and subsequent distribution licence as envisaged in Section 14 of the Act. With a view to provide benefits of competition to all section of consumers, the second and subsequent licensee for distribution in the same area shall have obligation to supply to all consumers in accordance with provisions of section 43 of the Electricity Act

2003. The SERCs are required to regulate the tariff including connection charges to be recovered by a distribution licensee under the provisions of the Act. This will ensure that second distribution licensee does not resort to cherry picking by demanding unreasonable connection charges from consumers.

The Act requires all consumers to be metered within two years. The SERCs may obtain from the Distribution Licensees their metering plans, approve these, and monitor the same. The SERCs should encourage use of pre-paid meters. In the first instance, TOD meters for large consumers with a minimum load of one MVA are also to be encouraged. The SERCs should also put in place independent third-party meter testing arrangements.

Modern information technology systems may be implemented by the utilities on a priority basis, after considering cost and benefits, to facilitate creation of network information and customer data base which will help in management of load, improvement in quality, detection of theft and tampering, customer information and prompt and correct billing and collection . Special emphasis should be placed on consumer indexing and mapping in a time bound manner.

Special efforts would be made for research, development demonstration and commercialization of non-conventional energy systems. Such systems would need to meet international standards, specifications and performance parameters

Efficient technologies, like super critical technology, IGCC etc and large size units would be gradually introduced for generation of electricity as their cost effectiveness is established. Simultaneously, development and deployment of technologies for productive use of fly ash would be given priority and encouragement

The country has a strong research and development base in the electricity sector which would be further augmented. R&D activities would be further intensified and Missions will be constituted for achieving desired results in identified priority areas. A suitable funding mechanism would be evolved for promoting R& D in the Power Sector. Large power companies should set aside a portion of their profits for support to R&D.”

Financial Condition of Discoms

5.3 The Committee were apprised that poor financial health of India's power distribution companies (Discoms) is reported to be the biggest concern in the Indian Power Sector. The situation has worsened over the years due to non-remunerative tariffs set by the State Commissions and high AT&C losses.

5.4 Power Finance Corporation Limited publishes the 'Report on Performance of State Power Utilities'. The Report covers State Power Utilities (SEBs/ unbundled utilities/ Power Departments) in all the States as well as Union Territory of Puducherry and private distribution companies created as a result of reform measures (DISCOMs in Delhi & Odisha). The Report is compiled on the basis of data given in the annual accounts (audited/provisional) of SEBs/ unbundled utilities (including Discoms of Delhi & Odisha) and Annual Resource Plans/ Information submitted by State Power Departments. The Report covering the performance of state power utilities for the years 2012-13 to 2014-15 has been published.

5.5 The performance of utilities selling power directly to consumers on key parameters is given below:

Parameter	2014-15	Details
Profit/ (Loss) on subsidy received basis (Rs in crore)	(58,275)	Annexure – I
Profit/ (Loss) on subsidy received basis as % of revenue (%)	(14.63)	
Average Cost of Supply (Rs./kwh)	5.20	
Average Revenue on subsidy received basis (Rs./kwh)	4.60	

Parameter	2014-15	Details
Gap on subsidy received basis (Rs./kwh)	0.60	
Power Purchase Cost (including generation cost) (Rs in crore)	3,94,771	
Total Expenditure (Rs in crore)	5,02,491	
Power Purchase Cost as % of Total Expenditure (%)	78.56	
Subsidy Booked (Rs in crore)	48,181	
Subsidy Received (Rs in crore)	46,112	Annexure – II
Subsidy received as % of subsidy booked (%)	95.71	
AT&C Losses (%)	24.62	
Total Outstanding Debt (Rs in crore)	4,06,825	
Accumulated Profit /(Loss) as per Balance Sheet (Rs in crore)	(3,60,736)	Annexure – IV

5.6 The Ministry have stated that the gap between average cost of supply and average revenue may go up or down on account of various factors. Average cost of supply may go up because of increase in power purchase cost or increase in transmission charge or distribution charge. Similarly, average revenue is a function of the tariff which has been determined by the Regulatory Commissions. The gap between average cost of supply and average revenue is also contingent upon the existing AT&C losses and any improvement in the AT&C loss level will see a fall in the gap between average cost of supply and average revenue. It can be said that a fall in the gap between average cost of supply and average revenue is a sign of improvement in the financial health of the Distribution Companies.

5.7 Further, Section 61 of the Electricity Act, 2003 inter-alia provides for determination of cost reflective tariffs for consumers. Relevant extract is placed below:

"Section 61 (Tariff Regulations)

The Appropriate Commission shall, subject to the provisions of this Act, specify the terms and conditions for the determination of tariff, and in doing so, shall be guided by the following, namely:-

.....
(d) *safeguarding of consumers' interest and at the same time, recovery of the cost of electricity in a reasonable manner;*

.....
(g) *that the tariff progressively reflects the cost of supply of electricity and also reduces cross-subsidies in the manner specified by the Appropriate Commission;*
....."

5.8 Therefore, reduction in gap between cost of supply and revenue realization is an important measure towards addressing the issue of financial health of distribution utilities. In other words, endeavor for determination of cost reflective tariff is considered as a measure towards improving the financial health of the Discoms.

5.9 As per information made available by Power Finance Corporation Ltd, the Average Cost of Supply, Average Revenue and Gap for utilities selling directly to consumers for the years 2013-14 and 2014-15 are as given below:

	2013-14	2014-15
Average Cost of Supply (Rs./kwh)	5.18	5.20
Average Revenue on subsidy received basis (Rs./kwh)	4.42	4.60
Gap on subsidy received basis (Rs./kwh)	0.77	0.60

5.10 When the Committee desired to know the details of the reforms carried out in State Discoms companies after the enactment of Electricity Act, 2003 and in what manner National Electricity Policy, 2005 has supplemented the reform efforts, the Ministry in their written reply have stated as under:

"The Electricity Act, 2003 and the National Electricity Policy and the Tariff Policy have made elaborate provisions for reforms of

State distribution companies. The Act provides for enabling provisions for reorganization of the State Electricity Boards for achieving operational efficiency. The Act provides for standards of performance to be specified by the State Electricity Regulatory Commissions for compliance by the distribution companies. There is also mandate for the distribution companies towards Universal Service Obligation (USO) within the stipulated timeframe.

In order to achieve efficiency, the Act and the policies enjoin upon the Regulatory Commissions to ensure appropriate tariff mechanism, which inter alia facilitates the distribution companies recover their cost of supply besides safeguarding consumer interest. Section 61 of the Electricity Act, 2003 provides for determination of multi-year-tariff principles and specifying performance based regulations etc. by the Appropriate Regulatory Commission.

5.11 It was further stated:

“As mandated in the Electricity Act, 2003, re-organization of State Electricity Boards has taken place in most of the States and the generation entities, transmission and distribution utilities are functioning as companies in respective States. The impacts of reforms are detailed as per the following:

(i) As mandated in Section 61 of the Electricity Act, 2003, the SERCs notified terms and conditions for determination of Multi-Year-Tariff (MYT). As provided for in these Regulations, tariff for distribution utilities is determined by the Regulators, thereby facilitating the distribution companies to recover appropriate cost of supply from the consumers.

(ii) The MYT regulations also provide for incentivizing the utilities upon meeting the specified efficiency levels. Further, the targets for reduction in AT&C loss levels are also determined by the Regulatory Commissions. The distribution companies are mandated to achieve the targets in reduction of loss levels and non-compliance of the same is dis-incentivized.

(iii) As per provisions contained in section 57 of the Electricity Act, 2003, the SERCs are mandated to specify standards of performance of the licensees. The standards of performance, as specified by the SERCs are to be strictly complied with by licensees concerned, failing which penalties and compensation will be payable as determined by the Commission. As per information available with the Forum of Regulators, all SERCs have notified the Standards of Performance Regulations and the utilities are obligated to

comply with the same.

(iv) As per provisions contained in sections 42(5) & 42(6) of the Electricity Act, 2003, Consumer Grievance Redressal Forums (CGRFs) & the institution of Ombudsman are required to be put in place by the State Electricity Regulatory Commission (SERC) for effective redressal of grievances of the electricity consumers. As per the information available with the Forum of Regulators (FOR) Secretariat, CGRFs & Ombudsmen have been established in all the states.

5.12 They also added:

“The poor financial health of India’s power distribution companies (DISCOMs) is reported to be the biggest concern in the Indian power sector. In this context, the Forum of Regulators carried out a study on the “Performance of Distribution Utilities”. The study observed that for improving the financial performance, focus should be on timely tariff rationalization, enforcement of timely tariff filing & quality in financial reporting, prudent power purchase mechanism, optimizing capital structure, liquidation of regulatory assets in a time bound manner and improving operational efficiency (reducing technical & distribution losses).”

5.13 The Secretary Power during the sitting on the subject, while explaining the problem of AT&C losses, apprised the Committee as under:

“जब हम कहते हैं कि कैपेसिटी की बात करते हैं तो ए. टी. एंड सी लासेस, आज भी काफ़ी यूटिलिटीज में हाई हैं. There is no incentive for the Discoms to buy power and supply because losses are there. जैसे बताया गया कि in a concurrent subject this area is within the domain of the States, however, the Government of India recognize that कि इसमें डेफ़िनेटली इन्वेस्टमेंट की जरूरत है और राज्यों को मदद और सपोर्ट करने की जरूरत है। इसलिए राज्यों को फ़ाइनेंशियली सपोर्ट करने के लिए Government of India took out two schemes – Deen Dayal Upadhyay Gram Yojana and IPDS scheme. इन दोनों स्कीम्स में असेट्स को स्ट्रैन्डें करने में 60 प्रतिशत भारत सरकार मदद करती है और 40 प्रतिशत राज्य अपना पैसा लगाते हैं। यह अर्बन और रूरल एरियाज में

डिस्ट्रिब्यूशन सिस्टम को स्ट्रेंथेन करने के लिए है। Idea is if the system is strengthened the quality and availability of power will improve. We have some teething problem in the implementation initially. It has picked up. This will ultimately result in improving the quality and reliability of power supply. There have been efforts to improve the AT&C losses. We have also come up with UDAY Scheme just to make the financial turnaround of discoms. उदय स्कीम के तहत भी ए. टी एंड सी लासेस पर काफ़ी भार दिया गया है। ए. टी एंड सी लासेस बेसिकली दो चीजों के लिए होते हैं – टैक्नीकल लासेज और कमर्शियल लासेज। कमर्शियल लासेज में चोरी होती है या अनमीटर्ड सप्लाई होती है। That is related to governance. We are also taking up with the States. We have given targets in the trajectory by so and so date you have to reduce AT&C losses to a particular agreed number. हर राज्य के लिए अलग-अलग है, depending on where they stand. I am happy to say that पिछले एक साल में उदय स्कीम इम्प्लीमेंट करने के बाद जो ओवरऑल ट्रेंड सामने आया है, it is positive. States have taken steps to reduce AT&C losses. India report of one year, which is provisional, it shows improvement in many of the Discoms, some are facing problem. हमें उनके ऊपर एम्फेसिस देना चाहिए, लेकिन काफ़ी डिस्कम्स के बारे में जो एक्शन ले रखे हैं उनके पाजीटिव परिणाम आए हैं।“

5.14 The Committee was informed that the Government of India has launched Integrated Power Development Scheme (IPDS) to extend financial assistance against capital expenditure to address the gaps in Sub-Transmission & Distribution network, Metering and IT enablement in urban areas to supplement resources of States/Discoms. Furthermore, in order to correct the situation, the Central Government has launched Ujwal Discom Assurance Yojana (UDAY), which aims at improving operational and financial inefficiencies of the Discoms.

5.15 UDAY is an effort for ensuring Financial and operational turnaround of DISCOMs. Under UDAY Discoms are expected to eliminate ACS-ARR Gap and bring down the AT&C loss level to 15% or less by 2018-19. IPDS assist States in improving their Distribution infrastructure and operational efficiencies.

Indian Power Development Scheme (IPDS)

5.16 It has been stated that under IPDS scheme projects worth Rs 26,066 Crores have been sanctioned covering 31 States/UTs and 3598 towns (538 Circles). As on 15th May 2017, LoA in 297 Circles have been awarded by the Discoms and are in various stages of tendering/bid-evaluation in another 192 circles. Under IPDS, 60% of project cost is provided as grant (85% for Special Category States) by Government of India. Additional 15% of project cost (5% for Special Category States), is provided as grant by Govt. of India on achievement of following milestones:

- (a) Timely completion of the scheme as per laid down milestones
- (b) Reduction in AT&C losses as per trajectory finalized by Ministry of Power in consultation with State Governments (Discom-wise)
- (c) Upfront release of admissible revenue subsidy, if any, by State Govt. based on metered consumption

5.17 The Ministry have stated that State/Discom-wise AT&C loss trajectory upto 2019-20 for IPDS and DDUGJY for claiming additional grant of 15%(5% for Special Category States) has also been dovetailed in line with UDAY trajectory for 27 States that have signed MoU for UDAY. Projects under IPDS are scheduled for

completion within 24 months of award. As such, IPDS projects shall be completed progressively from FY 18-19 onwards.

5.18 The Committee was apprised that with the launch of IPDS the Restructured Accelerated Power Development and Reforms Programme (R-APDRP) has been subsumed under IPDS. The status of R-APDRP is as follows:

- **IT enablement under Part-A(IT):** covers establishment of IT enabled system for achieving reliable & verifiable baseline data system in all towns with population greater than 30,000 as per 2001 census (10,000 for Special Category States).

Out of 1405 towns sanctioned under Part (IT) across 30 States in the country, so far, 1346 towns have been declared Go-Live i.e. IT enabled. Thus, enabling the Discoms to carry out energy audit and identify high loss pockets and accordingly take corrective actions for AT&C loss reduction.

- **Part-A(SCADA):** Dedicated to implementation of SCADA/DMS for towns with population greater than 4 lakhs & annual input energy greater than 350MU. It has been sanctioned for 72 towns in 20 States. SCADA completion has been reported in 18 towns and control centres have been commissioned in 52 towns.
- **Strengthening Sub Transmission & Distribution under Part-B:** The focus in Part-B is on reduction of Aggregate Technical & Commercial (AT&C) losses on sustainable basis and upon improvement of Distribution system. Out of 1228 towns sanctioned under Part-B 820 projects have already been completed.

5.19 The Ministry of Power assured the Committee that the most of the balance R-APDRP projects are likely to be implemented by March, 2018.

Ujjawal Discoms Assurance Yojana (UDAY)

5.20 The Ministry have informed that Ujjawal Discoms Assurance Yojana (UDAY) has been formulated and launched for a sustainable financial and operational turnaround of DISCOMs; provides permanent solutions to legacy debts and to address potential future losses. The main feature of this scheme is as under:

- Empowers DISCOMs with the opportunity to break even in the next 2-3 years through four initiatives.
- Operational efficiency improvements viz. metering, up-gradation of transformers/ other infrastructures, energy efficiency measures like efficient LED bulbs, agricultural pumps, fans & air-conditioners etc. to reduce the average AT&C loss from around 22% to 15%; Elimination of the gap between ACS and ARR by 2018-19.
- Reduction in cost of power through measures such as increased supply of cheaper domestic coal, coal linkage rationalization, liberal coal swaps from inefficient to efficient plants, coal price rationalization based on GCV, supply of washed and crushed coal, and faster completion of transmission lines.

5.21 Financial turnaround through States taking over 75% of DISCOM debt as on 30th Sept, 2015 over two years.

- ❖ 50% of DISCOM debt to be taken over in 2015-16 and 25% in 2016-17 – reduction of the interest cost on the debt taken over by the States to around 8-9%, from as high as 14-15%.
- ❖ DISCOM debt not taken over by the State shall be converted by the Banks / FIs into loans or bonds with interest rate not more than the bank's base rate plus 0.1%. Alternately, this debt may be fully or partly issued by the DISCOM as State guaranteed DISCOM bonds at the prevailing market rates which shall be equal to or less than bank base rate plus 0.1%.
- ❖ Further provisions for spreading the financial burden on States over three years to give flexibility in managing interest payment within their fiscal place in initial years.

- ❖ Provision for incentives/ disincentives for future financial performance for participating states.
- ❖ States to take over and fund at least 50% of the future losses (if any) of DISCOMs in a graded manner.
- ❖ State DISCOMs to comply with the Renewable Purchase Obligation (RPO) outstanding since 1st April, 2012
- ❖ States joining UDAY and performing as per operational milestones will be given additional/priority funding through DDUGJY, IPDS and PSDF or other such schemes of Ministry of Power and Ministry of New and Renewable Energy.
- ❖ Such States shall also be supported with additional coal at notified prices and, in case of availability through higher capacity utilization, low cost power from NTPC and other Central Public Sector Undertakings (CPSUs).
- ❖ States not meeting operational milestones will be liable to forfeit their claim on IPDS and DDUGJY grants.

5.22 The Committee considered UDAY a major policy intervention for heralding financial turn-round in the electricity sector. However, they found AT&C loss continues to be a worrisome situation. Taking this into consideration, they asked for the specific provisions envisaged in UDAY to strike the correlation between DAY and AT&C losses, the Ministry in their written reply have stated as under:

“High AT&C losses of the distribution utilities of the country has been a matter of concern of this Ministry while formulating any scheme/ initiatives in the distribution sector. UDAY scheme encompasses all aspects of power distribution to bring about financial & operational turnaround of Power Distribution Companies (DISCOMs). For the purpose, reduction in AT&C losses has been considered as one of the two outcome parameters in the Scheme, the other being elimination of gap between ACS & ARR. Under UDAY a holistic approach has been taken for reduction of AT&C losses and specific time bound provisions have been made for:

- (i) Metering which includes Feeder, DT & Smart Metering.
- (ii) Energy Audit of all Feeders

- (iii) Feeder Segregation & Feeder improvements for loss reduction.
- (iv) Name & Shame campaign

5.23 They have further added:

“As stated above, UDAY aims primarily to bring operational and financial turnaround of Distribution companies. Operational turnaround of the DISCOMs can be measured by reduction in AT&C losses. Hence the co-relation between UDAY and AT&C losses is obvious. The progress/ trend of AT&C losses of the Utilities (along with other important parameters as mentioned above) are being monitored regularly so as to enable the stake holders to initiate immediate corrective actions, wherever needed. Regular engagements through Monitoring committee meetings, State specific Focus meetings, Review by the Hon’ble Minister of State for Power & by Hon’ble Prime Minister are all part of this endeavour.”

5.24 When the Committee desired to know the benefits already accrued under UDAY, the Ministry, in their written reply, have enumerated the followings:

“(a) Interest Cost Benefits: One of the major elements incorporated to boost the financial turnaround of the distribution utilities under UDAY is the financial re-engineering of the debt of the distribution companies. Governments of 16 States have taken over of around Rs.1.90 lac crore debt of the distribution companies as per terms of UDAY MoU. Such loans were running at interest rates of around 11-12% p.a., which shall be serviced by the States. Further a few DISCOMs have also restructured their balance loan portion at reduced rates. The savings accrued to DISCOMs on account of interest benefits due to above, takeover & restructuring works out to Rs.12000 crores approximately by December, 2016.

(b) Power purchase cost: Till December 2016, five (5) states- Andhra Pradesh, Bihar, Haryana, Assam and Jharkhand have reduced power purchase cost from Financial Year 2016 level. These states have adopted various measures to optimize the input cost. Some of which are as following:

- Andhra Pradesh, Bihar and Haryana have significantly increased procurement of cheaper power from Power Exchanges (IEX and PXIL)

- Almost all the states have followed Merit Order Dispatch (MOD) methodology for power procurement and surrendered costlier power
- Cost of generation of few plants have reduced due to reduction in use of imported coal (few state Gencos of above states and few NTPC plants)
- Few generating stations have reduced fuel transportation cost by using “All Rail Route” (e.g. Andhra Pradesh) and linkage rationalization (few NTPC plants)

Overall savings till December 2016 was in the tune of Rs. 2100 crore. Regular optimization of power purchase cost through procurement from open market, efficiency improvement of generating stations and linkage rationalization can potentially reduce the power purchase cost further.

(c) ACS-ARR Gap: The reduction in ACS-ARR Gap is the combined effect of savings in interest cost, power purchase cost, tariff rationalization, better billing/collection efficiency etc. and it is expected that these benefits shall continue and further improve in future and provide sustainability to the distribution utilities.

(d) Reduced trend in State subsidy dependence:

Nine (9) Discoms from seven (7) states have reduced subsidy dependence (subsidy booked/Total revenue) from last year. Till December 2016, major improvements have been noticed from APEPDCL (from 12% to 3%) and SBPDCL, Bihar (from 46% to 32%). Drastic reduction in subsidy dependence in APEPDCL was driven by higher realization of cross subsidy from industrial segment in Financial Year 2017.”

5.25 It has been further stated as under:

“Marginal improvements (1-3%) have been noticed from Chhattisgarh, Haryana, Madhya Pradesh and Rajasthan Discoms. The reductions were mainly because of increased sales in non-subsidized segment.

With increased sales to industrial and non-domestic segments and moderate cross-subsidy, subsidy dependence of the states may reduce further.

Under UDAY, it is envisaged that once the Distribution utilities eliminate their gap through financial and operational improvements, their cost of borrowings would reduce substantially due to better rating. The reduction in power purchase cost shall be effected through transparent procurement practices, Coal benefits, and improvement in Generating stations efficiency etc. Further with improved financials, dependence on subsidy is also expected to reduce.

Thus it is expected that the benefits brought out above shall be sustained with improvements in operational and financial parameters.”

5.26 It has been stated that success of UDAY largely depends on measures taken by States about 10 States have enhanced retail tariff. When the Committee desired to know the other measures which States are expected to take, the Ministry in their reply have stated as under:

“The other steps, which the states are expected to take under UDAY are as under:

- (i) Compulsory feeder and Distribution Transformer (DT) metering by States.
- (ii) Consumer Indexing & GIS Mapping of losses.
- (iii) Upgrade or change transformers, meters etc.
- (iv) Smart metering of all consumers consuming above 200 units / month.
- (v) Demand Side Management (DSM) which includes energy efficient LED bulbs, agricultural pumps, fans & air-conditioners and efficient industrial equipment through PAT (Perform, Achieve, and Trade).
- (vi) Quarterly tariff revision, particularly to offset fuel price increase, to be permitted.
- (vii) Comprehensive 1EC campaign to check power theft.
- (viii) Assure increased power supply in areas where the AT&C losses reduce.

Though some States have enhanced their retail tariff, it is still less than what was envisaged in the MoUs that they have signed.”

5.27 When the Committee desired to know that whether enhancement of of tariff is a temporary measure and will be discontinued after regulatory asset obligation are met, the Ministry, in their written reply, have stated as under:

“Section 61 of the Electricity Act, 2003 mandates that the Appropriate Commission, while determining tariff, shall not only ensure safeguarding of consumer’s interests but also the recovery of the cost of electricity in a reasonable manner. Section 62 of the Act further provides for periodic tariff adjustment during a year to take care of the variation in fuel price, as may be specified. It has been observed that generally

the tariff set by SERCs do not cover for the entire cost of supply leading to gap in the Average Cost of Supply (ACS) and Average Revenue Realized (ARR). This in turn is affecting the financial health of Discoms.

As per Power Finance Corporation Report on Performance of State Power Utilities for the years 2012-13 to 2014-15, the average cost of supply increased from Rs 5.03/kwh in 2012-13 to Rs 5.18/kwh in 2013-14 and to Rs 5.20/kwh in 2014-15. The average revenue (without considering subsidy booked) increased from Rs 3.76/kwh in 2012-13 to Rs 4.00/kwh in 2013-14 and to Rs 4.12/kwh in 2014-15. The gap between average cost of supply and average revenue without subsidy was Rs 1.27/kwh in 2012-13, Rs 1.18/kwh in 2013-14 and Rs 1.08/kwh in 2014-15. The gap on subsidy booked basis decreased from Rs 0.84/kwh in 2012-13 to Rs 0.76/kwh in 2013-14 and further to Rs 0.58/kwh in 2014-15. Similarly, the gap on subsidy received basis decreased from Rs 0.84/kwh in 2012-13 to Rs 0.77/kwh in 2013-14 and further to Rs 0.60/kwh in 2014-15.”

5.28 It has been further state by the Ministry:

“Therefore, determination of cost reflective tariff and reduction in gap between cost of supply and revenue realization is an important measure towards addressing the issue of regulatory assets. In this regard, two pronged approach is being adopted to reduce ACS-ARR gap. Firstly, attempts are being made to enhance operational and financial efficiencies so that ACS comes down. At the same time, enhancement of tariff is essential so that all the prudent costs of Discoms get covered by the tariff, thereby enhancing ARR. Thus, enhancement of tariff is not meant to cover for Regulatory Assets only. Once tariff notified by SERC is enough to cover prudent costs of Discoms, the trajectory of tariff in future years will depend on the movement in cost of supply, which in turn depends mainly on cost of procurement of power, level of losses, investments required for network expansion/ strengthening etc.”

5.29 When the Committee enquired about implementation of open access at distribution level the Secretary Power deposed before the Committee as under:

“The policy exists for providing open access. Open access is a double-edged sword in the context of the way we determine tariff in India system. Utilities are mandated by the State Governments but State Governments provide subsidized power

to a large number of domestic agricultural consumers. जब सब्सिडाइज्ड पावर सप्लाई होती है तो कास्ट जेनरेशन कम है तो उसके लिए सब्सिडी देना पड़ता है। If subsidized power has to be supplied to any category, the State Government has to give subsidy. That is one option. एक ऑप्शन यह है कि क्लास सब्सिडी करके जो लासेस है और जो रिडक्शन किया गया है उसे दूसरी कैटेगरी में डाल दिया जाए। जब ओपन एक्सेस की बात करेंगे तो गुड पेइंग कन्ज्यूमर है जिसके ऊपर ज्यादा चार्ज करके डोमेस्टिक और एग्रीकल्चर कन्ज्यूमर को सब्सिडाइज्ड किया जाता है जो उसे एड्वर्सली एफ़ेक्ट करता है। So, distribution companies are not at the moment very comfortable with open access. That is why they put restrictions. As a philosophy, as a policy it is good, we can promote open access provided the whole ecosystem of how tariff rationalization and tariff setting is done. But the Ministry of Power is committed saying that we will promote open access to the extent possible. But ultimately the distribution companies and the States have to take a call because it directly affects the financial position of the distribution companies. If it affects them financially, then their capacity to supply power at a subsidized rate to certain categories of consumers like low domestic consumers and agriculturists are affected. One has to look not in isolation at open access but look at more broadly what the policy should be. The Government of India can only give guiding principles. The State Government and utilities will have to take a call depending on the local situation."

VI. REGULATION

6.1 The Electricity Act, 2003 provides that there shall be a Commission to be known as the Central Electricity Regulatory Commission to exercise the powers conferred on, and discharge the functions assigned to it under this Act.

6.2 It further provided that the Central Electricity Regulatory Commission, established under section 3 of the Electricity Regulatory Commissions Act, 1998 and functioning as such immediately before the appointed date, shall be deemed to be the Central Commission for the purposes of this Act and the Chairperson, Members, Secretary, and other officers and employees thereof shall be deemed to have been appointed under this Act and they shall continue to hold office on the same terms and conditions on which they were appointed under the Electricity Regulatory Commissions Act, 1998.

6.3 Section 79(1) of the Electricity Act, 2003 mandates the Central Electricity Regulatory Commission with the following functions:

(1) The Central Commission shall discharge the following functions, namely:-

- (a) to regulate the tariff of generating companies owned or controlled by the Central Government;*
- (b) to regulate the tariff of generating companies other than those owned or controlled by the Central Government specified in clause (a), if such generating companies enter into or otherwise have a composite scheme for generation and sale of electricity in more than one State;*
- (c) to regulate the inter-State transmission of electricity;*
- (d) to determine tariff for inter-State transmission of electricity;*
- (e) to issue licenses to persons to function as Transmission Licensee and electricity trader with respect to their inter-State operations.*

- (f) *to adjudicate upon disputes involving generating companies or transmission licensee in regard to matters connected with clauses (a) to (d) above and to refer any dispute for arbitration;*
- (g) *to levy fees for the purposes of this Act;*
- (h) *to specify Grid Code having regard to Grid Standards;*
- (i) *to specify and enforce the standards with respect to quality, continuity and reliability of service by licensees.*
- (j) *to fix the trading margin in the inter-State trading of electricity, if considered, necessary;*
- (k) *to discharge such other functions as may be assigned under this Act.*

(2) The Central Commission shall advise the Central Government on all or any of the following matters, namely:-

- (i) formulation of National Electricity Policy and tariff policy;*
- (ii) promotion of competition, efficiency and economy in activities of the electricity industry;*
- (iii) promotion of investment in electricity industry;*
- (iv) any other matter referred to the Central Commission by that Government.*

(3) The Central Commission shall ensure transparency while exercising its powers and discharging its functions.

(4) In discharge of its functions, the Central Commission shall be guided by the National Electricity Policy, National Electricity Plan and tariff policy published under section 3.”

6.4 Forum of Regulators (FOR) was constituted vide Notification dated 16th February, 2005 in pursuance of the provision under section 166(2) of the Electricity Act, 2003. Functions of the Forum as provided in the rules framed by Ministry of Power as under:

- ❖ Analysis of the tariff orders and other orders of Central Commission and State Commissions and compilation of data arising out of the said orders, highlighting, especially the efficiency improvements of the utilities;
- ❖ Harmonization of regulation in power sector;
- ❖ Laying of standards of performance of licensees as required under the Act.
- ❖ Sharing of information among the members of the Forum on various issues of common interest and also of common approach.
- ❖ Undertaking research work in-house or through outsourcing on issues relevant to power sector regulation;

- ❖ Evolving measures for protection of interest of consumers and promotion of efficiency, economy and competition in power sector; and
- ❖ Such other functions as the Central Government may assign to it, from time to time.

6.5 It was stated that the objective of setting up FOR is to provide a common platform to the electricity regulators to share their experiences and best practices. The intent is also to build synergy between various Electricity Regulatory Commissions and to inter-alia bring about harmonization of regulation in power sector. Important issues of the power sector (at inter-state level or intra-state level) are discussed and consensus is evolved in FOR.

VII. TECHNOLOGY DEVELOPMENT AND R&D

7.1 The National Electricity Policy states that Effective utilization of all available resources for generation, transmission and distribution. Special efforts would be made for research, development demonstration and commercialization of non-conventional energy systems. Such systems would need to meet international standards, specifications and performance parameters. IT further states that efficient technologies, like super critical technology, IGCC etc and large size units would be gradually introduced for generation of electricity as their cost effectiveness is established. Simultaneously, development and deployment of technologies for productive use of fly ash would be given priority and encouragement.

7.2 The Policy further states that the country has a strong research and development base in the electricity sector which would be further augmented. R&D activities would be further intensified and Missions will be constituted for achieving desired results in identified priority areas. A suitable funding mechanism would be evolved for promoting R& D in the Power Sector. Large power companies should set aside a portion of their profits for support to R&D.

7.3 The National Electricity Policy, 2005 provides that Renovation and modernization for achieving higher efficiency levels needs to be pursued vigorously and all existing generation capacity should be brought to minimum acceptable standards. The Govt. of India is providing financial support for this purpose. It

further provides that projects performing below acceptable standards, R&M should be undertaken as per well-defined plans featuring necessary cost-benefit analysis. If economic operation does not appear feasible through R&M, then there may be no alternative to closure of such plants as the last resort. In cases of plants with poor O&M record and persisting operational problems, alternative strategies including change of management may need to be considered so as to improve the efficiency to acceptable levels of these power stations.

7.4 When the Committee desired to know that how many power plants in Government Sector have been taken up for Renovation & Modernization (R&M) as per new MoEF norms and how many plants are left, the Ministry have replied as under:

“As per information made available by Central Electricity Authority (CEA) the Renovation & Modernization (R&M) works to meet the new environmental norms on Electro-Static Precipitators (ESP) is in progress in 54 units of NTPC (48 NTPC + 6 JVs), totaling to 14,160 MW capacity. Further, in order to meet new environment norms regarding Sulphur di-oxide emission from Coal based Thermal Power Plants, CEA have identified 179 existing units with a total capacity of 67,630 MW in Central & State sector, where Flue Gas Desulphurisation (FGD) plants would be installed as a retrofit work. The phasing of implementation plan is being prepared in consultation with Power utilities and Load Dispatch Centres. In this regard, CEA vide letter dated 26.05.2017 has requested State Governments to confirm the phasing of implementation plan.”

7.5 The Central Power Research Institute (CPRI) established by the Government of India in 1960 and was re-organised into an Autonomous Society in 1978 to function as a National Power Research Organisation and to serve as a

National Testing and Certification Authority for the purpose of certification of rating and performance to ensure availability of equipment of adequate quality for the use under conditions prevalent in Indian Power Systems.

7.6 The main activities of the Institute are:

- Power System studies covering Load Flow, Short Circuit and Relay Coordination
- Condition Monitoring and Diagnostics Services
- Energy Audit
- Communication Protocol Testing
- Third Party Inspection Services
- Seismic Qualification of Power Equipment
- Customised Training Programmes
- Protection Audit

7.7 The Institute is carrying out Research through in-house R&D projects useful to Power Sector in addition to coordinating the Research Scheme on Power, National Perspective Plan Projects, Projects under Uchchatar Avishkar Yojana, Impacting Research Innovation & Technology (IMPRINT) scheme etc. Initiation of Research on LED area was one of the important steps taken by the Institute.

7.8 Other important projects under implementation by CPRI are Indoor Alternate Current (AC) Test Facility 1200 kV – Ultra High Voltage Research Laboratory, Electromagnetic Interference (EMI)/ Electromagnetic Compatibility (EMC), Solar Photo Voltaic Test Facility, Inverter Test Facility, Illumination Test Laboratory, Motor Test facility, Upgradation of High Power Laboratory, On-line Short Circuit Test Facility, Modern Tower Test Facility, Insulating Oil Test Facility, Regional Testing Lab, Temperature Rise Test Facility, Smart Grid Research Laboratory,

Manpower Training and Academic Programmes, Power Training Simulators, Hot Line Training Centre and 800 MW Supercritical Simulator.

7.9 National Power Training Institute (NPTI) is another body which is playing an important role indirectly in modernizing the electricity sector through its various training programmes. The programmes being conducted by NPTI on generation simulators has improved plan load factor of generating units and increased the viability of transmission and distribution system also. The various training programmes of NPTI, i.e., manpower training, power training simulators, hotline training, the induction training, 800 MW super critical simulator training, etc. are vital training programmes for the electricity sector.

7.10 The Committee find that although the programmes run by NPTI are entitled for transforming the electricity sector and making it more efficient, yet for whatever reasons the results of the efforts of the NPTI and CPRI are not visible on the ground on expected lines. R&D is the core area which helps in sustainable development of the sector making it efficient, economical, reliable and prompt. Now, we are going for supercritical technology in the field of generation and this is the state-of-the-art generation technology with less emission and high yield. Ultra mega power projects are also making their impact in a big way and technological innovations for these projects cannot be over emphasized. It is in the larger interest of the electricity sector thus continuous research and development activities should be the focus of our electricity drive to make the electricity affordable to the common man.

VIII. ENERGY CONSERVATION

8.1 The National Electricity Policy, 2005 recognizes that there is a significant potential of energy savings through energy efficiency and demand side management measures. The Policy in regard to energy conservation *inter-alia* states the followings:

- ❖ Periodic energy audits have been made compulsory for power intensive industries under the Energy Conservation Act. Other industries may also be encouraged to adopt energy audits and energy conservation measures. Energy conservation measures shall be adopted in all Government buildings for which saving potential has been estimated to be about 30% energy.
- ❖ In the field of energy conservation initial approach would be voluntary and self-regulating with emphasis on labelling of appliances. Gradually as awareness increases, a more regulatory approach of setting standards would be followed.
- ❖ In the agriculture sector, the pump sets and the water delivery system engineered for high efficiency would be promoted. In the industrial sector, energy efficient technologies should be used and energy audits carried out to indicate scope for energy conservation measures. Motors and drive system are the major source of high consumption in Agricultural and Industrial Sector. These need to be addressed. Energy efficient lighting technologies should also be adopted in industries, commercial and domestic establishments.
- ❖ In order to reduce the requirements for capacity additions, the difference between electrical power demand during peak periods and off-peak periods would have to be reduced. Suitable load management techniques should be adopted for this purpose. Differential tariff structure for peak and off peak supply and metering arrangements (Time of Day metering) should be conducive to load management objectives. Regulatory Commissions should ensure adherence to energy efficiency standards by utilities.

8.2 Improving the energy efficiency meets the dual objectives of promoting sustainable development and of making the economy competitive. Recognizing the formidable challenges of meeting the energy needs and providing adequate and varied energy of desired quality in a sustainable manner and at reasonable

costs, improving efficiency have become important components of energy policy. In addition, the environmental and health burdens arising out of the use of hydrocarbons may also force mankind towards energy efficiency and clean energy systems. Energy Conservation has also assumed enhanced importance with a view to conserve depleting energy resources.

8.3 The Energy Conservation Act, 2001 specifies energy consumption standards for equipment and appliances, establishes and prescribes energy consumption norms and standards for designated consumers, prescribes energy conservation building code for efficient use of energy in commercial buildings, and establishes a compliance mechanism for energy consumption norms and standards. Large scale energy savings can be realized through strengthening of the existing policies and schemes as well as by expanding and reaching out to new areas, i.e., Utility Demand Side Management, Human Resource Development Programme and Super-Efficient Equipment Programme in the 12th Five Year Plan.

8.4 Bureau of Energy Efficiency (BEE), a statutory body under Ministry of Power is responsible for spearheading the improvement of energy efficiency in the economy through various regulatory and promotional instruments.

8.5 The Committee note that measures like Promoting Energy Efficiency in Buildings, Standard and Labeling Scheme, Capacity Building of Discoms, Agricultural Demand-side Management, Municipal Demand-side Management, Programme for Small and Medium Enterprises, Strengthening Institutional Capacity on State Designated Agencies and National Mission for Enhanced

Energy Efficiency are being run for promoting energy conservation in the country. However, the scale on which the energy conservation should have been is still missing. The concept of energy efficiently is limited to certain electrical appliances only. This need to be enlarged in a target.

IX. PROTECTION OF CONSUMER'S INTERESTS AND QUALITY STANDARDS

9.1 The National Electricity Policy, 2005 states that Appropriate Commission should regulate utilities based on pre-determined indices on quality of power supply. Parameters should include, amongst others, frequency and duration of interruption, voltage parameters, harmonics, transformer failure rates, waiting time for restoration of supply, percentage defective meters and waiting list of new connections. The Appropriate Commissions would specify expected standards of performance.

9.2 It also states that Reliability Index (RI) of supply of power to consumers should be indicated by the distribution licensee. A road map for declaration of RI for all cities and towns up to the District Headquarter towns as also for rural areas should be drawn by up SERCs. The data of RI should be compiled and published by CEA.

9.3 The Policy also advises that all State Commissions should formulate the guidelines regarding setting up of grievance redressal forum by the licensees as also the regulations regarding the Ombudsman and also appoint/designate the Ombudsman within six months. Further, the Central Government, the State Governments and Electricity Regulatory Commissions should facilitate capacity building of consumer groups and their effective representation before the Regulatory Commissions. This will enhance the efficacy of regulatory process.

9.4 In regard to supply of reliable and quality of power, the Secretary Power during the sitting of the Committee stated as under:

“supply of reliable and quality power की बात की है, यह बहुत महत्वपूर्ण ईशू है। आज की तारीख में we have created sufficient generation capacity. कोई भी डिमांड होगी तो देश भर में जनरेशन कैपिसिटी क्रिएट की है, हम उतनी जनरेट कर पाएंगे। We have also created Inter regional capacity, to transfer power from one region to another. हमने वह भी किया है, लेकिन ग्राउंड लैवल और ग्रासरूट लैवल पर डिस्ट्रिब्यूशन के जो ईशू है, वे अभी भी इतने सैटिस्फैक्ट्री नहीं हैं। उसमें दो ईशूज हैं – the power of distribution utilities and supply, technical or the quality of distribution aspect itself. उसमें भी अपग्रेडेशन की जरूरत होती है।”

9.5 When the Committee desired to know about setting up of Customer Care Centre and the benefits being derived therefrom, the Ministry have stated as under:

“Customer Care Centers (CCC) are designed for better consumer connect and improve the customer service by processing and resolving customer requests/queries/complaints in minimum possible time by taking it up at appropriate place and level to ensure customer satisfaction. These are designed to provide single window services to consumers of Power Distribution Utilities. The Customer care centers are designed to provide following facilities:

- Register technical and commercial complaints/grievances like supply failure, voltage high/low, billing and metering related issues, and other complaints like disconnection/dismantling etc. and provide feedback after resolution.
- Forward complaints to relevant workforce/officials for resolutions or any escalation and provide feedback.
- Providing information about how to avail various customer services offered by DISCOM, etc.
- Provide status and information regarding New Service Connection.
- Accept and register various service requests relating to status of title transfer, change of consumer data, change of

contracted load, energy theft enumeration, line shifting, etc. Forward complaints to relevant workforce/officials for timely redressal.

- Enables customers to submit complaints online or through personal visits. As such, are equipped with basic amenities, clean environment and manned by trained personnel sensitive to customer needs etc.
- Can also be accessed telephonically through a common short code like '1912' on toll free basis.

As per information made available by Power Finance Corporation Ltd., the Customer Care Centers (CCC)/Service centers have been sanctioned at 46 locations across 30 States under erstwhile Restructured Accelerated Power Development and Reforms Programme (R-APDRP) (now subsumed under IPDS) and are functional at 40 locations. CCC at balance six locations are also likely to be completed by March, 2018."

Part – II

Observations/ Recommendations of the Committee

Introduction

1. The Committee note that Section 3 (1) of the Electricity Act, 2003 provides that “the Central Government shall, from time to time, prepare the National Electricity Policy. In compliance of this the Government of India had notified the National Electricity Policy on 10th February, 2005. The National Electricity Policy aims at achieving the following objectives:

- ❖ Access to Electricity - Available for all households in next five years
- ❖ Availability of Power - Demand to be fully met by 2012. Energy and peaking shortages to be overcome and adequate spinning reserve to be available.
- ❖ Supply of Reliable and Quality Power of specified standards in an efficient manner and at reasonable rates.
- ❖ Per capita availability of electricity to be increased to over 1000 units by 2012.
- ❖ Minimum lifeline consumption of 1 unit/household/day as a merit good by year 2012.
- ❖ Financial Turnaround and Commercial Viability of Electricity Sector.
- ❖ Protection of consumers’ interests.

The scrutiny of the Committee, however, revealed that no objective of the National Electricity Policy, 2005 could be achieved within stipulated timeline. Most of the objectives are yet to be achieved. The Committee note that there are still more than 4 crore households to be electrified, there is adequate generation capacities but due to affordability issue demand is not fully met, financial conditions of Discoms have become bad to worse. Moreover, there

are other issues that are now putting challenges in proper development of electricity sector of the country. The substantive fall in solar tariff and its very low gestation period is posing a threat to economic viability of thermal power plants. Presently, solar power is doing the same to thermal power what thermal power did to hydro power. Though growth in Solar energy is a good sign for the country, nonetheless, thermal power has been the mainstay of power sector and due to various reasons its importance is not going to end anytime soon. Therefore, the growth of this sector needs to be done in more balanced manner wherein, various sectors of electricity complement one another. We have built enough generation capacity but due to affordability issue, demand is being suppressed leading to lesser utilization of capacities. Electricity being the Concurrent Subject, the key to proper and expeditious development of this Sector largely depends on effective coordination between the Centre and the States. A long time of 12 years has elapsed since notification of the Electricity Policy, the Committee, therefore, recommend that due to rapid changes in electricity scenario, the National Electricity Policy, 2005 should be amended at earliest by taking into account a holistic view of the sector. The Committee have also made various observations/ recommendations relating to Electricity Policy in the succeeding paragraphs.

(Para No.1, Recommendation No.1)

Electricity Access

2. The Committee note that the Electricity Policy states that the key development objective of the power sector is supply of electricity to all areas including rural areas as mandated in section 6 of the Electricity Act. Both, the central Government and the State Governments would jointly endeavour to achieve this objective at the earliest. Consumers, particularly those who are ready to pay a tariff which reflects efficient costs have the right to get uninterrupted twenty four hours supply of quality power. To achieve this Government of India have launched Deen Dayal Upadhyaya Grameen Jyoti Yojana with the objective of electrifying all the villages and households in the country. However, the Committee find that as per the extant definition of an electrified village, a village with a mere 10% of the total number of households in the village can be declared as electrified. Therefore, despite having 90% un-electrified households, the Government can assume a village to be electrified. However, when the Committee raised this issue with the Ministry, they have stated that “24 x 7 Power for All” documents have been signed with all the States/UTs. Government of India supports States with schemes such as Ujjwal DISCOM Assurance Yojana (UDAY), Integrated Power Development Scheme (IPDS) and Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY) to help them to achieve the objective of providing uninterrupted power supply to every households. As the focus is now on Power for All, definition of electrified village becomes irrelevant. However, the Committee are not convinced by this plea of the Ministry. The Committee

are aware that the present definition of electrified village is slight improved version of its earlier definitions wherein, a village was qualified to be classified as electrified if electricity is being used within its revenue area for any purpose whatsoever. Since, the Ministry have changed the definition of the village electrification several times in a piecemeal manner, there have been situations when a village once declared electrified becomes un-electrified after change in definition, causing a repetition of the entire work in the form of so called intensive electrification to meet the criteria of the new definition. As per the present definition of village electrification 99.4% village are electrified but at the same time more than 4 crore households in the country are still deprived of the electricity connection. It is apparent that by present measures electrification is nothing but sheer formality to declare as many as villages electrified. The Committee believe that the present definition does not reflect the true picture of universal access to electricity status in the country, therefore, strongly recommend that the definition of village electrification should be changed as such that a village should be declared electrified only when all the households of the village are electrified. They further desire that a village shall not get the tag of being electrified in any case when the household coverage is less than 80%.

(Para No.2, Recommendation No.2)

3. The Committee believe that the true spirit of the Electricity Act and the National Electricity Policy is to electrify all the households. However, the Committee are dismayed to find that so far the focus was on electrification of all the villages and there was no talk on electrifying each and every households of the country. Besides this there was a condition of minimum population for a village to be considered for electrification exercise. However, to the satisfaction of the Committee, the Government have now removed these barriers and aspiring to implement the universal access to electricity in its true sense by setting a deadline to cover all the households for electrification. Still the Committee find that there are provisions in the electrification policy that may create obstacles or procrastinate the full implementation of the scheme. The Committee note that under DDUGJY, the Central Government fund electricity connections to BPL households only. APL families have to pay charges in order to get connections. Furthermore, the responsibility of providing connection to APL families rest with Discoms. The Committee do understand that it is a concurrent subject and the Centre and the States jointly have to achieve the objective of providing universal access to electricity. Nonetheless, this arrangement has created duality of jurisdiction and approach leading to uncertainty in regard to electrification of villages. Even those villages which were declared electrified a decade ago under centrally sponsored electrification scheme, are yet to achieve of 100% households electrification. This only highlights the lackadaisical approach of Discoms to providing connections to remaining households as per

provisions of the scheme. Also, there are chances that some APL families may not be capable of paying the connection charges in one go due to various reasons. The Committee, therefore, recommend that the policy in regard to village electrification may be amended in such manner that there should be provision to provide electricity connection to all the families be it BPL or APL at the time of electrification drive. The connection charges to APL families may also be exempted as done by some States or it may be provided at discounted rates. If this not being feasible then there must be provision of realizing the connection charges in Equated Monthly Installments (EMI) instead of paying it in one go.

(Para No.3, Recommendation No.3)

4. The Committee find that at present the village electrification scheme aims only to provide electricity access to households limiting to the purpose of illumination. This endeavour itself it so ambitious that despite the concerted efforts of the Centre and the States Government, there are crores of households which are yet to be electrified. However, the Committee feel that use of electricity for illumination only serve the purpose to a certain extent as it does not provide scope for the beneficiaries to carry out even small electricity based commercial activities to earn livelihood or increase their income leading to enhanced capacity to pay electricity bills. On the other hand, Discoms who provide such connections perceive them as

liability having little or no scope for generation of revenue therefrom. The Committee, therefore, believe that this situation is neither much helpful in improving the prospect of earnings of beneficiaries nor encouraging for Discoms to provide such electricity connections and adequate supply of electricity to them. The Committee further note that presently the per capita electricity consumption is around 1000 kWh which is way below the world's average of 3030 kWh. When it developed countries, it is not comparable which are having per capita electricity consumption as high as 15,520 kWh. Due to massive addition in power generation capacities in the country, there is no dearth of electricity. Moreover, with the mammoth capacity addition planned from the renewable energy as well as conventional source which is expected to be added in the coming years, it is expected that there will not be any constrain from supply side. The Committee believe that this is the high time when we can promote more intensive usage of electricity for the benefit of the people as well as for the electricity sector. The Committee, therefore, recommend that the Government should aspire to provide electricity connections in the rural areas that are capable of carrying out some commercial activities. Simultaneously, provisions in regard to supply of quality and reliable power for reasonable time should also be made as mere electrification without adequate electricity supply does not make sense.

(Para No.4, Recommendation No.4)

5. The Committee further recommend that every connection irrespective of the purpose, type or category, provided for by the Discoms should invariably be metered. The Committee believe that 100 % metering of all the connection will help in better energy auditing and fixing accountability. The Committee are not averse to providing electricity free of cost or at subsidized rate but they desire that whatever electricity is supplied to anybody, should be metered.

(Para No.5, Recommendation No.5)

Generation

6. The Committee note that during the recent years, the country has witnessed massive growth in generation capacities. The country at present have 3,30,260 MW capacity of which 2,21,626 MW comes from thermal power, 57,260 MW from renewable energy sources and only 44,594 MW from hydro power. The Committee further note that the share of hydro power, in the total energy mix, is on constant decline due to various reasons. The share of hydro in 2007-08, not long before, was more than 25% which has now come down to a meager 13.6%. The Committee further note that as per the survey carried out in 1987, total Hydro Electric Power potential in the country when fully developed would result in an installed capacity of about 1,48,701 MW on the basis of probable average load factor. Against this potential, the actual capacity that could be harnessed as on 31.03.2017 is 44,478.42 MW which is

about 30% of the potential. The Committee believe that the assessed potential could further increase if a new study is carried out keeping in view the technological advancements, new techniques and Pumped Storage Plants. The Committee further note that extant Electricity Policy while considering hydro-electricity as a clean and renewable source of energy envisages that maximum emphasis would be laid on the full development of the feasible hydro potential in the country. The Policy have also recognized that harnessing hydro potential speedily will also facilitate economic development of States, particularly North-Eastern States, Sikkim, Uttaranchal, Himachal Pradesh and J&K, since a large proportion of our hydro power potential is located in these States. These States with hydro potential need to focus on the full development of hydro power potential at the earliest. Besides generation of electricity, hydro power projects also have ingrained benefits like supply of drinking water, flood and drought control, and irrigation. Moreover, hydro plants especially, Pumped Storage Plants can be used as electricity storage. The Committee also note that as per the targets set by the Government, a capacity to the tune of 175 GW from renewable energy will be added in the system by the year 2022. Since, generations from renewable energy sources are intermittent in nature, therefore, a balancing power will be needed to support the Grid and even out the fluctuations. The balancing power could either be gas based power or hydro power. As there is scarcity of gas, hydro power becomes Hobson's choice. Therefore, if hydro power is not developed in the right proportion

there is every chance that PLF of thermal power which is already at the level of 64% may fall to detrimental levels due to their possible use as balancing power. The Committee are dismayed over the non-attention towards development of hydro power despite having numerous advantages and its necessity for harmonious functioning of the system. The Committee feel that instead of taking corrective measures in a piecemeal manner there is dire need of policy interventions taking into account the holistic view of the sector. The Committee, therefore, in succeeding paras have recommended various changes that should be made by the Government to provide much needed push for development of hydro power.

(Para No.6)

7. The Committee note that as per the present policy, hydro power plants upto 25 MW capacities are considered as renewable energy sources and are under the purview of the Ministry of New and Renewable Energy, whereas, hydro power plants having capacities more than 25 MW are considered conventional energy source and are dealt with by the Ministry of Power. The Committee further find that as per International Energy Agency (IEA) “Renewable energy is energy that is derived from natural processes (e.g. sunlight and wind) that are replenished at a higher rate than they are consumed. Solar, wind, geothermal, hydropower, bio-energy and ocean power are sources of renewable energy.” The Committee failed to comprehend as to why hydro power in our country has been categorized as a source of conventional energy as there is no justified logic or reason.

Instead, if hydro power is declared as renewable energy, it will open new vistas for this sector to receive various concessions and assistance not from the Government but also from foreign countries and agencies. The Committee, therefore, strongly recommend that all the hydro power in the country irrespective of their capacities should be considered as renewable source of energy.

(Para No.7, Recommendation No.6)

8. The Committee observe that initial higher tariff of the hydro power is one the deterrent for retarded growth of this sector. It is an established fact that hydro power plants have the longest life span and is source of cheapest energy in the long run. The expected life span of civil structure of a typical hydro power project can go beyond 100 years, whereas, mechanical and electrical component last for 25-50 years. However, banks and financial institutes provide loan to hydro power project for the 10-12 years only. Therefore, higher cash flow is required in the initial 10-12 years on account of repayment of debt. To meet the increased cash flow requirement, a higher rate of depreciation is allowed for the initial period of 12 years for the purpose of determination of tariff. As a result, the tariff of hydro power becomes front loaded and is quite high for the first 12 years. The tariff then reduces and comes down drastically once the loan is repaid and the plant is fully depreciated. The Committee with a view to make hydro power tariff

more levelized, recommend appropriate provision be made to provide long tenure finances i.e. upto 25 years, to hydro power projects.

(Para No.8, Recommendation No.7)

9. The Committee are happy to observe that the Government is paying sincere attention in promotion of solar power in the country. However, they are surprised to find that hydro power which is also a source of renewable energy and will be counted in meeting targets of global commitments related to climate conditions, is not been given the due attention. The solar power is receiving much support and assistance from the Government and other agencies, is expected to become the largest source of renewable energy. Nonetheless, its inherent limitation owing to its variable generation potential capacity, corresponding hydro power capabilities will be required to balance the grid. The Committee feel that in absence of adequate hydro power as balancing power, the massive addition of solar power in the network will pose a threat to equilibrium of the power system. The Committee, therefore, recommend that financial interventions *viz.* issuance of tax-free bonds, viability funding, collateral loans from world's agencies and likewise, should be made to promote hydro power sector on the lines of promoting solar power.

(Para No.9, Recommendation No.8)

10. The Committee note that the establishment of hydro power projects which in itself is a complicated and challenging task, is further made onerous by the formalities of obtaining various clearances, the cumbersome process of R&R and development of enabling infrastructure. These things not only contribute in delaying of the project but also escalate the cost of the project leading to higher tariff. The gestation period of hydro power project, is quite longer as compared to thermal and solar power plants. The Committee believe that unless the formalities in regard to setting up hydro power projects are streamlined, this sector cannot be developed expeditiously. The Committee, therefore, recommend that instead of putting the onus of obtaining all the clearances and undertaking R&R relating to hydro power projects on the developers alone, the Government(s) should share the responsibility. The Government agencies should undertake all the formalities and R&R related to project on behalf of the developers to shorten the time consumed in these processes. The developers should be assigned only with the job what they do best i.e. development of the projects. Since, the concept of river basin study has already been introduced; the government agencies may take it further by identifying all the potential and suitable hydro power projects sites in a river basin and developing the basic enabling infrastructure before its allotment to developer.

(Para No.10, Recommendation No.9)

11. The Committee note that there are various Central PSUs which are engaged in development of hydro power like NHPC, NEEPCO, THDC, SJVNL. These Undertakings have the required infrastructure, expertise and manpower who are specialized in the development of hydro projects. Since all these are reputed organization with the proven track record in development and upkeep of hydro projects, there is no issue of mobilization of funds for them. Despite having huge hydro power potential that remains to be harnessed these PSUs are not having many projects to develop. The Committee feel that under-utilization of Central PSUs is nothing but sheer waste of available resources and expertise. The Committee believe that the participation of private player is a necessity for speedy and optimal growth of the power sector. However, the Committee observe that the performance of private players unlike in thermal sector, is not encouraging. Rather, the Committee find that many a projects which have been allocated to private players with little or no experience of hydro power, are stuck due to inabilities of the developers. Also, due to long gestation period of hydro power projects and the extended period taken in getting the returns on the investment, private players are reluctant to venture in this sector. The Committee recommend that Government should make a policy so that Central PSUs get most of the hydro power projects. They should also explore the idea to reserve hydro power sector exclusively for PSUs or with the collaboration of PSUs until the sector is adequately developed.

(Para No.11, Recommendation No.10)

12. The Committee while examining the hydro sector found that lack of coordination among the Ministries, State Governments, Departments, and Agencies related with the development of hydro power, to be the prime reason for sluggish growth of hydro sector. The Committee, therefore, recommend that there should be a forum where the representatives of the Ministries of Power, Ministry of New and Renewable Energy, Finance, Environment and Forest, Water Resources and the concerned States Government/Agencies should meet time to time for the resolution of issue related to development of hydro power projects. They further desire that deliberation should also take place in regard to linking of future thermal and solar power projects with hydro power projects till the sector get developed to its potential.

(Para No.12, Recommendation No.11)

13. The Committee observe that higher tariff is the main suppressant of electricity demand. In view of the Committee, there is latent demand of electricity in the system that will surface once tariff is brought down to more affordable levels. The Committee, therefore, recommend the Government to make policy provision that ensure reduction in power generation cost and electricity tariff. The Committee desire that with a view to decrease generation cost availability of cheaper indigenous coal be made available in

adequate quantity, rationalization of coal supply sources, super-critical technology be adapted according to indigenous conditions, R&M exercises for power plants be undertaken at the right time, etc. The Committee further observe that running of power plants at lower PLF also escalate the generation cost. The Committee, therefore, further recommend that the Government should make necessary provisions to increase the utilization of power plants.

(Para No.13, Recommendation No.12)

Transmission

14. The Committee note that as per National Electricity Policy a well planned and strong transmission system will ensure not only optimal utilization of transmission capacities but also of generation facilities and would facilitate achieving ultimate objective of cost effective delivery of power. The Committee find that transmission sector has very well kept pace with the rapidly growing generation sector. In belief of the Committee, there has not been any constraint owing to lack of transmission capabilities. The Committee praise the excellent work done in the transmission sector. The Committee hope that the good work will continue in future also. The Committee further note that there is planning of huge generation capacities from renewable energy sources and integration of this into the system would pose a great challenge due to its intermittent and variable nature. This will require further strengthening and

technological up-gradation of the transmission system to optimally utilized generation capabilities. The Committee note that there is planning in regard to integration of upcoming renewable energy into the system by the way of constructing Green Energy Corridor. There are other preparatory work and studies going on in this regard. The Committee, however, feel that there is need for greater coordination among the concerned agencies. The Committee, also recommend that transmission sector which has so far performed well, need to be taken to the next level by expeditious implementation of Smart Grid project to cope up future challenges.

(Para No.14, Recommendation No.13)

Distribution

15. The Committee observe that the economic viability of the whole electricity sector hinges on the Distribution Sector, which happens to be the most financially distressed in our country. The Committee note that power is a concurrent subject and the responsibility for distribution and supply of power to rural and urban consumers rests with the States. The Committee further note that AT&C losses level in the country are still unacceptably high. In view of the Committee, the high AT&C losses are the main reason behind the distressed conditions of Discoms. The Ministry, with the aim to bring down AT&C losses to the level of 15%, have introduce IPDS with R-APDRP being its component. Newly launched scheme UDAY put emphasis on reducing AT&C losses and set a trajectory to be conformed by Discoms. The

Committee, however, find the concept of AT&C losses flawed as it disguise the commercial losses which unlike the technical losses, can be eliminated completely. The Committee are also aware that commercial losses which has the major chunk in AT&C losses, can be reduced with the managerial interventions. It is beyond doubt that technological up-gradation as envisaged under the IPDS will help the sector in many ways, nevertheless, the efforts to address the problem of commercial losses can be started without waiting full implementation of IPDS, be it feeder wise metering and supervision, fixing of accountability, etc. However, to act in this regard we first need to segregate the value of commercial and technical losses in AT&C losses. The Committee, therefore, recommend that provisions should be made in regard to segregation of commercial and technical losses. So that all-out efforts in regard to reduction of losses are made at the earliest.

(Para No.14, Recommendation No.13)

16. The Committee note that the IPDS aims at bringing down AT&C losses to the level of 15%. The Committee find that the level of 15% losses is being targeted since 2002-03 when APDRP was launched. After elapse of 15 years we are still far from that target. The Committee believe that once IPDS scheme is fully implemented and the technological up-gradation and strengthening of the system is done, there should not be any excuse left for not containing AT&C losses barring its technical component. The Committee, therefore, desire that the targeted level of 15% AT&C losses need

to be lowered accordingly leaving little scope for inclusion of commercial losses therein.

(Para No.15, Recommendation No.14)

17. The Committee note that that poor financial health of India's power distribution companies (Discoms) is reported to be the biggest concern in the Indian Power Sector. The total outstanding debt (during 2014-15) of the utilities selling power directly to consumers was to the tune of Rs. 4,06,825 crore. The Committee note that Ujjawal Discoms Assurance Yojana (UDAY) has been formulated and launched for a sustainable financial and operational turnaround of Discoms which provides permanent solutions to legacy debts and to address potential future losses. The Committee are appreciative of the initiative of the Government in the form of UDAY to turnaround the financial conditions of Discoms. The key feature of the scheme is that unlike its predecessor schemes, it envisages undertaking the herculean task without any outlay from the Central Government. Through this scheme, the Central Government have involved the whole machinery of the State to address the issues responsible for financial losses to Discoms. Since, this scheme provide to eliminate the gap between Average Cost of Supply (ASC) and Average Revenue Realized (ARR), the Committee are hopeful that this initiative will be able to settle the issues of distribution sector once and for all. The Committee at the same time are also a bit cautious as we have past experiences when the initiatives with identical

objective have failed due to one or the other reasons. The Committee, therefore, recommend that the initiative of UDAY should be implemented with utmost sincerity and attention lest it become another bitter experience. The Committee further desire that necessary need based calibration may be done in the scheme as and when need arises to address any new issue that crop up during its implementation.

(Para No.16, Recommendation No.15)

18. The Committee note that one of the key provisions of the Electricity Act on competition in distribution is the concept of multiple licensees in the same area of supply through their independent distribution systems. The Committee further note that National Electricity Policy states that the Government of India would notify within three months, the requirements for compliance by applicant for second and subsequent distribution licence as envisaged in Section 14 of the Act. With a view to provide benefits of competition to all section of consumers, the second and subsequent licensee for distribution in the same area shall have obligation to supply to all consumers in accordance with provisions of section 43 of the Electricity Act 2003. The Committee, however, find that the concept of introduction of Open Access at distribution level is still far from being implemented. In regard to its implementation, the Ministry have stated that Discoms are not comfortable with open access due to the fact that some sections of the consumers are being supplied electricity at subsidized rates. The Ministry has accepted that open access as a philosophy and policy, is good. They

have further stated that they are committed to promote open access to the extent possible; however, the Discoms and the States have to take a call because it directly affects the financial position of the Distribution Companies. The Committee believe that system of open access at distribution level can create a competitive atmosphere which will help consumer get reliable and quality electricity supply. The Committee do understand that there is genuine problem in implementation of open access in the present scenario due to existence of multiple tariff for different segment of consumers. Nonetheless, the Committee do not find the problem insurmountable as some remedial measures can be taken which will address the issue. One of the many options is the provision of direct transfer of subsidy provided by the State Government to the account of the beneficiary. The Committee, therefore, recommend that the Government will take recourse for effective implementation of open access at distribution level.

(Para No.18, Recommendation No.17)

Regulation

19. The Committee note that Section 61 of the Electricity Act, 2003 empowers the appropriate Commission to specify the terms and conditions for determination of tariff in accordance with the provision of the said section and National Electricity Policy and Tariff Policies. Besides, the Commission shall also advise the Union Government on all or any of the matters, i.e., (i) formation of National Electricity Policy and tariff policy; (ii) promotion of competition, efficiency and economy in activities of the

electricity industry; (iii) promotion of investment in electricity industry; (iv) any other matter referred to the Central Commission by that Government. The Committee observe that the Regulators have been entrusted with the important assignment that are capable of determining the shape and future of the sector. However, when the Committee analyze the present situation, they find that though there has been noteworthy development in the sector, but the various issues that have been affecting the sector adversely for long are yet to be addressed viz. high AT&C losses, bad financial conditions of Discoms, environmental issues, problems of end consumers, etc. Moreover, over the period of time some more new problems have surfaced, like falling of hydro power in energy mix, low PLF of thermal power plants leading to their economic un-viability, issue of affordability of electricity, etc. Since Regulators have been entrusted with the power to regulate the sector for attaining the goals and objectives of Electricity Policy, the Committee feel that there should be some kind of performance appraisal of regulators and the impact of formulated regulations. The Committee, therefore, recommend that apart from giving adequate resources and authority, the Regulators accountability should also be ensured by making necessary provisions in this regard.

(Para No.19, Recommendation No.18)

20. The Committee note that Section 166 (2) of the Electricity Act, 2003 provides that the Central Government shall constitute a forum of regulators consisting of the Chairperson of the Central Commission and Chairpersons

of the State Commissions., It further provides that the Chairperson of the Central Commission shall be the Chairperson of the Forum of regulators. Accordingly, a Forum of Regulators (FOR) was constituted vide Notification dated 16th February, 2005. The Committee further note that the objective of setting up FOR is to provide a common platform to the electricity regulators to share their experiences and best practices. The intent is also to build synergy between various Electricity Regulatory Commissions and to inter-alia bring about harmonization of regulation in power sector. Important issues of the power sector (at inter-state level or intra-state level) are discussed and consensus is evolved in FOR. The Forum is a statutory body and does not have the power to enforce its regulations or decisions on individual State Commissions. The Committee feel that FOR is good forum that can provide some kind of uniformity in approaches of various State Regulators by discussing and sharing best practices, success stories and implementation status of various provisions of the Act. The Committee, however, feel that this platform can be utilized in a more effective manner if some enforcing power be provided to them. It will not only be helpful in bringing in certain uniformity in regulations in the States but will also be helpful in accelerating the various reforms measures aimed at proper and fast development of power sector. The Committee, therefore, recommend that necessary provisions should be made so that the decision, taken by consensus at Forum of Regulators, becomes enforceable.

(Para No.20, Recommendation No.19)

Technology Development and R&D

21. The Committee note that a strong research and development base is essential for any sector to be effective, efficient and economical. For electricity sector, R&D efforts and technological development holds more good as it is primarily a technologically driven sector. With the heralding in of supercritical technology into generation, watershed transmission has been introduced though in a small scale. The Committee believe that this will be the important milestone for the energy sector of the country. However, the Committee feel that there is a lot needs to be done for making electricity affordable to common man. Establishment of large size generating units with cost effectiveness, development and deployment of technologies for productive use of fly ash, a flawless transmission system and efficacious distribution mechanism, effective grid code and efficient and transparent load dispatch centres are the issues where advanced technological intervention can bring the turnaround in the electricity sector. Other areas which also needs the technological intervention are metering of electricity, functioning of transformers, advancement of generators and other equipments essential for generation and transmission of electricity. The Committee feel that other priority areas can also be identified for research and modernization to achieve higher efficiency levels. In this regard, some minimum acceptable standards can also be fixed for performance which should be made mandatory for all to comply with. The Committee, therefore, recommend that due attention should also be paid to

research and development activities of the electricity sector in core areas so that it can become economical and efficient.

(Para No.21, Recommendation No.20)

22. The Committee note that adequate funds are not being made available for R&D activities of the electricity sector. If research and development activities are to be promoted for the sector, then a suitable and institutional funding mechanism will have to be put in place. There is no dearth of talent in our country and various technical institutions can be roped in for this purpose. The Committee feel that Central Power Research Institute (CPRI) is a body which can diversify its activities in the research areas as well and it can be funded separately for its research activities. Targets in priority areas of research should be fixed for CPRI and other technical bodies like IITs and IISCs etc. for improving the sector and their activities can be funded from institutional funding mechanism. The Committee feel that on the lines of CSR, a fund can be created out of the profits of energy sector PSUs solely for research activities. Based on the needs of the sector and performance of these institutions, this fund can be appropriately increased also if so required. The Committee, therefore, strongly recommend that a separate pool of fund for research activities in the power sector be established on the lines of CSR from the profits of the PSUs of the energy sector. This will give impetus to the research and make them financially autonomous as well.

(Para No.22, Recommendation No.21)

23. The Committee note that the core functioning of the CPRI is certification of rating and performance to ensure availability of equipments of adequate quality for use in the power sector. Its activities revolve around power system studies covering Load Flow, Short Circuit and Relay Coordination, Condition Monitoring and Diagnostics Services, Energy Audit, Communication Protocol Testing, Third Party Inspection Services, Seismic Qualification of Power Equipment, Customized Training Programmes and Protection Audit. The Committee find that these activities mostly concentrate into post operational scenario and thus lack the penetration of research efficiency and innovation. There can be inferences based on these activities for improvement and rectification of the system, but it is a back-hand drive. The institute like CPRI should take a lead in real innovation and research to make the sector vibrant, self-reliant, efficient and economical. The country is witnessing a boom in renewables. CPRI should concentrate on improving the quality, life and efficiency of the solar, thermal and solar photovoltaic system so as to enable the solar system to become more sustainable for the people. Battery storage, inverters and other devices of storing electricity are the challenge areas for which CPRI should pickup the cudgels. Similarly, NPTI is also a body of Government which is engaged in modernizing the electricity sector through its training programmes. Its programme on generation stimulators has improved PLF of generating units and has also increased the viability of transmission and distribution. Its

training programmes are vital for the sector. While applauding the efforts of the NPTI for the electricity sector, the Committee lay emphasis that it should venture into other areas of research through its trained manpower. Specialised classes in research can be conducted, interactive sessions can be organized, demonstration series on achievement can also be organized by NPTI in areas which will have positive impact on the sector. The Committee, therefore, strongly recommend that the bodies like CPRI and NPTI should diversify their activities and also concentrate on the research segment of the electricity sector for the benefit of the people.

(Para No.23, Recommendation No.22)

Energy Conservation

24. The Committee note that National Electricity Policy lays due emphasis on energy efficiency through demand side management measures. Making energy audit compulsory for power intensified industries, encouraging other industries for energy audits and energy conservation measures, adoption of conservation measures in all Government buildings, labeling of appliances, regulatory approach for setting standards are some of the measure which have been enunciated through Energy Conservation Act. In agricultural sector, promotion of high efficiency in pump-sets and water delivery system, energy efficiency, technologies in industrial sector are also measures to enhance energy conservation. For industries, commercial and domestic establishments, energy efficiency lighting system has been encouraged. In

addition, suitable load management technique are being encouraged to coordinate the electrical power demand during peak period and off peak period and regulatory commissions have also been advised to ensure adherence to energy efficiency standard of utilities. The Committee welcome the measures introduced by the Government for energy conservation as these measures will help in meeting the energy needs and providing adequate and varied energy of desired quality in a sustainable manner at reasonable cost. Environmental and health issues have also been taken care of in energy efficiency and clean energy systems. The aspect of energy conservation through energy efficiency is such that it has to be encouraged at all cost and there can be no second opinion about it. While appreciating the measures taken by the Government, the Committee recommend that certain targets should be set for achieving energy savings through strengthening of existing policies/ schemes and also by expanding to new areas like utility demand side management, human resource development programme, capacity building in Discoms, promoting energy efficiency in buildings, programme for small and medium enterprises and strengthening institutional capacity of State designated agencies etc.

(Para No.24, Recommendation No.23)

Protection of Consumer's Interests and Quality Standards

25. The Committee note that National Electricity Policy provides for ensuring quality of power supply based on pre-determined indexes of

utilities. The parameters set in this regard inter alia include frequency and duration of interruption, voltage parameters, transformer failure rates, waiting time for restoration of supply, percentage of defective meters and waiting list of new connections. It has been provided that appropriate commission would specify expected standards of performance. The Committee note that reliability indexes of supply of power to consumers has also been prescribed for distribution licensee. However, the reliability index is yet to be declared for cities and towns upto District Headquarter level, not to say of the rural areas of the country. State Regulatory Commissions have a greater role to be played in this regard. The setting up of grievances redressal forum is another important area for redressal of the grievances of the consumers. The Committee feel that the interest of the consumer can be protected by capacity building of consumer groups and their effective representation before the regulatory commissions. This will help in enhancing the efficacy of regulatory process also. In the modern era, consumer care centres are the places for better consumer connect with a view to improve the customer service through resolving consumer queries/ complaints in a time-bound manner. This is a single window service to consumer and can be of great help. The Committee are of the opinion that these measures should duly be institutionalized in a proper manner with adequate man power, systemic role, fund arrangements, technical know-how and transparency as they are the indicators of the health of the energy sector. The Committee, therefore, strongly recommend that for protection of

the interests of consumers, every effort should be made in a transparent and honest manner and the power related grievances should be resolved within a definite time-frame failing which the responsibility should be fixed of the concerned official with the provisions of the compensation to the consumer.

(Para No.25, Recommendation No.24)

**New Delhi;
4th August, 2017
Shravana 13, 1939 (Saka)**

**DR.VIRENDRA KUMAR
Chairman,
Standing Committee on Energy**

Annexure –I
[Vide Para No.5.5]

State-wise and utility-wise details -Average Cost of Supply, Average Revenue and Gap

2014-15					
Region	State	Utility	ACS (Rs/kwh)	Avg Revenue (Subsidy Recd basis) (Rs/kwh)	Gap (subsidy recd basis) (Rs/kwh)
Eastern	Bihar	NBPDCL	5.11	4.46	0.65
		SBPDCL	4.79	4.12	0.67
	Bihar Total		4.92	4.26	0.66
	Jharkhand	JBVNL	4.68	4.65	0.03
	Jharkhand Total		4.68	4.65	0.03
	Odisha	CESU	3.89	3.65	0.24
		NESCO	4.01	3.77	0.24
		SESCO	3.81	2.62	1.19
		WESCO	4.09	3.77	0.32
	Odisha Total		3.96	3.57	0.39
	Sikkim	Sikkim PD	4.46	2.98	1.48
	Sikkim Total		4.46	2.98	1.48
	West Bengal	WBSEDCL	4.92	4.93	(0.01)
	West Bengal Total		4.92	4.93	(0.01)
Eastern Total			4.65	4.40	0.24
North Eastern	Arunachal Pradesh	Arunachal PD	5.49	1.95	3.54
	Arunachal Pradesh Total		5.49	1.95	3.54
	Assam	APDCL	5.48	4.71	0.77
	Assam Total		5.48	4.71	0.77
	Manipur	MSPDCL	4.51	4.51	0.00
	Manipur Total		4.51	4.51	0.00
	Meghalaya	MePDCL	6.18	4.83	1.34
	Meghalaya Total		6.18	4.83	1.34
	Mizoram	Mizoram PD	6.26	2.68	3.58
	Mizoram Total		6.26	2.68	3.58

	Nagaland	Nagaland PD	5.88	1.42	4.46
	Nagaland Total		5.88	1.42	4.46
	Tripura	TSECL	4.12	3.70	0.42
	Tripura Total		4.12	3.70	0.42
North	Eastern Total		5.36	4.18	1.18
Northern	Delhi	BSES Rajdhani	7.16	7.23	(0.07)
		BSES Yamuna	7.78	7.83	(0.05)
		TPDDL	5.87	6.29	(0.42)
	Delhi Total		6.89	7.07	(0.18)
	Haryana	DHBVNL	4.90	4.68	0.22
		UHBVNL	5.41	4.75	0.66
	Haryana Total		5.13	4.71	0.41
	Himachal Pradesh	HPSEB Ltd.	4.84	4.73	0.10
	Himachal Pradesh Total		4.84	4.73	0.10
	Jammu & Kashmir	J&K PDD	4.20	1.34	2.86
	Jammu & Kashmir Total		4.20	1.34	2.86
	Punjab	PSPCL	4.89	4.66	0.23
	Punjab Total		4.89	4.66	0.23
	Rajasthan	AVVNL	6.41	4.47	1.94
		JDVVNL	5.93	4.07	1.85
		JVVNL	5.84	4.08	1.76
	Rajasthan Total		6.02	4.18	1.84
	Uttar Pradesh	DVVN	6.13	4.60	1.53
		KESCO	6.03	5.54	0.48
		MVVN	5.49	4.17	1.32
		Pash VVN	5.19	4.58	0.61
		Poorv VVN	5.82	4.73	1.10
	Uttar Pradesh Total		5.64	4.58	1.06
	Uttarakhand	Ut PCL	3.85	3.61	0.23
	Uttarakhand Total		3.85	3.61	0.23
Northern Total			5.49	4.61	0.88
Southern	Andhra Pradesh	APEPDCL	5.66	5.19	0.47
		APSPDCL	5.49	4.88	0.62
	Andhra Pradesh Total		5.55	4.98	0.57

	Karnataka	BESCOM	4.60	4.65	(0.05)
		CHESCOM	4.14	4.22	(0.08)
		GESCOM	4.33	4.19	0.15
		HESCOM	4.38	4.41	(0.03)
		MESCOM	4.73	4.76	(0.03)
	Karnataka Total		4.49	4.51	(0.02)
	Kerala	KSEBL	5.23	4.66	0.57
	Kerala Total		5.23	4.66	0.57
	Puducherry	Puducherry PD	3.58	4.15	(0.56)
	Puducherry Total		3.58	4.15	(0.56)
	Tamil Nadu	TANGEDCO	6.47	4.98	1.49
	Tamil Nadu Total		6.47	4.98	1.49
	Telangana	TSNPDCL	5.58	4.27	1.31
		TSSPDCL	5.23	4.96	0.28
	Telangana Total		5.33	4.76	0.57
Southern Total			5.52	4.80	0.73
Western	Chattisgarh	CSPDCL	4.15	3.50	0.65
	Chattisgarh Total		4.15	3.50	0.65
	Goa	Goa PD	3.57	3.52	0.05
	Goa Total		3.57	3.52	0.05
	Gujarat	DGVCL	5.20	5.24	(0.03)
		MGVCL	4.90	4.94	(0.04)
		PGVCL	3.78	3.79	(0.01)
		UGVCL	4.06	4.07	(0.01)
	Gujarat Total		4.35	4.37	(0.02)
	Madhya Pradesh	MP Madhya Kshetra VVCL	5.03	3.53	1.50
		MP PaschimKshetra VVCL	4.34	3.85	0.49
		MP PurvKshetra VVCL	5.13	4.40	0.73
	Madhya Pradesh Total		4.79	3.90	0.89
	Maharashtra	MSEDCL	5.15	5.11	0.04
	Maharashtra Total		5.15	5.11	0.04
Western Total			4.73	4.49	0.25
Grand Total			5.20	4.60	0.60

Annexure –II**[Vide Para No.5.5]****AT&&C Losses (%) for Utilities Selling Directly to Consumers**

Region	State	Utility	2014-15
Eastern	Bihar	NBPDCL	41.76
		SBPDCL	45.28
	Bihar Total		43.99
	Jharkhand	JBVNL	47.01
	Jharkhand Total		47.01
	Odisha	CESU	37.08
		NESCO	38.36
		SESCO	42.57
		WESCO	41.03
	Odisha Total		39.28
	Sikkim	Sikkim PD	42.37
	Sikkim Total		42.37
	West Bengal	WBSEDCL	35.35
	West Bengal Total		35.35
Eastern Total			39.64
North Eastern	Arunachal Pradesh	Arunachal PD	67.83
	Arunachal Pradesh Total		67.83
	Assam	APDCL	26.00
	Assam Total		26.00
	Manipur	MSPDCL	49.62
	Manipur Total		49.62
	Meghalaya	MePDCL	34.69
	Meghalaya Total		34.69
	Mizoram	Mizoram PD	33.51
	Mizoram Total		33.51
	Nagaland	Nagaland PD	78.48
	Nagaland Total		78.48
	Tripura	TSECL	38.02
	Tripura Total		38.02
North Eastern Total			35.29
Northern	Delhi	BSES Rajdhani	10.76
		BSES Yamuna	19.68
		TPDDL	10.31
	Delhi Total		12.90
	Haryana	DHBVNL	30.71
	UHBVNL	34.83	

	Haryana Total		32.52
	Himachal Pradesh	HPSEB Ltd.	15.21
	Himachal Pradesh Total		15.21
	Jammu & Kashmir	J&K PDD	59.04
	Jammu & Kashmir Total		59.04
	Punjab	PSPCL	17.56
	Punjab Total		17.56
	Rajasthan	AVVNL	28.13
		JDVVNL	26.99
		JVVNL	32.00
	Rajasthan Total		29.28
	Uttar Pradesh	DVVN	40.18
		KESCO	32.02
		MVVN	35.18
		Pash VVN	22.19
		Poorv VVN	42.91
	Uttar Pradesh Total		33.82
	Uttarakhand	Ut PCL	18.82
	Uttarakhand Total		18.82
Northern Total			28.06
Southern	Andhra Pradesh	APEPDCL	7.67
		APSPDCL	12.01
	Andhra Pradesh Total		10.55
	Karnataka	BESCOM	17.59
		CHESCOM	21.64
		GESCOM	21.25
		HESCOM	19.49
		MESCOM	15.72
	Karnataka Total		18.71
	Kerala	KSEBL	17.64
	Kerala Total		17.64
	Puducherry	Puducherry PD	16.64
	Puducherry Total		16.64
	Tamil Nadu	TANGEDCO	24.74
	Tamil Nadu Total		24.74
	Telangana	TSNPDCL	16.49
		TSSPDCL	11.91
	Telangana Total		13.23
Southern Total			18.22
Western	Chattisgarh	CSPDCL	27.84
	Chattisgarh Total		27.84

	Goa	Goa PD	13.31
	Goa Total		13.31
	Gujarat	DGVCL	10.81
		MGVCL	11.47
		PGVCL	25.18
		UGVCL	10.21
	Gujarat Total		16.06
	Madhya Pradesh	MP Madhya Kshetra VVCL	32.47
		MP PaschimKshetra VVCL	30.79
		MP PurvKshetra VVCL	27.09
	Madhya Pradesh Total		30.26
	Maharashtra	MSEDCL	19.75
	Maharashtra Total		19.75
Western Total			21.59
Grand Total			24.62

Annexure –III**[Vide Para No.5.5]****Total Outstanding Debt for Utilities Selling Directly to Consumers**

Region	State	Utility	2014-15 (Rs in Crore)
Eastern	Bihar	NBPDCL	1,776
		SBPDCL	2,040
	Bihar Total		3,816
	Jharkhand	JBVNL	265
	Jharkhand Total		265
	Odisha	CESU	2,163
		NESCO	933
		SESCO	721
		WESCO	769
	Odisha Total		4,585
	Sikkim	Sikkim PD	0
	Sikkim Total		0
	West Bengal	WBSEDCL	12,871
	West Bengal Total		12,871
Eastern Total		21,536	
North Eastern	Arunachal Pradesh	Arunachal PD	0
	Arunachal Pradesh Total		0
	Assam	APDCL	2,260
	Assam Total		2,260
	Manipur	MSPDCL	0
	Manipur Total		0
	Meghalaya	MePDCL	388
	Meghalaya Total		388
	Mizoram	Mizoram PD	32
	Mizoram Total		32
	Nagaland	Nagaland PD	328
	Nagaland Total		328
	Tripura	TSECL	237
	Tripura Total		237
North Eastern Total		3,246	
Northern	Delhi	BSES Rajdhani	3,702
		BSES Yamuna	2,858
		TPDDL	3,782
	Delhi Total		10,343
	Haryana	DHBVNL	14,659

		UHBVNL	19,425
	Haryana Total		34,085
	Himachal Pradesh	HPSEB Ltd.	4,590
	Himachal Pradesh Total		4,590
	Jammu & Kashmir	J&K PDD	166
	Jammu & Kashmir Total		166
	Punjab	PSPCL	21,903
	Punjab Total		21,903
	Rajasthan	AVVNL	27,017
		JDVVNL	25,956
		JVVNL	28,176
	Rajasthan Total		81,149
	Uttar Pradesh	DVVN	20,477
		KESCO	3,151
		MVVN	10,704
		Pash VVN	9,941
		Poorv VVN	12,709
	Uttar Pradesh Total		56,982
	Uttarakhand	Ut PCL	1,388
	Uttarakhand Total		1,388
Northern Total			2,10,607
Southern	Andhra Pradesh	APEPDCL	3,879
		APSPDCL	9,958
	Andhra Pradesh Total		13,837
	Karnataka	BESCOM	5,489
		CHESCOM	964
		GESCOM	726
		HESCOM	1,983
		MESCOM	677
	Karnataka Total		9,838
	Kerala	KSEBL	5,810
	Kerala Total		5,810
	Puducherry	Puducherry PD	0
	Puducherry Total		0
	Tamil Nadu	TANGEDCO	75,467
	Tamil Nadu Total		75,467
	Telangana	TSNPDCL	4,867
		TSSPDCL	7,059
	Telangana Total		11,926
Southern Total			1,16,877
Western	Chattisgarh	CSPDCL	1,907

	Chattisgarh Total		1,907
	Goa	Goa PD	54
	Goa Total		54
	Gujarat	DGVCL	223
		MGVCL	302
		PGVCL	1,136
		UGVCL	524
	Gujarat Total		2,186
	Madhya Pradesh	MP Madhya Kshetra VVCL	11,762
		MP PaschimKshetra VVCL	9,807
		MP PurvKshetra VVCL	11,822
	Madhya Pradesh Total		33,391
	Maharashtra	MSEDCL	17,021
	Maharashtra Total		17,021
Western Total			54,559
Grand Total			4,06,825

Annexure –IV
[Vide Para No.5.5]

Accumulated Profit / (Loss) as per Balance Sheet for Utilities Selling Directly to Consumers

Region	State	Utility	2014-15 (Rs in Crore)
Eastern	Bihar	NBPDCL	-1,011
		SBPDCL	-2,172
	Bihar Total		-3,183
	Jharkhand	JBVNL	-108
	Jharkhand Total		-108
	Odisha	CESU	-2,259
		NESCO	-1,082
		SESCO	-1,196
		WESCO	-1,032
	Odisha Total		-5,570
	Sikkim	Sikkim PD	0
	Sikkim Total		0
	West Bengal	WBSEDCL	-131
	West Bengal Total		-131
Eastern Total		-8,991	
North Eastern	Arunachal Pradesh	Arunachal PD	-2,295
	Arunachal Pradesh Total		-2,295
	Assam	APDCL	-2,985
	Assam Total		-2,985
	Manipur	MSPDCL	-12
	Manipur Total		-12
	Meghalaya	MePDCL	-965
	Meghalaya Total		-965
	Mizoram	Mizoram PD	-1,428
	Mizoram Total		-1,428
	Nagaland	Nagaland PD	-1,867
	Nagaland Total		-1,867
	Tripura	TSECL	-352
	Tripura Total		-352
North Eastern Total		-9,904	
Northern	Delhi	BSES Rajdhani	317
		BSES Yamuna	256
		TPDDL	1,910
	Delhi Total		2,484

	Haryana	DHBVNL	-13,621
		UHBVNL	-15,408
	Haryana Total		-29,029
	Himachal Pradesh	HPSEB Ltd.	-2,000
	Himachal Pradesh Total		-2,000
	Jammu & Kashmir	J&K PDD	-26,197
	Jammu & Kashmir Total		-26,197
	Punjab	PSPCL	-1,534
	Punjab Total		-1,534
	Rajasthan	AVVNL	-26,844
		JDVVNL	-26,736
		JVVNL	-27,831
	Rajasthan Total		-81,411
	Uttar Pradesh	DVVN	-22,119
		KESCO	-3,489
		MVVN	-13,728
		Pash VVN	-12,331
		Poorv VVN	-17,110
	Uttar Pradesh Total		-68,777
	Uttarakhand	Ut PCL	-1,955
	Uttarakhand Total		-1,955
Northern Total			-2,08,420
Southern	Andhra Pradesh	APEPDCL	-2,417
		APSPDCL	-6,609
	Andhra Pradesh Total		-9,026
	Karnataka	BESCOM	-476
		CHESCOM	-642
		GESCOM	-421
		HESCOM	-1,189
		MESCOM	86
	Karnataka Total		-2,643
	Kerala	KSEBL	-1,300
	Kerala Total		-1,300
	Puducherry	Puducherry PD	-288
	Puducherry Total		-288
	Tamil Nadu	TANGEDCO	-65,222
	Tamil Nadu Total		-65,222
	Telangana	TSNPDCL	-4,883
		TSSPDCL	-8,256
	Telangana Total		-13,138
Southern Total			-91,617

Western	Chattisgarh	CSPDCL	-5,571
	Chattisgarh Total		-5,571
	Goa	Goa PD	350
	Goa Total		350
	Gujarat	DGVCL	324
		MGVCL	188
		PGVCL	95
		UGVCL	80
	Gujarat Total		686
	Madhya Pradesh	MP Madhya Kshetra VVCL	-11,401
		MP PaschimKshetra VVCL	-8,794
		MP PurvKshetra VVCL	-9,986
	Madhya Pradesh Total		-30,181
	Maharashtra	MSEDCL	-7,087
	Maharashtra Total		-7,087
Western Total			-41,803
Grand Total			-3,60,736

Annexure –V

MINUTES OF THE FIFTEENTH SITTING OF THE STANDING COMMITTEE ON
ENERGY (2016-17) HELD ON 12th MAY, 2017 IN COMMITTEE ROOM 'E'
PARLIAMENT HOUSE ANNEXE, NEW DELHI

The Committee met from 1100 hrs. to 1300 hrs.

PRESENT

LOK SABHA

Dr. Virendra Kumar - **Chairman**

22. Shri M. Chandrakasi
23. Shri Ashwini Kumar Chaubey
24. Shri Harish Dwivedi
25. Shri Bhagat Singh Koshyari
26. ` Dr. Arun Kumar
27. Shri Jagdambika Pal
28. Shri Ravindra Kumar Pandey
29. Shri M.B. Rajesh
30. Shri Gutha Sukender Reddy
31. Shri Conrad Kongkal Sangma
32. Shri Devendra Singh alias Bhole Singh
33. Shri Malyadri Sriram
34. Shri Bhanu Pratap Singh Verma

RAJYA SABHA

35. Shri T.K.S. Elangovan
36. Shri Oscar Fernandes
37. Shri S. Muthukaruppan
38. Shri Javed Ali Khan
39. Dr. Anil Kumar Sahani

SECRETARIAT

1. Shri A.K. Singh - Additional Secretary
2. Shri N.K.Pandey - Director

WITNESSES

Sl. No.	Name	
MINISTRY OF POWER		
1.	Shri P.K. Pujari	Secretary
2.	Ms. Shalini Prasad	Additional Secretary
3.	Ms. Jyoti Arora	Joint Secretary
4.	Shri Arun Kumar Verma	Joint Secretary
5.	Shri Raj Pal	Economic Adviser
6.	Shri Sandeep Naik	AGM, (RR)
CENTRAL ELECTRICITY AUTHORITY (CEA)		
7.	Shri R.K. Verma	Chairperson
8.	Shri Pankaj Batra	Member (Plg)
9.	Shri Somit Das Gupta	Member (F&C)
10.	Shri K.K. Arya	Member (Hydro)
CENTRAL ELECTRICITY REGULATORY AUTHORITY (CERC)		
11.	Shri Sanoj Kumar Jha	Secretary

2. At the outset, the Chairperson welcomed the Members of the Committee and the representatives of the Ministry of Power to the sitting of the Committee and apprised them of the agenda and focus area for the discussion and the provisions of Directions 55(1) and 58 of the Directions by the Speaker.

3. The Ministry, thereafter, made a power point presentation on the subject covering Background of National Electricity Policy 2005, Aims and objectives of the Policy, progress made in achieving the objectives of the Policy, Access to Electricity, Availability of Power, Supply of Reliable and Quality Power, Per-capita consumption of Electricity, Financial Turnaround and Commercial Viability of Electricity Sector, Protection of Consumer's Interests.

4. The Committee then *inter-alia* deliberated upon the following points with the representatives of the Ministry of Power:

- (i) Salient feature and objectives of National Electricity Policy and its achievement so far.
- (ii) Universal access to electricity – progress made so far, number of un-electrified villages/households, the timeline to provide universal electricity access in the country.
- (iii) Supply of Reliable and Quality Power of specified standards in an efficient manner and at reasonable rates – reason for higher tariff of electricity, measure to bring down tariff to the lowest possible level, technical up-gradation and innovation in this regard.
- (iv) Reduction of transmission and distribution losses – reasons for having AT&C losses still at high level and measures being taken to bring down the same, relation between high AT&C losses and high tariff rate, targets and timeline to bring down AT&C losses to desirable levels.
- (v) Development of hydro potential in the country – reasons responsible for having lowest share of hydro in total energy mix, efforts of the Government to promote hydro power, need to declare hydro power as renewable energy source and provision of providing long tenure loans for them.
- (vi) Higher efficiency levels of generating plants through Renovation and Modernization – Benefits and cost of Renovation and Modernization of power plants, use of latest techniques and technological up-gradation, identification of power plants for renovation and modernization, international collaborations.
- (vii) Open Access – reasons for non-implementation of Open Access at micro level, efforts of the Government to implement at large scale at the earliest.
- (viii) Research and Development – present status of research and development works relating to power sector, reasons for not being competitive in this sector, status of implementation of Smart Grid, Smart Metering, fund allocation and utilization in the field of research and development.

5. During the discussion, Members sought clarifications on various issues relating to the subject and the representatives of the Ministry replied to them. The Committee

further desired that the details of the issues which were not available with the representatives of the Ministry may also be sent to them in due course.

6. The verbatim proceedings of the sitting of the Committee were kept on record.

The Committee then adjourned.

Annexure –VI

**MINUTES OF THE SEVENTEENTH SITTING OF THE STANDING COMMITTEE ON
ENERGY (2016-17) HELD ON 29th MAY, 2017 IN COMMITTEE ROOM ‘D’
PARLIAMENT HOUSE ANNEXE, NEW DELHI**

The Committee met from 1100 hrs. to 1300 hrs.

PRESENT

LOK SABHA

Dr. Virendra Kumar - Chairman

2. Shri Om Birla
3. Shri Ashwini Kumar Chaubey
4. Dr. Arun Kumar
5. Shri Ravindra Kumar Pandey
6. ` Shri M.B. Rajesh
7. Shri Vinayak Bhaurao Raut
8. Shri Bhanu Pratap Singh Verma

RAJYA SABHA

9. Shri Oscar Fernandes
10. Shri La. Ganesan
11. Shri S. Muthukaruppan
12. Shri Shamsher Singh Manhas
13. Shri Javed Ali Khan
14. Dr. Anil Kumar Sahani
15. Smt. Viplove Thakur

SECRETARIAT

1. Shri N.K.Pandey - Director

WITNESSES

Sl. No.	Name	
1.	Shri P.K. Pujari	Secretary
2.	Ms. Shalini Prasad	Additional Secretary
3.	Smt. Jyoti Arora	Joint Secretary
4.	Shri A.K. Verma	Joint Secretary
5.	Shri Aniruddha Kumar	Joint Secretary
6.	Smt. Archana Agrawal	Joint Secretary
7.	Shri Raj Pal	Economic Adviser
8.	Shri R.K. Verma	Chairperson, CEA
9.	Shri Sanoj Kumar Jha	Secretary, CERE
10.	Shri Narayansamy M.	Deputy Manager

2. At the outset, the Chairperson welcomed the Members of the Committee and the representatives of the Ministry of Power to the sitting of the Committee and apprised them of the agenda and focus area for the discussion and the provisions of Directions 55(1) and 58 of the Directions by the Speaker.

3. The Committee then *inter-alia* deliberated upon the following points with the representatives of the Ministry of Power:

- (i) The gap between aims and objective of the Electricity Plan and the present status of electricity sector – reasons responsible and the planning to bridge the gap.
- (ii) Reason for having energy and peak power shortage despite having more than adequate power generation capacity in the country.
- (iii) Plant Load Factors (PLF) of the Power Plants – reasons for having low PLF, its impact on generation cost & tariff and planning to increase it with a view to provide electricity to more and more people.
- (iv) Power Tariff – efforts to bring down generation cost by power plants, rationalization of allocation of their fuel sources, improving coal quality and its reliable supply.
- (v) Hydro Power Sector – reason for non-development of this Sector despite having numerous benefits, steps being taken to provide impetus to this

sector for its expeditious development – considering hydro power a renewable energy source, providing long tenure finances to hydro power projects, de-linking of infrastructure development cost with the hydro power projects.

- (vi) Open Access – reasons for its non-implementation on a wide scale, efforts of the Government in regard to implement it.
- (vii) AT&C losses – efforts of the Government to bring down high AT&C losses, trajectory provided to Discoms to reduce their losses, role of IPDS in reduction of losses, need to put data in regard to losses in public domain.
- (viii) Financial health of Discoms – efforts of the Government to improve the financial conditions of Discoms, provisions of UDAY scheme and how it will improve Discoms financial health and functioning on long term basis.
- (ix) Promotion of Renewable Energy – efforts of the Government to promote renewable energy, to ensure that renewable projects once establish, are able to generate and supply power on a long term basis.
- (x) Universal Access to electricity – number of villages and households in the country that are yet to get electricity access, the timeline to provide them electricity, adequacy of infrastructure being provided in electricity access programme.

4. During the discussion, Members sought clarifications on various issues relating to the subject and the representatives of the Ministry replied to them. The Committee further desired that the details of the issues which were not available with the representatives of the Ministry may also be sent to them in due course.

5. XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

6. The verbatim proceedings of the sitting of the Committee were kept on record.

The Committee then adjourned.

XXX Not related to this Report

**MINUTES OF THE TWENTY-SECOND SITTING OF THE STANDING COMMITTEE
ON ENERGY HELD ON 4TH AUGUST, 2017 IN COMMITTEE ROOM NO '1',
BLOCK -A, PARLIAMENT HOUSE ANNEXE, NEW DELHI**

The Committee sat from 1030 hours to 1100 hours.

PRESENT

LOK SABHA

Dr. Virendra Kumar - **Chairperson**

2. Shri Om Birla
3. Shri M. Chandrakasi
4. Shri Harish Chandra alias Harish Dwivedi
5. Shri Bhagat Singh Koshyari
6. Dr. Arun Kumar
7. Kunwar Sarvesh Kumar
8. Shri Jagdambika Pal
9. Shri Ravindra Kumar Pandey
10. Shri Gutha Sukhender Reddy
11. Shri Conrad Kongkal Sangma
12. Shri Devendra Singh Alias Bhole Singh
13. Shri Bhanu Pratap Singh Verma

RAJYA SABHA

14. Shri Oscar Fernandes
15. Shri La. Ganesan
16. Shri Javed Ali Khan
17. Shri S.Muthukaruppan
18. Dr. Anil Kumar Sahani

SECRETARIAT

- | | | | |
|----|---------------------------|---|-----------------|
| 1. | Shri N.K. Pandey | - | Director |
| 2. | Smt. L. Nemjalhing Haokip | - | Under Secretary |

At the outset, the Chairperson welcomed the Members who made it convenient to attend the sitting of the Committee. Thereafter, the Committee considered the Draft Reports on

- (i) National Electricity Policy – A Review
- (ii) Action Taken on the recommendations contained in the Twenty-Sixth Report (16th Lok Sabha) on Demands for Grants of the Ministry of Power for the year 2017-18.

2. After detailed deliberations, the Committee adopted the draft Reports. The Committee authorized the Chairperson to finalize the Reports and present the same to Lok Sabha/ lay in Rajya Sabha.

Thereafter, the Committee adjourned with a vote of thanks to the Chair.