

**ORISSA ELECTRICITY REGULATORY COMMISSION
BIDYUT NIYAMAK BHAWAN
UNIT-VIII, BHUBANESWAR - 751 012**

Present: Shri B.K. Das, Chairperson
Shri K.C. Badu, Member
Shri B.K. Misra, Member

Case No.64/2011

In the matter of : Suo Moto Proceeding initiated by the Commission on the Consultative Paper on Odisha Power Sector to meet the Power Demand of the State upto 2016-17 (till the end of 12th Plan), Energy Conservation & Energy Efficiency and Harnessing Renewable Power to meet Renewable Power Obligation (RPO).

AND

**In the matter of : Director (Tariff), Orissa Electricity Regulatory Commission
..... **Petitioner**
- Vrs. -**

1. The Principal Secretary to Govt.,
Water Resources Department , Bhubaneswar
2. The Commissioner-Cum-Secretary to Govt.,
Department of Energy, Bhubaneswar
3. The Commissioner-Cum-Secretary to Govt.,
Department of Science & Technology, Bhubaneswar
4. The Chairman-Cum-Managing Director,
OPTCL, Janpath, Bhubaneswar
5. The Chairman-Cum-Managing Director
GRIDCO, Janpath, Bhubaneswar
6. The Chief Executive,
Orissa Renewable Energy Development Agency,
S-59, Mancheswar Industrial Estate, Bhubaneswar.
7. The EIC (Elect.)-cum-PCEI,
Govt. of Orissa,
Power House Square, Bhubaneswar
8. The EIC (Water Resources),
Govt. of Orissa,
Secha Soudha, Bhubaneswar
9. The Managing Director, OHPC
Orissa State Police Housing & WC Building, Vanivihar
Chowk, Janpath, Bhubaneswar – 22
10. The Chairman-cum-Chief Executive Officer,
CESU, 2nd Floor, IDCO Towers, Bhubaneswar.

11. The Chief Executive Officer,
NESCO, At/P.O. Januganj, Dist. Balasore.
12. The Chief Executive Office,
WESCO, At/P.O. Burla, Dist. Sambalpur.
13. The Chief Executive Officer,
SOUTHCO, At/P.O. Courtpetta, Berhampur.
14. The Managing Director, OPGC
Fortune Tower, Bhubaneswar
15. Shri S K Jena, Ex-Member, OERC
Pandav Nagar, Tankapani Road,
Bhubaneswar – 751014
16. The Executive Director (ER-II), NTPC Ltd.
3rd & 4th Floor, OLIC Building,
Plot No.N-17/2, Nayapalli, Bhubaneswar-12
17. The Managing Director, OTPCL
OBCC Building, Bhubaneswar
18. The Confederation of Indian Industry (CII)
8, Forest Park, Bhubaneswar-09
19. The Chief Engineer, WAPCOS Ltd.,
Plot No.4, VIP Area, Ekamra Kanan,
Bhubaneswar-751015
20. The Chief Project Manager,
Rural Electrification Corporation Ltd. (REC)
Deen Dayal Bhawan, Fifth Floor, Ashok Nagar
Janpath, Bhubaneswar-09
21. Shri B N Ray,
Ex-Chief Engineer (Elect.),
Plot N0. 1134, Mahanadi Vihar, Cuttack – 753004
22. Shri K C Mohapatra, Ex-Chairman, OBSB
Project Development Consultants, F-6, BJB Nagar,
Bhubaneswar-751014
23. Shri R C Satapathy, Secretary
National Institute of Indian Labour
Plot No. 302 (B), Nayapalli,
Bhubaneswar – 751012
24. Shri S K Nanda, Ex-Chairman, OSEB
Plot No. 114-B, Satya Nagar,
Bhubaneswar – 751007
25. Power Tech. Consultants
A/6, Swati Villa, Surya Vihar, Link Road,
Cuttack – 753012
26. Shri R P Mohapatra, Ex-Member (Gen.), OSEB,
Plot No. 775, Lane No.3, Jayadev Vihar,
BBSR-751013

27. M/s. Canyon Consultancy Pvt. Ltd.
Plot No.201, Subhashree Complex, Gobinda Prasad,
Bomikhal, Bhubaneswar-751010
28. Shri J.K. Mishra, Ex-Sr.GM (Retd.)
Plot No.924/2, Ayappa Temple Area, GGP Colony,
Bhubaneswar-751025
29. Shri Alekh Chandra Mallick, Ex-Director (Commercial)
GRIDCO, C/o Dr. N Dei, CDMO
Capital Hospital, Qr. No. Type-VR-13, Ganganagar
Unit-VI, Bhubaneswar – 751001
30. The Chief Load Despatcher,
SLDC Building, GRIDCO Colony
Mancheswar Rly. Colony, Bhubaneswar – 751 017

... **Respondents**

For the Petitioner : Dr. M.S. Panigrahi, Director (Tariff), OERC

For the Respondents : Shri William Bilung, Addl. Secretary & Shri Dayanidhi Nayak, Dy. Secretary on behalf of Science and Technology Department, GoO, Shri S N Mishra, EIC (Electricity) on behalf of DoE, Govt. of Odisha, Shri P.K. Mohan, Chief Executive, OREDA, Shri S.N. Mishra, EIC(Elec)-cum-PCEI on behalf of EIC (Electricity), GoO, Shri Ranjit Das, Sr. GM (PP) on behalf of GRIDCO, Shri J.P. Das, CGM on behalf of OPTCL, Shri B R Mishra, Sr. GM on behalf of SLDC, Shri M.K. Mishra, CGM on behalf of OHPC, Shri Nilachal Panigrahi, Director on behalf of EIC (WR), GoO, Shri Sanjeev Das, Convenor, Energy Panel of CII, Shri S.K. Sahu, Chief Project Manager on behalf of REC, Shri B.N. Ray, Shri K.C. Mahapatra on behalf of PDC, Shri R.C. Satapathy on behalf of National Institute of Indian Labour, Shri S.K. Nanda, Shri Bibhu Swain on behalf of Power Tech Consultants, Shri Alekh Chandra Mallick, Shri R.P. Mohapatra, Shri Chandrasekhar Mishra, MD on behalf of M/s.Canyon Consultancy Pvt. Ltd. attended the hearing on 08.09.2011 and 17.09.2011.
None from Deptt. of Water Resources, OTPCL, OPGC, WAPCOS, NTPC, CESU, NESCO, WESCO and SOUTHCO attended the hearing on 08.09.2011 and 17.09.2011.

ORDER

Date of Hearing : 08.09.2011 & 17.09.2011

Date of Order : 23.09.2011

1. SYNOPSIS:

As per Section 86 of the Electricity Act, 2003, the State Electricity Regulatory Commission has been empowered, among others, to regulate and purchase of power from generating companies and others for distribution and supply of electricity within

the state; promote cogeneration and generation of electricity from Renewable Sources as well as promote competition, efficiency and economy in activities of the electricity industry. OERC having taken a note of the aforesaid provisions of the Act and the guidelines relating to generation of power including Decentralized Distributed Generation, Energy Conservation and Energy Efficiency and harnessing power from Renewable Energy Sources as envisaged under National Electricity Policy and Tariff Policy, decided to issue a Consultative Paper on such important and relevant issues concerning to Odisha Power Sector. Accordingly, a Consultative Paper was prepared and was posted in OERC website www.orierc.org duly giving a Public Notice in the Newspapers on such important and relevant issues concerning to Odisha Power Sector. The suggestions/opinions/views of all stakeholders including the general public were invited on the following issues.

- A. Action Plan to meet the power demand of the State upto 2016-17 (end of the 12th Plan);
 - B. Action Plan for Evacuation Plan from the IPPs/ MPPs including Odisha share of Power.
 - C. Promotion of Energy Conservation and Energy Efficiency – need for re-organisation and restructuring;
 - D. Harnessing Renewable Power both solar and non-solar and to promote cogeneration to meet Renewable Purchase Obligation (RPO) of the State.
 - E. Any other suggestions/opinions/views for strengthening Odisha Power Sector excepting the issues mentioned under A to D above.
2. Suggestions/views/opinions were received from 21 numbers from Govt. of Orissa, Science & Technology Deptt. / Power Utilities Institutions / Industry body and from some individuals and the details of which are mentioned in **Annexure-A** enclosed to this order.
 3. **Action Plan to meet the power demand of the State up to 2016-17 (end of the 12th Plan);**

A. Details in Consultative Paper

A1. The Present Power Scenario of Odisha:

- i) The actual Power Supply Positions of Odisha as per CEA Report for the FY 2009-10 & FY 2010-11 are shown in Table below:

Table – 1

Period	Item	Requirement	Availability	Deficit (-)
April 2009 to March 2010	Energy	21,112 MU	20, 926 MU	(-) 186 MU (-) 0.9%
April 2009 to March 2010	Peak Demand	3,491 MW	3,242 MW	(-) 249 MW (-)7.1%
April 2010 to March 2011	Energy	22,423 MU	22,362 MU	(-) 61 MU (-)0.3%
April 2010 to March 2011	Peak Demand	3,872MW	3,792MW	(-)80MW (-) 2.1%

- ii) The Report of 17th Electric Power Survey (EPS) of India published by CEA in March, 2007 made the forecast for the power demand of Odisha for 11th, 12th & 13th Plan as shown in Table below:-

Table – 2

FY	2011-12 (End of 11th Plan)	2012-13	2013-14	2014-15	2015-16	2016-17 (End of 12th Plan)	2021-22 (End of 13th Plan)	Remarks
Peak Demand (MW)	4459	4783	5130	5502	5902	6330	10,074	As per Table 6.4 of 17 th EPS of CEA, Energy Requirement and Peak Demand have been computed for 12 th Plan @ 7.57% and 7.26% respectively.
Energy Requirement (MU)	27149	29204	31415	33793	36351	39096	63,098	
Installed Capacity Required (MW)	6670	7154	7687	8245	8828	9469	15,069	

- iii) The Draft Summary of Forecast of 18th Electric Power Survey (EPS) of India circulated by CEA vide Lr. No. 834 dtd. 13.05.2011 made the forecast for the power demand of Odisha for FY 2011-12 and for 12th & 13th Plan as shown in Table below:-

Table – 3

FY	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17 (End of 12th Plan)	2021-22 (End of 13th Plan)
Peak Demand (MW)	3998	5030	5237	5409	5594	5786	7023
Energy Requirement (MU)	24842	31029	32079	32895	33776	34683	42097
Installed Capacity Required (MW)	5980	7524	7833	8091	8367	8655	10505

- iv) OERC, in pursuant to Section 86 (2) of the Act advised the State Govt. in the year 2006 & 2007 to initiate appropriate action for capacity addition so that Odisha would not face power crisis. Based on the advice of OERC, the Govt. of Odisha, Deptt. Of Energy signed Memoranda of Understandings (MoU) with 32 nos. of Power Developers to develop Thermal Power Projects in Odisha in 4 (four) phases as shown in Table below:

Table – 4**Govt. of Odisha signed MoUs with Private developers for Thermal Power Plants**

Phase	Category of Projects	No. of Projects	Ultimate Capacity (MW)	Odisha Share (MW)
I	MoU Route MoU Dates: 09.06.2006 and 26.09.2006	12	18230	5693
II	Merchant Route MoU Date: 07.02.2009	8	10510	1261
III	Merchant Route MoU Dates: 09.04.2010, 06.05.2010 and 03.01.2011	9	10140	1217
IV	Merchant Route	3	308	22
		Total	39,188	8,193

- v) The surplus/deficit power scenario for FY 2011-12 and FY 2012-13 to 2016-17 comparing with 17th EPS Forecast:

Table – 5

FY	Cumulative Installed Capacity Required as per 17th EPS (MW)	Cumulative Installed capacity would be available as per emerging scenario (MW)	Surplus(+)/ Deficit (-) (MW)	Cumulative Energy Requirement as per 17th EPS (MU)	Cumulative Energy would be available as per emerging scenario (MU)	Surplus(+)/ Deficit (-) (MU)
2011-12	6670	5148	(-) 1522	27149	26018	(-) 1131
2012-13	7154	6572	(-) 582	29204	29857	(+) 653
2013-14	7687	7834	(+) 147	31415	32959	(+) 1544
2014-15	8245	10182	(+) 1937	33793	40067	(+) 6274
2015-16	8828	14948	(+) 6120	36351	54694	(+) 18343
2016-17	9469	18658	(+) 9189	39096	66286	(+) 27190

- vi) Odisha has witnessed a GSDP growth @ 9.57% per annum during the first three years of 11th Plan period i.e. from FY 2007-08 to FY 2009-10 and due to massive Rural Electrification undertaken under Rajiv Gandhi Grameen Vidhutikaran Yojana (RGGVY), Biju Gram Jyoti Yojana (BGJY) and Biju Saharanchal Vidyutikarn Yojana (BSVY) as well as on account of rapid industrialization, the demand for power in the State is slated to grow around 10% per annum.
- vii) It is observed from 17th EPS Long-Term Forecast for 12th Plan period, the annual compounded electrical energy requirement and peak electric load have been computed @ 7.57% and 7.26% respectively for Odisha Power Sector. But in the 18th EPS Draft Forecast the annual compounded electrical energy requirement and peak electric load have been computed @ 3.38% and 3.29% respectively for Odisha Power Sector which is not matching with annual GSDP growth witnessed in Odisha in recent past. The Commission, therefore, have adopted the long-term forecast for 12th Plan as envisaged in 17th EPS of CEA.
- viii) The emerging scenario of Odisha Power Sector as per 17th EPS shows that in FY 2011-12 there will be a shortage in both capacity and energy in Odisha power system. For FY 2012-13, it shows a mixed trend of shortage in capacity but a marginal surplus in energy availability. From FY 2013-14 onwards Odisha power system will witness surplus both in capacity and energy.
- ix) It has been observed that the short term merchant market through Power Exchanges as well as through UI has been crashed and in the event of surplus scenario, for hedging of risk GRIDCO may go for at least 75% of surplus power through long term contract under competitive bidding route and keep the balance 25% of surplus power in hand to manage the fluctuation of State demand on account of volatility of hydro generation and other reasons.
- x) The Commission has noted with concern that though the state has signed MoU with fairly large number of IPPs/MPPs and has also recommended Coal-blocks in the state, the progress of execution of the generating units, in general, and development of captive coal mines, in particular, is far from satisfactory. Wherever, even the progress of generation units has been started or even partly commissioned (e.x. 4X600 MW of M/s SEL at Jharsuguda), the development of Coal-block is no where in sight, due to which the variable cost of the project becomes astronomically high (due to inadequate linkage of

APM Coal and need for procurement of 'e' auction and imported coal). Thus the benefit of State gets neutralized in practice.

A2. Way forward

GRIDCO being the deemed licensee for Bulk Supply in Odisha, should have an action plan to meet the shortage scenario during non-monsoon days and to manage a likely surplus during the monsoon months for the current as well as for the next year i.e. upto 2012-13. It is expected that the state shall have exportable surplus quantity of power w.e.f. April, 2013 which need to be traded judiciously. Hitherto, GRIDCO has experience of trading a limited quantity of power under short-term contract through Traders or through Power Exchanges as well as un-scheduled interchange (UI) route under ABT management. It is anticipated that from FY 2013-14 when the State has a sufficient exportable quantity of power, the short-term contract and UI route may not be effective enough and GRIDCO should plan for mid-term and long-term contract for risk management of price volatility in short-term, Power Exchanges, 'UI' mechanism. Recently the short-term power market through UI route as well as Power Exchange has been crashed and the similar situation happening from 2013-14 and onwards may not be ruled out. Therefore, for hedging of risk, it would be necessary for GRIDCO to correctly quantify its exportable surplus power and may go for at least 75% of surplus power through long-term contract under Case-I Competitive Bidding and keep the balance 25% of surplus power, in hand, to manage the fluctuation of State demand as well as trading through Merchant route under short-term contract. As the adage goes, 'Managing of Surplus' is more difficult than managing the shortage; GRIDCO may like to identify and put in place a strong core team by strengthening and training adequately for taking up the challenge of ever changing power market scenario of the country.

B. The Commission therefore invited the suggestions/ comments/views on:

- i) As the execution of IPPs/MPPs and development of Coal-blocks are getting delayed what actions need to be taken by all the stakeholders of the State i.e. Developers, Regulators, Power Utilities, Energy and other Deptts. of Govt., Media and most importantly the consumer forums and general public of the State?
- ii) As Odisha Power Scenario will be changing from shortage to a surplus one from 2013-14 onwards and as the Merchant Power Market as well as deemed trading through UI cannot be relied upon for the sustained trading, what will be the appropriate steps for GRIDCO for ABT Management and Trading under such scenario? What percentage of surplus power should be appropriate for GRIDCO to be sold under long-term contract through Case-I Competitive Bidding and through merchant route?

C. The Respondents during hearing on 08.09.2011 and 17.09.2011 and some of the respondents through their written note submitted as under:

- (i) EIC (Electricity), Govt. of Odisha submitted as under:
 - Shortage of power during 2009-10 is an eventual process arising out of inadequate capacity addition, fall of generation particularly in hydro power stations and continuous growth of load.
 - It is a fact that during this period (2001-2010) no capacity has been added through Govt. investment but there were capacity addition by Private Developers during this period.

- (ii) Shri B N Ray, Ex-Chief Engineer, Mahanadi Vihar, Cuttack submitted as under:
- Availability of Coal may be insufficient to generate at 85% PLF as development of coal blocks getting delayed.
 - Surplus power - 80% may be sold by GRIDCO through competitive bidding on long term basis and 20% can be kept for short term and UI Management.
- (iii) Shri S K Jena, Ex-Member, OERC in his written note submitted as under:
- Demand forecast should be realistic and inflated figures must be avoided.
 - Contribution of Grid connected CGPs should not be ignored.
 - Commercial operation of upcoming IPPs /MPPs needs to be staggered so that 100% power generated is utilized within the State.
 - Addition of low voltage consumers, reduction of T&D loss and consequential gain from energy efficiency should be factored in demand assessment.
 - Policy on POWER need not limit itself to 25% availability from IPPs and State share from MPPs but should have a vision of utilizing 100% generation from those TPPs.
- (iv) Shri K C Mohapatra, Ex-Chairman, OBSB on behalf of Project Development Consultants, Bhubaneswar has submitted as under:
- A number of MOU have been signed with different parties for setting of TPPs.
 - We doubt if 5-7 numbers can actually be implemented in time to meet the power requirement of the State.
- (v) Shri S K Nanda, Ex-Chairman, OSEB has submitted as under:
- The State Govt. have signed MoUs for 32 nos. of TPPs but the issue for Coal Linkage and the development of Coal Blocks have not been properly addressed by the State Govt. for which the requirement of coal for the upcoming TPPs is a critical issue.
 - GRIDCO should gear up and plan in advance for sale of 70% of surplus power to outside consumers and balance 30% for Short Term Consumer and UI exchanges through which a handsome revenue can be generated to reduce the State Power Tariff.
- (vi) Shri Sanjeev Das, Convener Energy Panel, CII has submitted as under:
- **Need for Power:**
 - As per the 17th EPS of CEA, Odisha system may witness a peak demand of 10000 MW and the energy consumption of 64000 MU by FY 2021-22 (end of 13th Plan). To meet the aforesaid peak demand, Odisha may have to require installed capacity of 15000 MW. The present installed capacity of Odisha (excluding CGPs) is about 4756 MW.
 - It is expected that 60% of the 32 nos. of MoU – based TPPs may come up supplying the state share of 4000 MW. Odisha

may expect another 4000 MW from OTPCL, OPGC-II, NTPC Stations at Gajamara, Darlipalli and TTPS State-III and Odisha UMPP. Odisha may expect another 1500 to 2000 MW injection of surplus power from CGPs.

- It may please be seen from the above that Odisha by FY 2021-22 (end of 13th Plan) may be close to the desired installed capacity but not surplus.

- **Availability of Fuel**

- CIL has almost reached a level of saturation
 - Forest clearance, land oustees issues litigation, outsourced labour unions law and order issues, besides inherent inefficiencies.
 - During the last 6 months, MCL has loaded on an average 17 rakes per day as against a target of 28 rakes per day
- Actual production in FY 2010-11 was 431.32 million tonnes against target of 460.5 million tonnes.
- Private Coal Blocks numbering 214 have already been allotted. No one has started production.
- Planning Commission estimates 142 million tonnes of short fall in coal in current year in FY 2011-12.
- Shortfall in availability of coal is estimated at 400 million tonnes by 2021-22.
- For future coal linkages, MOP has already given Guidelines in June, 2011, that actual drawl will be subject to 85% of PLF being tied up through long term PPA with Discoms through tariff based competitive bidding.
- July 2011 guidelines say Sector wise priority for coal and the allocation shall be as follows :
 - 60% for Power Projects under Central Power Sector Utility.
 - 35% for IPP projects
 - 5% for CGPs
- Coal India is asking rate at import parity. Prices are likely to go up for domestic coal.

- **Constraints in Logistics**

- Carrying Capacity of Eastern Ports is 600 million tonnes of cargo.
- Almost all Ports are strangled and operating at 100% capacity and above.
- To handle the additional requirement Ports, Capacity has to be doubled in next 5 to 7 years

- There is a bottleneck in Railways to evacuate coal from Ports. A new wing – Rail Vikash Nigam Limited is created but with nil progress.
- Land acquisition for Railway Siding is getting difficult day by day.
- Areas where logistic Rail Corridor is being developed by IDCO is now restricted by MOEF.
- Each Corridor will take roughly 10 years to become operational.
- Availability of wagons and rakes is becoming a problem. Railways are not geared up to enhance production capacity by more than 4.5% per annum compared to growth in logistic requirement of 9% per annum.
- Private Companies and Public Sector are not allowed to “Own Your Wagon Scheme” for movement of coal. There is no assurance of transportation support even if some have started mining.
- **Water Allocation**
 - Water allocation is a huge issue in Odisha.
 - For power utilities/ developers, Government of India is asking for water allocation to the project with certificate from competent authority.
 - Not all the IPPs proposed have got water allocation permission.
 - In Odisha, it is going to be a crisis in the days to come. Even if we sign MOUs, water allocation may not be granted.
 - Wherever the Single Window Committee or the Task Force is approving the project site, it will be difficult for the project to come up as the project site does not have rail connection or transmission links.
 - The reason for allocation/approval of projects by the Task Force has now been to locate water from right side of Mahanadi if looked down stream.
 - The location may be suitable for water but it has no Rail Net work and Transmission Lines.
- **Forest Issues and Ash Management**
 - It is well known that a typical forest clearance takes about 3 to 4 years.
 - Government does not have a Land Bank to allocate land for compensatory afforestation. Whatever land today remains or are being offered are non forest revenue land with tree growth.
 - Wild Life Management Scheme, Elephant Corridor Scheme, Clearance from National Wild Life Board, if project is within 10 kms of National Sanctuary are hazardous of industry, which is difficult to overcome.

- Power Plants ideally located in pit head could have utilised the fly ash for back filling. But with most coal blocks not ready, Power Plants will find it difficult to manage fly ash.
 - Even projects like fly ash bricks and the Polish concept of light weight aggregates are small users of fly ash.
 - **New Land Acquisition and R&R Bill, 2011**
 - Land acquisition is going to be extremely difficult and especially the irrigated lands are not to be acquired. Compensation for land outstees are going to make the projects unviable. Gram Sabha and Zilla Parisad and Panchayat system of governance to acquire land is going to make the entire process tedious.
 - **Constraint in Manpower Availability and Expertise**
 - There is a huge shortage of both Power Engineers, who are employable and equally huge shortage of people who can operate Coal Mines in Odisha.
 - Companies are on a stepping spree for both the above projects and find it extremely difficult.
 - Attrition rate is very high.
 - In view of the above CII does not visualize a surplus power scenario in Odisha under the present arrangement till 2022.
- (vii) Shri R C Satapathy on behalf of National Institute of Indian Labour submitted as under:
- Expressed displeasure that none from Department of Energy, Govt. of Odisha attended the hearing on 08.09.2011 when a number of important issues relating to Odisha Power Sector are being discussed and debated. He requested the Commission to summon Secretary, DoE to appear in the next hearing date.
 - Odisha should have a Vision Plan for a 20 year time horizon not for 5 years as mentioned in Consultative Paper (CP)
 - Do not visualize a surplus power scenario in Odisha till 2022 due to constraint in coal availability and logistic support in 12th and 13th plan, only expects 50% of 32 nos. MoU signed IPPs to be under commercial operation till 2022.
 - Suggests both State Govt. & GRIDCO to revise MoUs and PPAs with those TPPs expected commercial operation during 12th & 13th Plan asking 50% home State quota like NTPC plants besides the State share as per State Thermal Policy.
- (viii) Shri Bibhu Swain on behalf of Power Tech. Consultant submitted as under:
- As per Consultative Paper, the power generation is likely to be surplus from FY 2013-14 onwards. In that case GRIDCO should go for trading with at least 75% surplus surplus through long term contract under competitive bidding and balance 25% to meet the fluctuation of State demand and may trade through merchant route under short term contract.

- The scenario of supply of indigenous coal by Coal India Ltd. upto 2022 is uncertain as the demand supply gap may reach 265 million tonnes in FY 2015-16 which may increase to 300 million tonnes in 2022.
 - The availability of imported coal at international market price, the Port handling constraints and the Railway linkage constraints etc. may affect the TPPs to get the required imported coal.
 - The growth of CGPs in Odisha may be affected due to shortage of coal supply.
 - In view of the above GRIDCO should plan and quantify the availability of power in 12th Plan and beyond.
- (ix) OTPCL through a written note submitted as under
- OTPCL will establish 3x800 MW TPP at Kamakhyanagar in Dhenkanal Dist.
 - 100% of ESO will be utilized in Orissa
 - The tentative schedule of commissioning are as under
 - Unit - I – June, 2016
 - Unit – II - March, 2017
 - Unit – III - December, 2017
 - The above tentative schedule shall depend upon coal availability from Coal Blocks, Mandakini-B & Baitarani West of OMC and OHPC & execution of Common Rail Corridor in Coal Block Area being planned by IDCO
- (x) OPGC, Bhubaneswar through a written note submitted as under:
- As the execution of IPPs and MPPs and development of Coal Blocks are getting delayed, the Govt. should take pro-active action and policy decision on fixation of land rates, R&R benefits, Single Window Scheme of IDCO for facilitating project clearances.
 - As Odisha Power Scenario will be changing from shortage to surplus one from 2013-14 onwards, GRIDCO should target to sell at least 65% through Medium Term Contract and rest through Short Term Contracts.
- (xi) NTPC through a written note submitted as under:
- NTPC has indicated the actual likely year of commissioning and Odisha share from those projects are as under:
 - Muzaffarpur TPS-II– 2013-14 – 30 MW
 - Darlipalli- I & II – 2016-17 - 1600 MW
 - Gajamara _ I &II– 2016-17 – 1600 MW
 - TTPS Stage-III– 2016-17 – 660 MW
 - In case of Nabinagar BSEB JV – NPGC, Odisha share is 155 MW but actual year of commissioning has not been indicated by NTPC.
- (xii) Shri R P Mohapatra, Ex-Member (Generation), OSEB submitted as under:

- He submitted before the Commission that nobody from DoE, GoO attended the 1st hearing on 08.09.2011 and the Legal Consultant of Deptt. of Energy has attended the hearing on 17.09.2011 who cannot express any opinion on the important issues relating to Odisha Power Sector raised by the Respondents including him. He therefore suggested that the Secretary, DoE and Principal Secretary, DOWR should be summoned to offer the views of the Govt. raised by us.
- Signing of MoU for 32 nos. of TPPs is suicidal for the State of Odisha.
- Govt. of Odisha is forcing OHPC to restrict the minimum reservoir level to 595 ft. at Hirakud against the design MDDL of 590 ft. This was resulted not only in loss of generation of 32.4 MU/annum but is giving rise to load regulation in peak hours.
- There has been justified public opposition against installation of so many TPPs and therefore, it is doubtful if the projects will come through. The Govt. of Odisha may be prevailed upon to cancel the balance MoUs.
- There will be no need for going for long term contract through Case-I bidding for surplus power. Trading through merchant route may be adopted. In any case, GRIDCO has not exhibited its capability to trade aggressively in the Power Market.

(xiii) GRIDCO submitted as under:

- GRIDCO requested Public Enterprises Department, GoO to appoint Deloitte Thomasu Touchse for study and forecast the energy requirement of the State and to find out the quantum of power to be sold in long term with best possible negotiation and balance to be traded in UI/Power Exchanges.
- Director(Commercial) GRIDCO in a Fax message dated 05.09.2011 intimated that with regard to forecast of power demand, GRIDCO agrees with OPTCL which is of the view that Odisha will be surplus in power from FY 2016-17 onwards.

(xiv) OHPC submitted as under:

During 12th Plan Period, OHPC proposes as under:

- R M & U of Units 5 & 6 at Burla Power House, Unit-3 at Chipilima Power House, Unit-1 of Rengali Power House & 6 Units of Balimela Power House will be under taken.
- One MOU has been signed between GoO, OHPC & NHPC to undertake Sindol I, II, III (340 MW) through a JV Company.
- Another 9 Hydro Electric Projects totaling to 1160 MW are expected to be taken up for construction during 12th Plan on Middle Kolab, Tel, Vansadhara, Balijori, Salki etc.

(xv) OPTCL submitted as under:

- OPTCL has furnished the Demand Forecast for 11th and 12th plan and the availability of power from different sources.
- OPTCL has submitted that based on PRDC Report Odisha would witness surplus power scenario from FY 2016-17 onwards.

- OPTCL has suggested that Odisha Share of 4860 MW from NTPC & UMPP Stations from FY 2016-17 may not be required for the State consumption and suggested that GRIDCO can directly sell this power to outside State through ISTS Network.
- (xvi) Shri Alekh Chandra Mallick, Ex-Director (Commercial), GRIDCO submitted as under:
- Need for expediting setting up generating plants (IPP/MPP).
 - GRIDCO should manage demand for one or two more years and then prepare for robust trading.
 - Govt. of Odisha has been pro-active in signing of MOU followed by PPAs by GRIDCO.
 - Reasons for delay in Execution of Thermal Power Plants
 - Land
 - Water
 - Fuel
 - Environment
 - Examples : Sindol, Bhusan, GMR
 - Management of deficit and surplus
 - Innovative demand management with interplaying hydro availability through DAM/ TAM/ UI
 - GRIDCO has vast experience in trading but is stagnating now which is be geared up for Case-I Bidding
 - Negotiation with IPPs/MPPs for harnessing uncovered capacities through Case-I Bidding Route.
 - GRIDCO has made a study through PRDC which has clearly stated that there will be short term surplus from 2014-15, Medium Term surplus from 2015-16 & Long term surplus from 2016-17.
- D. The Commission vide Lr. No. 1545 dtd. 23.08.2011 sent the suggestions/views received on power demand of the State up to 2016-17 (End of 12th Plan) to Secretary DoE, CMD GRIDCO and MD OHPC to offer the specific views of the State Govt., GRIDCO and that of OHPC and submit before the Commission on or before 31.08.2011. The Commission has received the response from the following utilities/organization which are mentioned as under:
- DOE, Govt. of Odisha has not offered any views.
 - GRIDCO has not offered any views.
 - OHPC has submitted that the level of Hirakud Reservoir was restricted to RL 595.00 ft. in view of Khariff irrigation supply to Hirakud Command Area as directed by DOWR and Working Table for three consecutive Water Years reflected the same furnished by DOWR.
4. **Associated Evacuation Plan from the IPPs/ MPPs including Odisha share of Power**
- A. **Details in Consultative Paper**
- A1. **Transmission Network and Evacuation Plan:**

- (i) In a recent review of OPTCL transmission system, it was observed as under:
 - Out of 233 nos. of E.H.T Transmission lines, 42 nos. are overloaded and 11 nos. are critically overloaded.
 - Out of 98 nos. of Grid Sub-stations, 22 nos. of Grid Sub-stations are overloaded and require up-gradation immediately.
 - Out of 98 nos. of Grid sub-stations, the Command Areas under 23 Grid Sub-stations are subject to low voltage and requires immediate installation of shunt capacitors.
- (ii) Transmission network and evacuation plan for transfer of power generated from new generating stations including drawl of State quota of power from IPPs and Central Sector Power Stations are yet to be finalized and implementation work is yet to be started.
- (iii) It has been noted that the IPPs of the State have not applied with STU for connectivity with the State Grid for State quota of power, even though, some of the IPPs have applied to CTU for connectivity without having any valid PPA with agencies/utilities outside the State. No proactive steps has also been initiated by STU for evacuating power from the generating bus of the proposed IPPs for the State quota of power leave aside to evacuate from the total power for wheeling to CTU through STU and earning revenue for the utility as well as for the State. The classic example is evacuation of power from M/s SEL Out of 2X600 MW units of SEL having been commissioned, the IPP is not able to supply the full State quota of power although it is selling power to outside the State through a LILO connectivity with POWERGRID line under Merchant power route. This type of anomaly needs to be avoided in future. Action Plan and implementation of Road Map should be in place immediately.

A2. Way Forward

OPTCL as STU is presently in an enviable position to increase its revenue and indirectly state's revenue manifold on account of wheeling of State IPP power for a very long period of 20 to 30 years from 2013-14 onwards; provided all out action plan and Road-map of implementation is taken up in the right earnest without wasting any further time.. Considering the example of M/s SEL, it is opined that action has already been delayed and therefore remedial action should be taken up immediately. Any inaction of the STU for delay in implementation may land up in a position where the state of Odisha even from drawing of its own State quota of power may have to pay the CTU charges and CTU losses in addition to loosing the opportunity of earning revenue on wheeling of full State IPP power through STU Pooling Stations to CTU. The consumers of the State may ill-afford to pay the extra CTU charges and CTU losses to avail its State quota of power.

B. The Commission therefore invited the suggestions/ comments/views on:

- (i) The Commission has noted the Evacuation Plan or rather lack of it for transfer of power generated from the up-coming IPPs and MPPs and is very much concerned that OPTCL as STU is yet to put in place the required Road Map and execution plan for evacuation network. OPTCL is presently evacuating about 250 MW from M/s. Sterlite Energy Ltd. through 220 KV Vedanta CGP bus – Budhipadar D/C line against Odisha's entitlement of 600 MW now and 768 MW from December, 2011 onwards.

- (ii) As OPTCL – the STU has not geared up its evacuation plan for sourcing Odisha share of power from the up-coming IPPs and MPPs in the time frame stipulated, what best arrangement will be the appropriate for OPTCL to adopt so that evacuation system should be ready at least 6 months before the commissioning of the units of the forth-coming thermal projects? The State is not required to pay CTU wheeling charges and CTU transmission losses to draw its own quota of power rather have an opportunity to earn revenue in wheeling full IPP/MPP power to outside the State. The Commission invites suggestion how the STU shall go-ahead whether it would allow IPP/MPP to connect directly to CTU, even though they do not have any PPA with outside the state or may have its own plan of evacuation through Joint Venture or Independent Transmission Operator route?

C. The Respondents during hearing on 08.09.2011 and 17.09.2011 and some of the respondents through their written note submitted as under:

- (i) OPTCL submitted as under:
- OPTCL has estimated that 16 nos. of IPPs and MPPs (Details at Annexure-B) having installed capacity of 24190 MW from which Odisha share of 8273 MW are expected to be under commercial operation during 12th Plan period for which OPTCL has planned **Phase-I Evacuation Plan**.
 - Under the proposed **Phase-I Evacuation Plan**, 5 nos. of 400 KV Pooling Stations at Lapanga, Nisha, Khuntuni, Bhusan and GMR are being planned.
 - OPTCL has proposed that out of 5 nos. of Pooling Stations, Lapanga will be constructed by OPTCL and other 4 nos. Pooling Stations will be executed on Design, Build, Finance, Operate & Transfer (DBFOT) model for 25 years and to be transferred to OPTCL after 25 years.
 - OPTCL has proposed that other IPPs and MPPs including OTPCL will be considered in **Phase-II Evacuation Plan**.
 - OPTCL has suggested that Odisha share of 4860 MW from Gajamara, Darlipalli and TTPS Stage-III of NTPC and that of Odisha UMPP expected from FY 2016-17 onwards may not be required for consumption in Odisha hence GRIDCO can sell directly this quantum of power to outside State through ISTS Network.
 - OPTCL has estimated that by such arrangement 15260 MW power will be evacuated through STU Network and 19050 MW power will flow directly to CTU Network.
- (ii) EIC (Electricity), Govt. of Odisha submitted as under:
- OPTCL has brought a Vision Document of their Transmission Plan and programme, the Consultative Paper should bring a clear report of the situation of transmission vis-à-vis generation.
 - It is suggested that a **State level Integrated Planning Body** should be formed to plan, coordinate and advise the Power Sector so that concerted effort could be given and the situation like evacuation of power from M/s. SEL would not have been arisen.
- (iii) Shri B N Ray, Ex-Chief Engineer submitted as under

- Deplored handing over preparation of Tender Specification by NTPC and execution of 132 KV lines and sub-stations to PGCIL by OPTCL.
 - The evacuation of power from all IPPs and MPPs should be through OPTCL network.
- (iv) Shri S K Jena, Ex-Member, OERC in his written note submitted as under
- Encouragement of Public-Private-Partnership (PPP) in Transmission.
 - Enforceable commercial agreement between IPP or MPP/OPTCL /State before any major investment in Transmission.
 - Emphasis on System Improvement and System Availability.
- (v) Shri K C Mohapatra, Ex-Chairman, OBSB on behalf of Project Development Consultants, Bhubaneswar has submitted as under:
- There would be serious difficulty in evacuation of power as 400 KV /765 KV transmission lines have to be installed for dispatch power to outside Region.
 - As Forest clearance involving hundreds of KMs and route alignment etc. will take 3-4 year's time, even if, power plants are commissioned, there will be no way to dispatch the same.
 - We understand that the construction activities have been handed over to Pvt. Companies who are charging exorbitant price resulting in hike in tariff. Serious attention has to be paid on "man behind machines" for achieving the required target and for smoother management of uninterrupted and quality supply to consumers at large.
- (vi) Shri S K Nanda, Ex-Chairman, OSEB has submitted as under:
- OPTCL has miserably failed in carrying out its duty to plan, construct and commission the power evacuation system for all the small and big power projects of the State.
 - A proper Road Map for expeditious completion of the required transmission system to evacuate power from all power stations well in time should be prepared on war footing.
 - Adequate number of dedicated and quality officers may be posted with proper milestones in each project.
 - An **Independent Monitoring Committee** of retired experienced engineers may be created to regularly monitor the progress.
- (vii) Shri Sanjeev Das, Convener Energy Panel, CII has submitted as under
- CII noted with grave concern that requisite Transmission Network and Evacuation Plan of power to be generated from 32 nos. of TPPs even for drawal of State share of about 8000 MW have not yet finalized.
 - OPTCL was formed in 2005 to function as an Independent Transmission organization.
 - Many contracts are either not executed or there is huge delay in finalising contracts.

- Transmission lines and substations are over loaded and thus forced shutdown is being effected.
- CERC & OERC Regulations demand 98% availability while only <90% of the transmission lines are normally available.
- There is a huge cost and time overrun which flows into the tariff mechanism.
- OPTCL has not put-forth its Action Plan and Road Map for all the proposed IPPs and MPPs.
- Forest Clearance for Right-of-Way is a huge bottleneck. In fact CII understand that 6000 Cr. worth of proposal is pending execution by Transmission major due to forest clearance.
- Minus the transmission line network, the CTU charges and losses are likely to go up even for drawing Odisha quota of power.
- CII has referred to the constitution of the '**Empowered Committee**' by the MoP which has already identified 14 nos. of Transmission Projects with 100% private investment through tariff based competitive bidding. Both PFC and REC have been working as Bid Process Coordinators of a no. of Independent Transmission Projects as per Para 3 of Guidelines for tariff-based competitive bidding for Transmission Services of MoP Resolution dtd. 13.04.2006.
- At the State level, the 1st PPP project was awarded by Haryana Vidyut Prasarana Nigam to Kalpataru Power Transmission and Techno Electric & Engineering Company. Uttar Pradesh, Rajasthan, AP etc. have also started bidding of Transmission Projects under tariff- based competitive bidding route.
- CII, therefore, suggests that Dept. of Energy should immediately constitute one '**Empowered Committee**' in the State in line with MoP under the Chairmanship of Member (Tech.), OERC to identify and award Intra-State Transmission Projects for implementation through tariff based Competitive Bidding Route so that a number of Transmission Projects can be executed with least cost and within targeted period to evacuate power from upcoming IPPs/MPPs in Odisha.

(viii) Shri R C Satapathy on behalf of National Institute of Indian Labour submitted as under:

- OPTCL being a Transmission Licensee since 2005 has failed considering the three Key Performance Indicators (KPIs) – reduction in System Loss – achieving System Availability and completion of Transmission Projects in targeted time.
- OPTCL has failed to prepare a comprehensive Evacuation Plan for those TPPs expected to be commercial operation upto 2022.
- MoP has put in place an **Empowered Committee** to identify for execution of Transmission Projects through tariff based competitive bidding and 14 nos. of Ultra Large Transmission Projects have been identified and six of them have been awarded to the successful bidders.

- Suggested Dept. of Energy should immediately constitute an Empowered Committee to identify, process and award Intra-State Transmission Projects through tariff based competitive bidding for evacuation power from the up coming TPPs upto 2022.
- (ix) Shri Bibhu Swain on behalf of Power Tech. Consultant submitted as under:
- OPTCL should chalk out the evacuation plan to draw the State share power from IPPs / MPPs in such a way that the execution work shall be completed matching with the date of commissioning of units by the IPPs /MPPs.
- (x) OTPCL through a written note submitted as under
- Evacuation of power from OTPCL TPP (3x800 MW) will depend on 400 KV Grid Sub-station of OPTCL proposed at Dhenkanal.
- (xi) OPGC, Bhubaneswar through a written note submitted as under:
- Evacuation Plan from up coming IPPs and MPPs either through JV route or through Independent Transmission Operator route, OPGC is of the opinion that it may be difficult proposition for OPTCL to undertake all these projects by itself.
 - OPGC suggests that Private Developers may be invited to develop a number of these Transmission Projects through tariff based Competitive Bidding Route in similar fashion as been undertaken at the Central Govt. level where in a number of Projects have been awarded to Private Developers through Competitive Bidding Route. This will facilitate simultaneous development of the Transmission Network at various locations in Odisha to achieve the desired results.
 - OPGC suggests that a **State Level Nodal Team** be formed to demarcate /specify '**Transmission Corridors**' so that the development of Transmission Networks is organized.
- (xii) NTPC through a written note submitted as under:
- In case of NTPC Projects namely Darlipalli, TTPS Stage-III & Gajmara, GRIDCO has insisted to develop Transmission System themselves instead of through CTU for evacuation of 3860 MW power allocated to Odisha from these projects.
 - GRIDCO at the time of signing of PPAs for these projects, unlike other beneficiaries, has not extended its consent to NTPC for signing of BPTA with PGCIL.
 - In this regard, to avoid SEL (Sterlite) like situation of Power Evacuation bottleneck for Odisha, monitoring of implementation of the Evacuation System for these Projects should be done by OERC.
- (xiii) Shri R P Mohapatra, Ex-Member (Generation), OSEB submitted as under:
- It would be criminal for the State agencies to evacuate power through the Pooling Sub-stations of the CTU.
 - Unfortunately, the capability OPTCL has deteriorated to such an extent that even for preparing specification, the work is out sourced to Central Sector Agencies.

- The selection of the Developers under Case-I bidding route, should specify clearly that connectivity at 400 KV to the designated 400 KV substation of OPTCL, should form part of the responsibility of the Developer.
- That urgent action should be taken to upgrade the capability of OPTCL.

(xiv) Rural Electrification Corporation (REC) submitted as under:

- REC is well positioned to replicate in the State of Odisha in drawing private investment in development of Intra State Transmission Network.
- REC's wholly owned subsidiary REC Transmission Project Company Limited (RECTPCL) is rendering Project Consultancy & Project implementation in Transmission.
- REC TPCL: To promote develop, construct, own, operate, distribute and maintain 66 KV and above system and lines.
- MOP has nominated RECTPCL as Bid Process Coordinator (BPC) to select developers through tariff-based competitive bidding for 6 nos. Transmission Projects.
- Similar services could be extended to Odisha by RECTPCL as the State may develop part of the transmission infrastructure through competitive bidding which would attract investment from private players.

(xv) Shri Alekh Chandra Mallick, Ex-Director (Commercial), GRIDCO submitted as under:

- OPTCL should go ahead with setting up 400 kV S/S at Khuntuni / Nisha/ Lapanga / Bhusan Sub pooling with out delay conveying confidence among IPPs on OPTCL. It may so happen that there will be delay by PGCIL in setting of their facility & OPTCL may be approached by some IPPs for wheeling of their commitment to outside the State. Even OPTCL / GRIDCO commit to wheel to the extent of quantum of Central allocation quantum of power without adding to any thing to the systems.
- OPTCL should be tuned to perform as per the planning they have submitted. This will be the 'Survival' requirement of the State. They should be directed to modify / restructure their system. There is Need to address the issue within 2 months.
- The IPPs who will be connected to OPTCL & inject power more than the State share should be encouraged and let this additional power should be set up against those IPPs who are not connected to STU.

D. The Commission vide Lr. No. 1543 dtd. 23.08.2011 sent the suggestions/views received on Evacuation Plan for upcoming IPPs and MPPs up to 2016-17 (End of 12th Plan) to Secretary DoE, CMD OPTCL and CMD GRIDCO to offer the specific views of the State Govt., GRIDCO and that of OPTCL and submit before the Commission on or before 31.08.2011. The Commission has received the response from the following utilities/organization which are mentioned as under:

- DOE, Govt. of Odisha has not offered any views.
- GRIDCO has submitted that GRIDCO insisted on OPTCL – the STU to develop the Evacuation System of Odisha share of power from the upcoming NTPC stations in Odisha from economic point of view.
- OPTCL in its response vide Lr. No. 687 dtd. 03.09.2011 submitted its views as under:
 - **Under capacity addition programme:** 407.5 MVA capacity has been added at 12 nos. Grid sub-stations under Central Zone, 172.5 MVA capacity has been added at 6 nos. Grid sub-stations under North Zone, 35 MVA capacity has been added at 2 nos. Grid sub-stations under South Zone and 160 MVA capacity has been added at 7 nos. Grid sub-stations under West Zone.
 - **For improvement of Grid voltage profile through reactive power compensation,** total 150 MVAR Capacitor Banks have been proposed for installation at 10 nos. of Grid sub-stations under Central Zone, total 80 MVAR Capacitor Banks have been proposed for installation at 6 nos. of Grid sub-stations under North Zone, total 25 MVAR Capacitor Banks have been proposed for installation at 2 nos. of Grid sub-stations under South Zone and total 20 MVAR Capacitor Banks have been proposed for installation at 2 nos. of Grid sub-stations under West Zone. The turnkey contracts have been awarded for supply and erection with maintenance contract for 10 years.
 - **On preparation of Tender Specifications and construction of 132/33 KV substations to Central Sector PSUs,** OPTCL has submitted that OPTCL has got capability and expertise for execution of EHT Transmission Projects up to 400 KV level. Due to shortage of manpower construction of 6 nos. 132/33 KV Grid sub-stations at Dabugaon, Padampur, Nuapara, Bhawanipatna, Kunchinda and Boudh and construction of 400 KV Duburi–Meramundali line have been entrusted to PGCIL. For all activities, such as preparation of technical specification, inviting tenders, selecting the successful bidder, awarding the work to the contractors and supervision of the work till commissioning, PGCIL will be paid 12% of the Project Cost as Consultancy Fees. Further, due to manpower shortage, NTPC-ESCL (a subsidiary of NTPC Ltd.) was awarded the job of inviting tender and selecting the successful bidders for 5 packages with a nominal charge. NTPC-ESCL charge is 0.5% of award value of the Projects and NTPC-ESCL are expected to complete the entire work within a period of 8 months.
 - **On encouragement of Public-Private-Partnership (PPP) in Transmission,** OPTCL submitted that offers have been invited for engaging Transaction Advisors for selecting successful bidders for execution of the following EHT Grid sub-stations through PPP mode.
 - (1) 400 KV Kuanrmunda with associated lines
 - (2) 400 KV Joda with associated lines
 - (3) 400 KV Dhamara with associated lines
 - (4) 400 KV Paradeep - Dhamara lines

- (5) 400 KV Paradeep - Uttara lines
- (6) 400 KV Khuntuni with associated lines
- (7) 400 KV Nisha with associated lines

- **On emphasis on System Improvement,** OPTCL submitted that the system improvement is being continuously done. At 27 nos. Grid substations, transformation capacity has been enhanced by 775 MVA. Further, capacity upgradation by 1957.5 MVA at 52 nos. Grid substations is under progress and planned to be completed by FY2012-13. 14 nos. of new transmission projects have been executed during FY 2010-11. One 220 KV lines and 9 nos. 132 KV lines of OPTCL system have been identified for replacement of existing ACSR conductors with high capacity conductors.
- **On availability of transmission system,** OPTCL submitted that since FY 2005-06 transmission system availability of OPTCL network is more than 98%. The Commission being satisfied with OPTCL track record on this performance indicator has approved an amount of Rs.2 crore as an incentive in the ARR of OPTCL for FY 2011-12.
- **On reduction of transmission loss in OPTCL network,** OPTCL submitted that transmission loss of OPTCL system is one of the lowest in the country as can be seen from the loss figure for the last 5 years mentioned hereunder:
 - FY 2006-07 - 5.04%
 - FY 2007-08 - 4.82%
 - FY 2008-09 - 4.52%
 - FY 2009-10 - 4.11%
 - FY 2010-11 - 3.89%
- **On evacuation of power from OTPCL TPP (3 x 800 MW),** OPTCL submitted that OPTCL is considering to evacuate power from OTPCL TTP (3 x 800 MW) through LILO 400 KV Duburi-Meramundali line now under construction. This will be included in **Phase-II Evacuation Plan.**

5. **Promotion Energy Conservation and Energy Efficiency – need for re-organisation and restructuring**

A. **Details in Consultative Paper**

A1. **Background**

- (i) Due to vast potential of energy savings and benefit of energy efficiency, Govt. of India enacted the Energy Conservation Act, 2001 which is in force since October, 2001.
- (ii) The Act stipulates that 9 Power Intensive Industries viz. Thermal Power Stations, Fertilizer Plants, Cement, Iron & Steel, Aluminium, Railways, Textiles and Pulp and Paper Industries should follow mandatory energy efficiency standards.
- (iii) Ministry of Power Gazette dated 19.03.2007 notifies 9 Power Intensive Industries as Designated Consumers (DCs) under Electricity Conservation Act, 2001 and stipulated the following Energy Conservation Potential as under:

- Thermal Power Stations- 30,000 Metric Tonne of Oil equivalent (MTOE)/annum and above.
- Fertilizer----- 30,000 Metric Tonne of Oil equivalent (MTOE)/annum and above.
- Cement----- 30,000 Metric Tonne of Oil equivalent (MTOE)/annum and above.
- Iron & Steel----- 30,000 Metric Tonne of Oil equivalent (MTOE)/annum and above.
- Chlro-Alkali----- 12,000 MTOE/annum and above
- Aluminium----- 7500 MTOE/annum and above
- Railways----- Electric Traction S/s (TSS), Diesel Locoshed, Production Units 12,000 MTOE /annum and above
- Textile----- 3000 MTOE/annum and above
- Pulp & Paper----- 30,000 MTOE/annum and above

[1 kg of oil equivalent =10,000 Kcal; 1MT of oil equivalent=10X 106 Kcal]

- (iv) The Govt. of India set up BEE on 1st March, 2002 at the Central Level. The Mission of the Bureau of Energy Efficiency is to assist in developing policies and strategies with a thrust on self-regulation and market principles, within the overall framework of the Energy Conservation Act, 2001 with the primary objective of reducing energy intensity of the Indian economy and in doing so, provides the required regulatory and promotional functions.
- (v) The Prime Minister's Council on Climate Change approved "in principle" one of the core mission of NAPCC i.e. National Mission on Enhanced Energy Efficiency (NMEEE) on 24.08.2009.
- (vi) The Union Cabinet on 24.06.2010 approved the implementation framework for NMEEE which seeks to strengthen the market for energy efficiency by creating conducive regulatory and policy regime.
- (vii) Govt. of India through a Press Note dtd. 24.06.2010 announced that NMEEE has been envisaged to foster innovative and sustainable business model on a Public-Private-Partnership (PPP) basis which is estimated to be around Rs.74, 000 Cr. by 2014-15 which will help achieve total avoided capacity addition of 19,598 MW, fuel saving of around 23 million tonnes of energy equivalent per year and Green House Gas (GHG) emission reductions of 98.55 million tonnes per year.
- (viii) NMEEE spelt out 4 new initiatives to enhance energy efficiency.
 - The flagship of the Mission is Perform, Achieve and Trade scheme (PAT) - a market-based mechanism to enhance energy efficiency in 714 nos. of the 'Designated Consumers' (large energy-intensive industries and facilities).
 - The second initiative is Market Transformation for Energy Efficiency (MTEE), which includes accelerating the shift to energy efficient appliances in designated sector through innovative measures to make the products more affordable.

- Energy Efficiency Financing Platform (EEFP) is third initiative which allowed for the creation of a mechanism that would help finance Demand Side Management (DSM) programmes in all sectors by capturing future Energy Savings.
 - The Final initiative is Framework for Energy Efficient Economic Development (FEEED) to develop two Fiscal Instruments to promote Energy Efficiency.
 - Partial Risk Guarantee Fund (PRGF) is to provide commercial banks with partial coverage of risk exposure against loans made for energy efficiency projects. The fund will charge a small fee on all projects seeing the risk guarantee.
 - Venture Capital Fund for Energy Efficiency (VCFEE) would help finance Demand Side Management Programme in all sectors by improving Energy Efficiency.
- (ix) The SDA is assigned under Electricity Conservation Act, 2001 to play 3 key roles namely:
- As a Development Agency
 - As a Facilitator
 - As a Regulator/Enforcing Body.
- (x) Govt. of Odisha has designated Engineer-in-Chief (Electricity), Odisha as the State Designated Authority (SDA) to implement and monitor all the Energy Conservation Measures and Energy Efficiency Programme in the State of Odisha.

A2. Present Scenario of Energy Conservation and Energy Efficiency Programme in Odisha

- (i) Bachhat Lamp Lamp Yojana (BLY) was launched by Govt. of India, MoP on 25.02.2009. AP, Uttarakhand, Rajasthan, Himachal Pradesh, Punjab, Kerala, Karnataka, Assam, Delhi, Madhya Pradesh, Chhattisgarh and Haryana have implemented BLY in their States by distributing 20 million CFL bulbs and have reduced their Evening Peak Demand. Haryana had showcased Sirsa District as First District of India having 100% CFL installation for domestic, commercial and public institution categories of consumers.
- (ii) Odisha has the potential of saving of about 400 MW in Evening Peak hours if 100% CFL installation like Sirsa District of Haryana is achieved, but even after 2 ½ year of launch of BLY in National level, not a single CFL bulb under BLY scheme has been installed in any of the areas of 4 nos. of DISCOMs of Odisha.
- (iii) All 19 major States had participated in Rastriya Urja Jan-Jagruti Abhiyan (RUJJA) – the 1st phase of Orange Revolution organized by MoP, MNRE, Petroleum Conservation Research Association (PCRA), National Environmental Engineering Research Institute (NEERI) and Society of Energy Engineers & Managers (SEEM) but Odisha had failed to participate either in Urja Yatra which is said to be first of its kind in the World or in 1st Indian International Energy Summit-2011 which deliberated for 3 days (from 28-30 January, 2011) on Energy Security and Energy Independence.
- (iv) Odisha has the vast scope for reduction of Specific Energy Consumption (SEC) of its Electro-Metallurgical Industries, Fertilizer Plants, Cement Plants

and Paper Industries. It is estimated that if the 1st PAT Cycle is implemented successfully in Odisha, there would be a saving of about 500 MW by 2014.

- (v) There is a pressing need for re-organization and re-structuring of the State Designated Authority for Energy Efficiency Programme. The office of the EIC (Elect.), Govt. of Odisha, apart from its core responsibilities of:
- periodic inspection of all existing and new electrical installation on safety angle before charging;
 - investigation and report of fatal and non-fatal electrical accidents;
 - collection of Electricity Duty for the State Govt.;
 - conduct Examination/Viva-voce for granting certificate of competency to Supervisors and permits to Electrical workman and to grant licence to Electrical Contractors; Interview for giving Electrical Supervisory License;
 - Survey, Investigation and preparation of pre-feasibility report and feasibility report for small and medium Hydro Power Projects; and
 - has been given additional key responsibility by the State Govt. -
 - to act as Nodal Agency for promotion and facilitation of small/mini/micro hydel projects;
 - to act as Chairman and Convener for the State Technical Committee for awarding TEC of small/mini/micro Hydro Power Projects;
 - to monitor the progress of RGGVY and BGJY programme; and
 - now the State Designated Authority (SDA) for Energy Efficiency Conservation and Energy Efficiency Programme in the State.
- (vi) During many review meetings and discussions held in the Commission's forum, it has been observed that the office of the EIC (Elect.)-cum-Principal Chief Electrical Inspector, Govt. of Odisha is very much handicapped both in the form of quantity and quality in manpower; as well as in training requirement to develop the skill set of the existing personnel. At the present state, the office is not able to give adequate justice even to its core functions like periodic testing of the existing electrical installations as statutorily mandated in the Electricity Act, 2003. Its track record on survey, investigation and preparation of feasibility report to identify commercially viability of small/mini/micro hydro projects as well as approval of TEC to the identified and allotted SHPs is not very satisfactory.

A3. **Way Forward**

- (i) India has to keep balance with its twin objectives i.e. to maintain its annual GDP growth @8 to 9% for the next 20/25 years to join the Super Economic Power League by 2035-40 as predicted by Goldman Sachs and Price Waterhouse Coopers and to cut down Green House Gas emissions by 20-25% considering 2005 as base year as announced by India in December, 2010 in 16th International Summit for Climate Change at Cancun.
- (ii) Govt. of India through PAT, MTEE, EEFP and FEEED under NMEEE has drawn a Road Map for Energy Conservation and Energy Efficiency with an

investment of Rs.74,000 cr. in PPP mode by 2014 to reduce the power demand of 19598 MW which will ultimately result in an avoided investment of about 2 lakh cr. for identical capacity addition in generation and matching transmission and distribution.

- (iii) Odisha has already missed the bus to participate in 1st phase of Orange Revolution launched during January, 2011 to usher the “Energy Security” and “Energy Independence” for India.
- (iv) Odisha has made absolutely no headway in BLY programme (launched by MoP on 25.02.2009) which would have saved about 400 MW in Evening Peak hours.
- (v) In pursuance of Rule-5 of Orissa State Energy Conservation Fund Rules, 2011, Govt. of Orissa has issued a notification on 21.06.2011 to constitute the State Level Steering Committee where Commissioner-cum-Secretary, Deptt. of Energy as Chairman, the EIC(Elect.)-cum-Principal Chief Electrical Inspector, Orissa is the Member and Chief Engineer(Projects)-cum-CEI (Generation), Orissa is the Member-Convenor to provide guidance and support to SDA for carrying out the energy conservation activities. This needs for adequate strengthening of the office of the EIC (Elect.) both in increase in manpower as well as requirement of training to improve the quality of manpower to take over as a challenge so that Odisha is not deprived of its due share in Central funding of Rs.74000 crores under 1st PAT Cycle from April, 2011 to March, 2014.
- (vi) Alternately Govt. of Odisha may like to consider to designate any of the State Power Sector PSU as SDA of Odisha to play an effective role to monitor and implement all Energy Conservation and Energy Efficiency Projects with scale and speed required at present as the present SDA of Odisha EIC (Electricity) is not able to deliver under the existing arrangement under Govt.

B. The Commission therefore invited the suggestions/ comments/views on:

- (i) As Govt. of India, Ministry of Power under NMEEE has envisaged to spend about Rs.74,000 crore in PPP mode under 1st PAT Cycle from April, 2011 to March, 2014 and Odisha has the scope for reduction of about 500 MW in reducing Specific Energy Consumption (SEC) of its Electro-Metallurgical Industries, Fertilizer Plants, Cement Plants and Paper Industries under the 1st PAT Cycle, what should be the Road Map of SDA for such an ambitious programme?
- (ii) Govt. of India, Ministry of Power has already launched Bachhat Lamp Yojana (BLY) since 25.02.2009 and there is a scope of saving of about 400 MW during Evening Peak hours if 100% CFL are substituted in place of incandescent bulbs.. As the State is facing low hydro condition during Water Year 2011-12, what should be the best arrangement of Odisha’s Power Sector to take up BLY programme on war footing to catch up the rest of India? What should be relative responsibility of power utilities (DISCOM) of the State to achieve?What is the Road Map of SDA of Odisha?
- (iii) How the office of the EIC (Electricity), Odisha is required to be strengthened so that it can play the effective role of SDA of Odisha to implement and monitor the Energy Conservation and Energy Efficiency Projects with scale and speed which is the need of the hour? What would be the appropriate approach whether to strengthen the present organization under EIC

(Electricity), Odisha or to designate any of the State Power Sector PSU as SDA of Odisha?

C. The Respondents during hearing on 08.09.2011 and 17.09.2011 and some of the respondents through their written note submitted as under:

- (i) EIC (Electricity), Govt. of Odisha submitted as under:
- The last “BLY Stakeholder Consultation Meet” was organized by BEE on 16.03.2011 to monitor and review the status of BLY implementation in the country.
 - Kerala SDA have presented its successful implementation whereas other states raised different problems faced in carrying out such implementation.
 - SDA, Odisha has suggested the State Govt. to adopt an alternative financing model in line with Kerala Model for successful implementation of BLY in the State in response to compliance of the Standing Committee relating to Energy Dept.
 - One of the primary and preliminary requirements of PAT was identification of Designated Consumers (DCs) in the State of Odisha. SDA Odisha has successfully conducted such survey for updating the DCs list and for identification of new DCs of the State besides actively interfacing with them for furnishing energy returns.
 - Workshops on e-filing of energy returns was also organized by SDA Odisha.
- (ii) Shri S K Jena, Ex-Member, OERC in his written note submitted as under:
- Innovative measures like Bachhat Lamp Yojana (BLY) by DISCOMs should be implemented through profit sharing mechanism.
 - Energy Conservation should be enforced with correct metering, energy audit and fixation of accountability.
 - No entry barrier on short term contract for top class power professionals at the level of utilities for time bound implementation of Energy Conservation Projects.
- (iii) Shri B N Ray, Ex-Chief Engineer submitted as under
- Odisha has abandoned scope in bringing down specific energy consumption in power intensive industries.
 - With present arrangement EIC (Electricity) can not effectively handle this.
 - An independent Authority/ Corporation may be created to handle Energy Conservation, harnessing Renewable Energy, Energy Security etc.
 - BLY needs to be implemented by all State DISCOMs without any further delay.
- (iv) Shri S K Nanda, Ex-Chairman, OSEB has submitted as under:
- The EIC (Electricity) should be relieved of all duties concerning RE generation and programmes under NMEEE and would be responsible

for its core activities for electrical inspection under Safety Rule, collection of Electricity Duty, issuing licenses and other similar works.

- A separate wing may be created under Chief Engineer projects and CEI (Generation) who may be declared as SDA for all programmes under Orange Revolution, Energy Conservation and PAT Scheme under NMEEE. The wing may be properly staffed with dedicated and quality engineers with a specific task to utilize the fund to be available under 1st Phase PAT scheme under NMEEE.
- The Steering Committee constituted by Dept. of Energy vide Notification dtd. 21.06.2011 may monitor the progress regularly at least once a quarter. It may be preferable to induct some Independent Private Expert Engineers and one Senior Officer of OERC so that an impartial and correct report can be produced.
- DISCOMs have not taken BLY seriously even though the Scheme is in vogue since 25.02.2009. OERC should fix a target date to accomplish a definite target and atleast 50 lakhs CFLs should be distributed by each DISCOM before end of December, 2011 which will save about 300 – 400 MW peak power during summer of 2012.

(v) Shri Sanjeev Das, Convener Energy Panel, CII has submitted as under

- The SDA of Govt. of Odisha should prepare a Road Map to implementation Energy Conservation and Energy Efficiency projects in the State.
- Govt. of Odisha should initiate appropriate steps to improve manpower strength of SDA to implement BEE plan and programme made for Odisha in a time bound manner and to utilize central fund effectively.
- The SDA i.e. EIC (Electricity), Odisha shall take prompt action to implement BLY as the same is an early result oriented Energy Efficiency Programme.
- Apart from the designated industries, which are being audited or are under the radar of BEE, let the SDA issue a mandate to small and non-designated industries to carry out energy audit through certified Energy Auditors, while submitting Annual Inspection by the Electrical Inspectorate.

(vi) Shri R C Satapathy on behalf of National Institute of Indian Labour submitted as under:

- Expressed anguish and concern that due to inefficiency of Dept. of Energy and EIC (Electricity-cum-SDA) Odisha could not participate in first phase of Orange Revolution during the period from January 12 – 30, 2011.
- Opined that EIC (Electricity) as SDA can't execute the size of Energy Conservation and Energy Efficiency Projects that are required to be undertaken during 1st PAT Cycle (April 1, 2011 to March 31, 2014).
- Suggested that GRIDCO may be declared as SDA of Odisha and one MD may be posted in GRIDCO to over see the functions of Trading and Energy Efficiency Projects under 1st PAT Cycle. As time is short this may be done on priority/ war-footing basis.

- (vii) Shri Bibhu Swain on behalf of Power Tech. Consultant submitted as under:
- The SDA of Govt. of Odisha should prepare a Road Map to implement Energy Conservation & Energy Efficiency Projects of the State.
 - The Govt. of Odisha should take appropriate step to improve the man power strength of the SDA.
 - EIC (Electricity) Odisha – SDA shall take prompt action to implement BLY as the same is an early result oriented Energy Efficiency Programme.
- (viii) OPGC, Bhubaneswar through a written note submitted as under:
- The role of SDA under NMEEE should be as a Regulator as well as facilitator for the identified industries in their quest for reduction of Specific Energy Consumption.
 - The SDA should have to initiate a Road Map indicating the activities to execute this ambitious programme within the stipulated period.
 - OPGC suggests that EIC (Electricity) being inadequately equipped to carry out ambitious programme otherwise the State owned companies / Central PSUs may be given the responsibilities of implementation.
 - On implementation of BLY, OPGC suggests that DISCOMs may be mandated to undertake this activities so that Odisha can save about 300 to 400 MW during evening peak hours.
- (ix) Shri R P Mohapatra, Ex-Member (Generation), OSEB submitted as under:
- The following actions are to be taken urgent under NMEEE.
 - The existing Specific Energy Consumption (SEC) of designated industries should be determined through Energy Audit and the Road Map for reduction of SEC should be finalized, in collaboration with BEE and R&D Institutions.
 - The suggested procedure under PAT may be adopted.
 - However, the SDA has to follow up, for which purpose Energy Auditors may be appointed.
 - Even though Reliance managed DISCOMs have entered into Tripartite Agreement under BLY, no action has been taken for implementation.
 - EIC (Electricity) should be made a Separate Organization as was existing in the past, by separating the post of Principal Chief Electrical Inspector as an independent authority.
 - The EIC (Electricity), to be divested from Electrical Inspection functions shall be the SDA for Energy Conservation and Nodal Agency for Small Hydro Projects.
- (x) Rural Electrification Corporation (REC) submitted as under:
- REC Ltd. is having a number of schemes to finance different SI works to be under taken by DISCOMs for Energy Efficiency & Conservation.
- (xi) GRIDCO submitted as under:
- GRIDCO is better equipped to handle Energy Conservation & Energy Efficiency Projects of Scale & speed and has expressed its willingness to be declared as SDA of Odisha.

- GRIDCO has suggested the Road Map for implementation Energy Conservation and Energy Efficiency Schemes with scale and speed as under:
 - Energy Auditing
 - Formulation of strategies and creating awareness among people about the benefits of Energy Conservation and Efficiency on the pattern of PCRA doing the job of conservation in the Petroleum Sector.
 - R&D Activities to reduce Energy usage & promote efficiency.
 - Impact studies
 - Industry sponsored projects
 - Training & Technical Advisory Services.
 - Institutional (National & International) linkages to share energy conservation tips
 - Educational Campaign in Schools/Colleges
 - Any other Programmes as are envisaged in the NMEEE Guidelines etc.

(xii) Canyon Consultancy Pvt. Ltd. submitted as under:

- Canyon suggests that OREDA may be assigned Small Hydro and Energy Efficiency Projects of Odisha making OREDA stronger and responsible

(xiii) Shri Alekh Chandra Mallick, Ex-Director (Commercial), GRIDCO submitted as under:

- There is a strong need for focusing on Energy Conservation and Energy Efficiency in the State.
- GRIDCO can be declared as SDA of Odisha. GRIDCO can recruit few hands to take care of 'Energy Conservation' related issues.
- There should be a committee of GRIDCO, OPTCL, DISCOMs, DoE & industries which should sit once in two months to address various related issues.

D. The Commission vide Lr. No. 1546 dtd. 23.08.2011 sent the suggestions/views received on Energy Conservation and Energy Efficiency to Secretary DoE, CMD GRIDCO, Chief Executive, OREDA, EIC (Electricity), GoO, CEOs, of CESU, NESCO, WESCO & SOUTHCO to offer the specific views of the State Govt., GRIDCO, OREDA, EIC (Electricity) and that of DISCOMs and submit before the Commission on or before 31.08.2011. The status of response as well as the comments received from the following utilities/organization are mentioned as under:

- DoE, Govt. of Odisha has not offered any views.
- EIC (Electricity) has not offered any views.
- None of the DISCOMs has offered any views.
- OREDA has not offered any views.
- GRIDCO submitted that that GRIDCO having the required infrastructure and expertise may be considered as SDA of Odisha.

6. **Harnessing Renewable Power both solar and non-solar and to promote cogeneration to meet Renewable Purchase Obligation (RPO) of the State.**

A. **Details in Consultative Paper**

A1. **Background**

- (i) Renewable Energy Sources mean renewable electricity generating sources viz Micro/Mini/Small hydro projects upto 25 MW capacity, Wind, Solar, Biomass, Urban/Municipal Waste, Geothermal, Tidal, Ocean Thermal Energy Conversion (OTEC) and all other such sources as approved by Govt. of India, Ministry of New & Renewable Energy (MNRE).
- (ii) Renewable Energy (RE) has traversed a long way from the year 1876 when William Adams discovered that selenium produces electricity when exposed to sunlight. In India, Renewable Energy started its journey in seventh plan period when Govt. of India created a separate Ministry for development of RE. The status of development of RE in India is shown in Table below:

Table-6
Growth of Renewable Energy in India

Plan/Year	Renewable Energy Capacity (MW)	Total Installed Capacity (MW)	% of RE to total Installed Capacity
End of 6 th Plan (31.03.1985)	0.00	42,585.00	0
End of 7 th Plan (31.03.1990)	18.00	63,636.00	0.028
End of 2 Annual Plans (31.03.1992)	32.00	69,065.00	0.046
End of 8 th Plan (31.03.1997)	902.00	85,795.00	1.05
End of 9 th Plan (31.03.2002)	1628.00	1,05,046.00	1.55
End of 10 th Plan (31.03.2007)	10,258.00	1,32,329.00	7.75
During 11 th Plan (31.03.2011)	18,454.00	1,73,626.00	10.62

- (iii) The Road Map for Renewable Energy for India has been drawn. India has to attain 24000 MW by 2012, 2,80,000 MW by 2030 and 10,00,00 MW by 2050 as India is slated to become 3rd largest economy by 2035 and 2nd largest economy in 2050 in the World.

A2. **Present Renewable Energy Scenario in India:**

- i. The power sector of India is currently in the process of a major change. From an installed capacity of 1362 MW at the time of independence, the installed capacity as on 31.03.2011 is 1,73,626 MW. Ministry of New & Renewable Energy (MNRE) has formulated the tentative target for Grid Interactive renewable power in Table below to reach RE Installed Capacity of about 24000 MW by end XI Plan.

Table-7**(In MW)**

Renewable Sources	Cumulative Capacity upto 31.03.2007 (End of 10th Plan)	Target for 11th Plan	Cumulative achievement targetted by end of 11th Plan
Wind Power	7092	10500	17592
Biomass Power (Bagassee, Co-generation & Biomass Gassifier)	1184	2100	3284
Small Hydro (Upto 25 MW)	1976	1400	3376
Total	10252	14000	24252

Source : MNRE

- ii. The Renewable energy capacity addition upto 9th Plan, addition during 10th Plan and cumulative capacity as on 30.09.2010 as assessed by MNRE is shown in Table below:

Table-8
Renewable Potential Vrs. Capacity Addition

Resource	Potential	Capacity Addition (MW)			
		Upto 9th Plan	10th plan addition	11th plan addition (upto 30.09.2010)	Cumulative Capacity upto 30.09.2010
Wind	48500	1667	5427	4714	12809
Small Hydro	15000	1438	538	759	2823
Bio Power	61000	390	795	1079	2505
Solar	20-30 MW (per Sqkm.)	2	1	15	18
Total		3497	6761	6560	18155

In energy term, the percentage of Renewable Energy is 4.13% of the total energy mix at present although as regards to the installed capacity, it is of the order of 10.62%. The major contribution of about 71% is from wind power.

- iii. India has also chalked out a Road Map for harnessing Solar Power under Jawaharlal Nehru National Solar Mission (JNNSM) as shown in table below:

Table-9

Phase	Year	Cumulative Solar Power Capacity
I	2013	1,300 MW
II	2017	7,000 MW
III	2022	20,000 MW
IV	2030	1,00,000 MW

A3. Present Renewable Energy Scenario in Odisha:

- (i) For harnessing Renewable Energy in Odisha, the State is presently under nascent stage of development. OREDA – the State Nodal Agency for Renewable Energy has assessed Renewable Energy potential of about 16230 MW whereas WISE- engaged as Consultant by OERC has assessed RE potential of the State of about 7874 MW as shown in Table below:

Table-10

Source	Potential of RES assessed by	
	OREDA (in MW)	WISE (in MW)
Wind	1700	2430
Solar	14000	5000
Biomass	350	240
Small Hydro	160	184
Municipal waste	20	20
Total	16230	7874

- (ii) A study conducted by Indian Institute of Science (IISc), Bangalore identified Gopalpur, Chhatrapur, Puri, Chandipur, Paradeep and Damanjodi as the potential sites in Odisha for the wind power generation. Centre for Wind Energy Technology (C-WET) has certified 16 nos. of wind power potential sites in the State at Chandipur, Chhatrapur, Damanjodi, Gopalpur, Paradeep and Puri etc. for development of wind farms. The gross potential for wind power has been estimated at 1700 MW while the technical potential is assessed at 800 MW by MNRE.
- (iii) A number of Solar Power Developers (SPDs) have already initiated the definite process under migration scheme for setting up Solar Power Plants (SPPs) and are in the process of finalizing the arrangement of sale of power to NVVNL as per the decisions of the MNRE under JNNSM programme.
- (iv) With the constant efforts of the Govt. of India MNRE, alternate hydro (small/mini/micro) has emerged as a viable option for harnessing renewable power. Earlier IIT, Roorkee utilizing the SWAT model had identified 206 nos. of sites with a total capacity of 217.99 MW in Odisha. Thereafter, Small Hydro Electric Projects (SHEPs) Developers have identified 84 nos. of feasible proposals in the State for generation of alternate hydro power. OERC in its meeting held on 27.08.2010 reviewed 84 nos. of such proposals and issued the Practice Directions for 84 nos. of such identified projects which are grouped/classified as Category A, B, C, D and E projects as under:

Category A Projects:

DPRs of 14 Projects already approved and Techno-Economic Clearance (TEC) accorded by State Technical Committee (STC) – **Pending at the approval stage of Construction Drawings at STC/W.R. Deptt. of Odisha.**

Category B Projects:

Pre Feasibility Reports (PFRs) of 15 Projects already approved by STC. Developers have already submitted DPRs to STC and the same have been circulated to the Members of STC – **Pending at STC for approval of DPR and TEC.**

Category C Projects:

Projects for which in-principle approval PFR has been accorded by STC, but the Developers are yet to submit DPRs – **Pending with Developers.**

Category D Projects:

PFRs submitted by the Developers to STC – **Pending for in-principle approval of STC and signing of MoU with Govt.**

Category E Projects:

Rest of the feasible Projects for which Survey & Investigation are to be carried out and to be prepared either by EIC (Elect.) and/or outsourced Agency – **Govt. should address Revised Hydro Policy and prepare a Road Map.**

- (v) OERC vide Lr. No. 152 dtd. 20.01.2011 had also requested both Secretary, Energy Dept., Secretary, Water Resources Dept., Govt. of Orissa to hold a joint meeting specifically for the review of the STC Cleared Projects (Category A) and to issue clear direction to EIC (Water Resources) to give formal clearance on vetted Construction Drawings by Premier Institutions and CPSUs like WAPCOS, NHPC etc. as agreed to in the Meeting taken up by Chief Secretary for development of Small Hydel Projects on 11.05.2010 so that at least 12 nos. of SHE Projects of about 170 MW can be taken up for construction by the Developers by March, 2011 and the State of Odisha will be saved from purchasing the costlier RECs to meet its Renewable Purchase Obligations (RPOs) from the year 2011 onwards.

A4. Status of progress achieved in Renewable Energy in Odisha

- (i) OREDA is the State Nodal Agency established since 1984 in Odisha under Science & Technology Department with a view to popularize the exploitation and use of RE sources in the State. However, EIC (Electricity) under Dept. of Energy has been assigned to play the role of State Nodal Agency since 1998 for the development of alternate hydro projects in the State.
- (ii) Against the assessed potential mentioned above, the following Renewable Energy Projects have been commissioned in Odisha till date.

Table-11

Name of the Plant	Installed Capacity (MW)
Middle Kolab Project by Meenakshi Power	25
Lower Kolab Project by Meenakshi Power	12
Samal Barrage Project by OPCL	20
Solar Power Plant at Sadeipalli, Bolangir	01
Solar Power Plant at Barang, Cuttack	01
TOTAL:	59

A5. Renewable Purchase Obligation (RPO)

- (i) National Action Plan on Climate Change (NAPCC) aims at increasing the share of Renewable Sources of Energy from 5% of the total energy mix in 2010 to 15% by 2020.
- (ii) Ministry of Power, GoI Resolution dated 20.01.2011 stipulates:
- SERCs shall reserve a minimum percentage for purchase of Solar Energy which will go up to 0.25% by end of 2012-13 and further up to 3% by 2022.
 - Appropriate Renewable Energy Certificate (REC) mechanism would need to be evolved. RE Generator can sell RE power to local DISCOMs at the rate for conventional power and can recover the balance cost by selling RECs to other DISCOMs/ Obligations Entities enabling the latter to meet RPO.

- Till non-conventional technologies compete with conventional sources, procurement by distribution companies shall be done at preferential tariff by the appropriate Commission.
- (iii) CERC in January 2010 issued Notification on “Terms & Conditions for recognition and issuance of REC for Renewable Energy Generation” and as per the Regulation, National Load Despatch Centre (NLDC) has been appointed as Central Agency for implementations of RECs. The Central Agency has prepared the Detailed Procedures for Registration, Accreditation, Issuance and Redemption of RECs etc.
- (iv) OERC disposing the petition filed by M/s Greenpeace India Society in its Order dt.23.04.2005 had directed GRIDCO to purchase 200 MU from RE Sources during FY 2006-07 at a price not exceeding the highest cost of NTPC Power Stations of ER. OERC vide Order dt.20.08.2005 had also directed GRIDCO to purchase power from RE Sources upto 3% of the total power procurement during FY 2007-08 and to go up @0.5%/annum in the subsequent years to reach 5% by 2011-12
- (v) OERC vide Notification dt.30.09.2010 issued OERC (Renewable & Cogeneration Purchase Obligation and its Compliance) Regulation, 2010 and vide Regulation-3 fixed the year-wise as well as source-wise RPO as shown in the Table below.

Table-12
Renewable Purchase Obligations from FY 2011-12 to FY 2015-16

Renewable Purchase Obligations from FY 2011-12 to FY 2015-16				
Year-wise target	Minimum quantum of Renewable Energy purchase in % of total Energy consumption in the State			
	Renewable		Co-generation	Total
	Solar	Non-solar		
2011-12	0.10	1.20	3.70	5.00
2012-13	0.15	1.40	3.95	5.50
2013-14	0.20	1.60	4.20	6.00
2014-15	0.25	1.80	4.45	6.50
2015-16	0.30	2.00	4.70	7.00

A6. Financing Renewable Energy Projects

(i) National Clean Energy Fund (NCEF)

- The Finance Bill for FY 2010-11 had provided for creation of NCEF. Govt. of India, therefore, on 06.04.2011 have approved setting up of NCEF that would finance innovative Projects & Schemes based on Clean Energy Technology.
- NCEF has been set up to serve as a separate non-lapsable corpus for funding Green Energy Projects to cut down India’s Green House Gas (GHG) emissions. The collections of fund was mainly from the Clean Energy Cess of Rs.50/tonne on Coal & Lignite.
- Cabinet Committee on Economic Affairs (CCEA) chaired by Prime Minister has constituted an Inter-Ministerial Group (IMG) under Union Finance Secretary as Chairperson to approve such Green Energy Projects eligible for financing under NCEF.
- NCEF has already collected Rs. 3124 crore during FY 2010-11 and the corpus fund will be about Rs.6500 crore in FY 2011-12. All the RE

Schemes and Projects from individuals, organizations and consortiums of organizations would be eligible up to 40% of the Project Cost.

(ii) Power Finance Corporation Green Energy Ltd.

- Power Finance Corporation (PFC) on March 30, 2011 has incorporated a wholly-owned subsidiary company viz. PFC Green Energy Ltd. to provide financial support for “Green Projects” of Renewable and Non-conventional Sources of Energy.

(iii) Incentives for RE Projects

- Ministry of New and Renewable Energy (MNRE) is offering various types of generation based as well as capital incentives and subsidies for RE projects.

B. The Commission therefore invited the suggestions/ comments/views on:

- (i) Odisha has vast potential for harnessing Renewable Energy Sources which as per OREDA is of the order of about 16230 MW and as per WISE is of the order of 7874 MW. During last 27 years (1984 – 2011) of functioning of OREDA as Govt. of Odisha State Nodal Agency, only 57 MW have been developed from alternate hydro sources and 2 MW from Solar sources. It is an established fact that OREDA lacks the scale and speed to execute the commercially viable RE Projects that are now required for Odisha to meet its Renewable Power Obligation (RPO) failing which Odisha has to resort to purchase Renewable Energy Certificates (RECs) from Power Exchanges at exorbitant prices burdening the ultimate consumers of the State.
- (ii) At present, the Renewable Energy Sector in Odisha is in a complex situation being looked after by multiple Govt. agencies like Science and Technology Dept., OREDA, Dept. of Energy, Engineering-in-Chief (Electricity), Engineering-in-Chief, Water Resources, GRIDCO etc. In the States like West Bengal, Rajasthan etc. a separate Green Power Corporation has been created to develop Renewable Energy Projects. It is desirable to bring all the Renewable Energy Projects under one umbrella with adequate power and authority for development of Renewable Energy Sources in the State to take full advantages of Govt. of India MNRE generation based as well as capital incentives under DDG Scheme and various other subsidies? What would be the appropriate approach whether to create a new Green Power Corporation or to strengthen OREDA or to assign all RE Projects to any of the State Power Sector PSU to execute such projects with scale and speed?

C. The Respondents during hearing on 08.09.2011 and 17.09.2011 and some of the respondents through their written note submitted as under:

- (i) OREDA, Bhubaneswar submitted as under:
- OREDA based on OERC RPO Regulation, 2010 has assessed the cumulative capacity addition required during the Obligated Period from FY 2011-12 to 2015-16 from Solar, Non-Solar and Cogeneration sources.
 - OREDA has also assessed the annual capacity addition during the aforesaid obligated period and has stated that OREDA has already chalked out the path to achieve the RPO and **OREDA requires proper man power, funding and mandate to make them realize all RPO in time.**

- Historically Orissa has been a power surplus state.
- It witnessed some occasional deficits in 2008-09, and 09-10
- Evidently , renewable power was not in demand and will never be in demand in the state at preferential/ higher tariffs without RPO regulation
- OREDA submitted Renewable Purchase Obligation (RPO) for the 1st obligated period from FY 2011-12 to 2015-16 in a Table below:

Table – 13

FY	Consumption (in MU)	Capacity Addition from different sources (in MW)					
		Solar	Wind	SHEPs	Bio-mass	Co-gen	Total
2011-12	30358	8	0	0	58	267	333
2012-13	36862	27	0	0	24	79	130
2013-14	39912	15	25	0	10	52	102
2014-15	40578	15	25	0	10	41	91
2015-16	43062	16	50	0	0	41	107
Total		81	100	0	102	480	763

- As per the Table above, OREDA estimates that the total RPO of the State is about 763 MW which is to be achieved over a period of 5 years by FY 2015-16.
- OREDA has outlined the following Action Plan to achieve the RPO as mentioned in the Table above.
 - Solar Power Obligation (SPO)
 - 2 MW commissioned.
 - 6 MW to be commissioned by October '11
 - 5 MW sanctioned under NVVN Scheme
 - 4 MW considered by STC RPO scheme.
 - 10 MW cleared by STC under REC mechanism
 - EOI is being floated for 50 MW
 - Solar parks to be created under Renewable Energy Industrial Park scheme being finalized with IDCO.
 - The above actions will take care the SPO upto FY 2015-16.
 - Renewable Power Obligation (excluding SPO)
 - Bio-mass
 - 20 MW completed
 - 98 MW at different stages of implementation
 - 10 MW cleared by STC on 20.7.11
 - 15 MW CGP cleared by STC on 20.7.11 which can trade RECs. Total-143 MW approved by STC.
 - All bagasse based CGPs owned by Sugar mills are being assisted to trade RECs

- Wind
 - Proposals for 72.25 MW in Damanjodi area are under active consideration
 - Proposal is being mooted by OREDA for 13.5 MW in Gopalpur
 - Wind Resource assessment is being taken up in 28 new sites
- The above actions contemplated for harnessing biomass and wind will meet the most of the RPOs (excluding Solar) during the 1st Obligated Period.
- State Technical Committee (STC) observations
 - STC has observed that
 - Renewable Energy Technologies are evolving
 - The Technologies are yet to be fully evolved for Solar Plants.
 - For Biomass, the cost and availability of Biomass are in question for all seasons in a year.
 - For Wind Energy the assessment of Energy Potential is time-taking exercise.
 - Renewable Energy are to be tapped but full potential will be realized through a concentrated effort of R&D for improving conversion efficiency and reducing Capital Cost especially in case of Solar Energy.
 - STC has recommended
 - State Technical Committee has recommended to invite Expressions of Interest for selection of developers for setting up new RE projects based on tariff based bidding subject to adherence of minimum technical and financial criteria.
 - STC has also recommended setting up of Renewable Energy Industrial Parks in different parts of the state as per suitability to provide common facilities like road, water, electricity and single window clearance.
- **On creation of a separate Green Power Corporations to execute RE Projects in the State with scale and speed to meet the requisite RPO as mandated under 1st Obligated Period of OERC and that of NAPCC, OREDA submitted as under:**
 - The above efforts of OREDA and the State Technical Committee speak amply of the seriousness for setting Renewable Energy Power Projects in the state, in the RPO regime and as well as the preparedness for the post RPO regime.
 - As such looking at the business on hand setting up of an independent Green Power Corporation may not be a viable proposition.

- **OREDA may be strengthened financially and manpower wise to take up the this important assignment to have still better focus.**
 - If at all a Green Power Corporation is felt necessary, the same may be created under OREDA as it has been done in case of West Bengal.
- (ii) EIC (Electricity), Govt. of Odisha submitted as under:
- EIC (Electricity) declared as Nodal Officer since 1998 for SHEPs. 57 MW SHEPs project have been developed through EIC (Electricity).
- (iii) Shri B N Ray, Ex-Chief Engineer submitted as under:
- OREDA in the present form can not execute commercial viable projects in time and the State will seriously suffer to meet RPO.
 - A new Green Power Corporation under Dept. of Energy may be created to implement the Govt. policies in Energy Conservation and Energy Security, harnessing Renewable Energy and Energy Audit of power intensive industries.
- (iv) Shri S K Jena, Ex-Member, OERC in his written note submitted as under:
- The State has to be a facilitator for installation of IPPs, development of Renewable Energy Sources, if shortage in RE generation is to be avoided.
 - Development of RE can be handled by suitably strengthening the EIC(Ele) establishment.
- (v) Shri K C Mohapatra, Ex-Chairman, OBSB on behalf of Project Development Consultants, Bhubaneswar has submitted as under:
- RPO fixed by OERC for the obligated period may have to be changed in respect of the percentage of share allowed for co-generation. It should be limited to 1% and balance should be supplemented from non-solar sources including small hydro projects.
 - UNDP under Energy Sector Management Assistance Programme (ESMAP), sponsored by World Bank. Prepared Project Feasibility Reports (PFR) for five states like, Andhra Pradesh, Himachal Pradesh, Karnataka etc. Odisha is badly lagging behind. Energy Deptt. may assign WAPCOS/Alternate Hydro Energy Centre (AHEC), Roorkee for preparation of 10/15 PFRs for SHEPs for each year.
 - Proof of financial soundness of Developers should be limited to the RE Project first applied for.
 - OREDA has placed orders on some Developers for setting up of Bio-mass Projects. Nothing materialized so far.
 - OREDA has received sanction for installation of 2 MW demonstration Wind Mill project at Damanjodi at NALCO. Years have passed but it is not forthcoming.
 - OREDA has assessed Wind Power Potential of the State as 1700 MW but even 1 MW has not been installed. OREDA should immediately float EOI for Wind Power Projects by utilizing the data available with C-WET.

- PDC, Bhubaneswar has informed that at the instance of Chief Secretary, GoO, Energy Department vide letter No. 9648, dated 30.10.2010 requested Science & Technology Department, GoO to prepare a Concept Paper on up gradation of OREDA to the status of a corporation in consultation with Energy Department, GRIDCO & other Stakeholders. No action has been taken by Science and Technology Department since last 11 months. PDC therefore suggest that OERC may decide Odisha Green Energy Development Corporation under Energy Department by December, 2011.
- (vi) Shri S K Nanda, Ex-Chairman, OSEB has submitted as under:
- A separate Green Energy Dept. or preferably an autonomous Green Energy Corporation may be constituted to look after all Green Energy Projects. All works related to Green Energy now vested with OREDA under Science and Technology Dept. or any other Organizations may be transferred to this Green Energy Corporation.
 - **A Monitoring Committee under the Administrative Dept. may be constituted to monitor the progress in generation of Green Energy and to expedite the action plan.**
- (vii) Shri Sanjeev Das, Convener Energy Panel, CII has submitted as under:
- Presently the RE sector in Odisha is looked after by multiple Govt. agencies. It will be appropriate to bring all RE projects under one umbrella by creating a new Green Power Corporation in line with the States like West Bengal, Rajasthan etc.
 - Govt. of Odisha should take up with major thermal power developers in Odisha to invest at least 10% of their investment in developing RE Projects.
 - OERC RPO Regulation, 2010 does not specify any penalty for non-compliance of REC/RPO. Non-imposition of penalty for non-compliance of RE Regulation will help GRIDCO to have a laid back approach but also does not encourage any DISCOMs to buy REC.
 - RPO targets should include solar and non-solar type of renewable power. There should not be any target for procurement of Co-Generation type energy by CGP or GRIDCO as there is a very limited availability of Cogeneration power in the State.
 - RE Power Plant is basically smaller power plants and are connected to DISCOMs network. The clarity is required on power transaction issue i.e. how the RE power can be sold to GRIDCO through a network of DISCOM. As such specific policy and power transaction principle amongst RE generators, OPTCL, DISCOM and GRIDCO should be framed.
 - State Government has created the State Energy Conservation Fund but unfortunately no money has been sought for, from the Central Government.

(viii) Shri R C Satapathy on behalf of National Institute of Indian Labour submitted as under:

- Expressed anguish and concern that OREDA being the Nodal Agency for development of RE power in Odisha has only added 1 MW Grid connected Solar Power Plant (SPP) and 57 MW Small Hydro Electric Projects (SHEPs) against huge opportunities for solar and alternate hydro potential of the State.
- As mandated under NAPCC and OERC Regulation, obligated entities of Odisha have to discharge their Solar Power Obligation (SPO) and other non-SPO during the first obligated period from FY 2011-12 to FY 2015-16.
- Due to poor development of RE power, during FY 2011-12 Odisha is slated to procure 61,000 Solar Renewable Energy Certificates (RECs) and 20,50,000 non-solar RECs from Power Exchanges at the Forbearance Price which may cost about Rs.90 crore during current FY 2011-12 and more than Rs.100 cr. in FY 2012-13 which will benefit others States like Rajasthan, Gujarat, Tamil Nadu etc. but passed on to consumers of Odisha through tariff.
- NIIL suggests the Commission to advise State Govt. to create Odisha Green Power Corporation (OGPC) under Dept. of Energy like AP, Karnataka, Rajasthan, West Bengal and Madhya Pradesh to harness RE potential of the State with scale and speed to meet the RPO for FY 2011-12 and thereafter.

(ix) Shri Bibhu Swain on behalf of Power Tech. Consultant submitted as under:

- Although Odisha has vast potential for harnessing RE sources, only 57 MW of RE from small hydro has been developed during the last 27 years.
- It will be appropriate to have all the RE projects under one umbrella instated of multiple Govt. agencies for expediting RE project in Odisha.
- Govt. of Odisha should take initiatives with the thermal power developers invest at least 10% of their investment in developing RE sources particularly in the solar PV and solar water heating
- RE based power plants are basically smaller power plant and remotely located and hence specific policy of connectivity, the voltage level and power transaction principle among renewable power plant, OPTCL, DISCOMS and GRIDCO should be framed.
- Fossil fuel based energy should not be considered under REC scheme or RPO obligation as this is contrary to the present provision of central agency.
- Presently 13 nos. CGPs in Odisha having Water heat recovery boiler which is one type of conventional power plant, as there are actually using coal, HSD, LDO, all of which are fossil fuels and hence can not be considered as co-generation plants. Hence these WHRB plants should be considered as obligated entities and liable for RPO.

- To meet the RPO requirements of GRIDCO and CGPs harnessing of RE project in Odisha is of prime importance today.
 - Govt. of Odisha should have a very good policy, provide land, grid connectivity etc. for establishment of RE projects particularly in the solar power generation.
- (x) Rural Electrification Corporation (REC), Bhubaneswar submitted as under:
- REC Ltd. is having a dedicated department/Team for looking after the Financing of schemes under Renewable Energy. REC Ltd. can financing any scheme under the Renewable Energy Sector.
- (xi) GRIDCO, Bhubaneswar submitted as under:
- GRIDCO wants that GRIDCO may be declared as “Green Power Corporation” for One Stop Solution for Renewable Energy need of Odisha so that RPO can be met.
- (xii) OPGC, Bhubaneswar submitted as under:
- On the issue of undertaking commercially viable grid connected RE Projects that are now required for Odisha to meet its RPO and involvement of multiple agencies in undertaking RE projects, OPGC suggests **a formation of Nodal Body with representation of OREDA, DoE, OHPC etc. to monitor the development of various projects in a time bound manner through PPP mode.**
- (xiii) Canyon Consultancy Pvt. Ltd., Bhubaneswar submitted as under:
- On the issue of RPO, Canyon suggested that Cogeneration is something which is more or less fossil fuel related energy generation. Hence should not be considered as a Renewable Source of Energy. It is just a pollution control and re-generation method which polluting industries should adopt.
 - In Odisha context the viable option for harnessing Renewable Energy are Small Biomass Projects (bellow 5 MW) SHE Projects upto 25 MW and Solar.
 - Canyon suggests not to restrict the percentage of RPO to a particular source of RE. The percentage of RPO should be on overall basis and any stakeholder may be free to procure under RPO the whole percentage from Wind/ Small Hydro/ Solar/ Biomass etc.
 - Canyon suggests that OREDA should be stronger and more responsible to develop Renewable Energy in Odisha to meet the RPO inducting more technical persons, Advisors, some Independent Directors so as to enhance the quality and proper execution of work required in the timeframe.
- (xiv) Shri R P Mohapatra, Ex-Member (Generation), OSEB submitted as under:
- It is no doubt true that the various institutions in charge of development of RE sources are ineffective and are working in isolation, thus hampering the development of the vast RE potential of the State.
 - While the potential of the Small Hydro Stations are very high, the development is hindered due to the failure of the Water Resources

Dept. to clear the designs, even after these designs are vetted by reputed Engineering Institutions like IIT, Roorkee etc. Therefore, the Water Resources Dept. should be entrusted only with certifying the hydrological data. The clearance of designs etc. should be under the EIC (Electrical).

- Creation of a Separate Organization for implementation of all Renewable energy sources will only add to the present confusion.
 - OREDA should continue as the Nodal Agency for harnessing Renewable Energy Sources, excluding Small Hydro Stations.
 - OREDA should be an Engineering Organization with adequate competent technical personnel relating to generation of power from solar, wind, biomass and other RE sources.
 - GRIDCO, who has to fulfill the RPO should also be proactive to sponsor RE sources.
 - OREDA should be suitably restructured and vested with adequate authority and should be the Nodal Agency for all RE sources except SHEPs.
- (xv) Shri William Bilung, Addl. Secretary on behalf of Govt. of Odisha, Science & Technology Dept. vide Lr No. 4940 dtd. 07.09.2011 submitted as under:
- Odisha has great potential to accelerate the use of its renewable sources to meet its energy requirement and enhance economic growth. Odisha has abundant renewable energy resources which is reflected in table below:

Table – 14
Potential of Renewable Energy in Odisha

(All in MW)			
Sl. No.	Renewable Energy Source	Gross Potential	Feasible Potential
1.	Solar-Photovoltaic	40000	8000
2.	Solar- Thermal	10000	2000
3.	Wind	1700	800
4.	Biomass-Paddy Husk	300	250
5.	Biomass – Paddy straw	600	250
6.	Other Bio-mass	800	250
7.	Bio-diesel	300	150
8.	Small Hydro Projects	120	120
	Total	53820	11820

- It is to state that OREDA will be able to fulfill the necessary requirement for harnessing the renewable energy potential in Odisha. OREDA has already taken steps for setting up Renewable Energy Power Plants in the State.
- The renewable energy sources will pick up in a big way in Odisha from FY 2012-13 onwards due to Wind Resource Assessment (with 80 mt. high mast), setting up of Renewable Energy Industrial Parks and Solar Industrial Parks, reduction in capital cost of solar energy and lower cost of generation of electricity resulting into good prospects in the technology for both solar and wind.

- Keeping in view the available potential, continuous improvement in the technology and reduction in cost of electricity generation, S&T Dept. and OREDA are taking timely action not only for meeting RPO but also harnessing renewable energy potential in a big way in Odisha.
 - In order to enhance the activities of OREDA, **necessary steps will be taken for raising the manpower with requisite expertise in future so that renewable energy is fully tapped for meeting energy requirement for the State.**
- (xvi) Shri Alekh Chandra Mallick, Ex-Director (Com.), GRIDCO submitted during the hearing as under:
- A Green Power Corporation may be created separately. Future belongs to Green Power with limited scope for Wind / Biomass / Small hydel-Solar should be given due importance & effort to develop full potential of SHP / Biomass / Wind / waste tp energy should be undertaken.
 - Renewable Projects should not be allowed to set up their plant here & sell through REC till Odisha RPO requirements are unfulfilled.
 - There shouldn't be any apprehension as that creating additional corporation will be costly.
 - In fact by neglecting this upcoming area will make us suffer more. The initiative taken to add renewable potential in the State has recently suffered due to lack of expertise in different utilities coupled with lack of awareness by top bureaus.
 - The Green Corporation if created, GRIDCO may be declared as a Green Power Corporation. The corporation should be manned by proven man power.
 - The activity of OREDA should be limited to look in to 'micro' aspects in 'green' energy revolution with emphasis on providing service to people.

D. The Commission vide Lr. No. 1544 dtd. 23.08.2011 sent the suggestions/views received on Harnessing Renewable Energy to meeting Renewable Power Obligation (RPO) to Principal Secretary, DOWR, Secretary DoE, Secretary, S&T Detp., CMD GRIDCO, Chief Executive, OREDA, EIC (Electricity), GoO and MD OHPC to offer the specific views of the State Govt., GRIDCO, OREDA, EIC (Electricity) and that of OHPC and submit before the Commission on or before 31.08.2011. The status of response as well as the comments received from the following utilities/organization are mentioned as under:

- DOWR, Govt. of Odisha has not offered any views.
- DoE, Govt. of Odisha has not offered any views.
- S&T Dept., Govt. of Odisha has offered their views which have been already mentioned at Para 6 (C) (xv).
- EIC (Electricity), Govt. of Odisha has not offered any views.
- OREDA submitted their views which have been already mentioned at Para 6 (C) (i).
- **On the Action Plan to meet RPO and purchase of costly REC, GRIDCO has submitted as under:**

- Gridco has made PPAs for 38 MW Solar Power 8 MW (1 MW each) + 20 MW from NVVN + 10 MW from NTPC
- GRIDCO has signed PPAs for 118 MW for Bio-mass Plant
- GRIDCO has signed PPAs for 67 MW from SHEP
- GRIDCO is yet to sign PPA for wind energy. It is learnt that OREDA is on the verge of giving clearance for 70 MW of wind power projects.
- **On the issue of Green Power Corporation**, GRIDCO submitted as under:
 - GRIDCO is the existing “**State Designated Entity**” to sign PPAs with all the developers including the developers of Renewable Energy in the State.
 - There is increased demand of RE needs all over the country, which, in turn, necessitates increase in implementation of RE projects
 - With the available expertise, GRIDCO shall meet our State’s obligation as well as other States’ requirement
- GRIDCO has, therefore, proposed that Govt. of Odisha may declare GRIDCO as Green Power Corporation to implement all Renewable Energy Projects in the State with scale and speed to meet RPO.
- **On the issue of GRIDCO should ask NTPC to put Solar Power Projects at backward districts of Odisha to meet the SPO instead of purchasing from NTPC Projects at Dadri & Faridabad**, GRIDCO submitted that
 - GRIDCO is committed to meet its SPO specified by the Hon’ble Commission. As the required obligation not being met from the existing solar plants coming up in the State, GRIDCO has signed PPAs with NTPC & NVVN. Further, NVVN is putting up 2 MW solar projects in Bolangir district, power from all the solar projects coming up in the State can be purchased by GRIDCO
- **On the development of Small Hydro Electric Projects**, OHPC submitted that OHPC has informed DOWR, Govt. of Odisha for its interest to take up Small Hydro 9 MW project at Bargarh Head Regulator in Bargarh District and 3 MW Kanupur Dam Head Regulator at Keonjhar District.

7. **Any other suggestions/opinions/views for strengthening Odisha Power Sector.**

A. Details in Consultative Paper

The Commission invited that apart from the major issues like Capacity Addition in 12th Plan, Associated Evacuation Plan, Energy Conservation and Energy Efficiency and Harnessing of Renewable Energy Potential of Odisha to meet Renewable Purchase Obligation (RPO) any other suggestions/opinions/views for strengthening Odisha Power Sector shall also be welcome.

B. The Respondents during hearing on 08.09.2011 and 17.09.2011 and some of the respondents through their written note submitted as under:

- (i) OREDA, Bhubaneswar submitted as under:
 - OERC vide Notification dtd. 30.09.2010 have considered fossil based Cogeneration as a means of fulfilling RPO and assigned more than 70% of the RPO to cogeneration which restricts the propagation of RE power in the State.

- Cogeneration taken under RE is not correct and appropriate to be categorized as Renewable Energy as it is purely coal based power generation. It needs to be dropped and it needs to be restricted to only Renewable Sources of Energy as prescribed by MNRE. The Commission may reconsider its order on RPO and consider to redistribute RPO under the proper categories of renewables.
- (ii) EIC (Electricity), Govt. of Odisha submitted as under:
- EIC (Electricity) suggests that a separate discussion on the AT&C loss, initiatives in reduction and results in past years are required since the Consultative Paper is also on Energy Efficiency and Energy Conservation. He further suggested that a Core Committee shall be formed to look after this issue regularly.
 - The need to be bring OREDA under administrative control of Energy Dept. has already been suggested by the Standing Committee to Energy Dept. for better promotion of Renewable Energy in the State.
 - A separate Workshop may be organized to address the issues regarding the development of Small/Mini/Micro hydel projects and a serious thinking and effort are required to be given to find out the realistic solution if the objective of RE is to be achieved.
- (iii) Shri B N Ray, Ex-Chief Engineer submitted as under:
- The planning for generation, transmission and distribution should be planned in a time horizon of 50-100 years.
 - The high capacity transmission corridors, multi-circuit lines may be planned due to constrain in getting corridors for transmission as well as for distribution system.
- (iv) Shri K C Mohapatra, Ex-Chairman, OBSB on behalf of Project Development Consultants, Bhubaneswar has submitted as under:
- There are two Policy Guidelines, one from Energy Deptt. and another from Science & Technology Deptt. having a lot of anomalies. A revised policy Guidelines for harnessing RE Sources may be brought out by the State Govt. early.
 - Copy of the Cabinet Resolution and Article Association of West Bengal Green Energy Corporation (WBGEC) was submitted to Chief Secy., Odisha on 01.10.2010.
 - The Ministers in charge of Science & Technology Deptt. were appraised on 22.1.2011 and 06.7.2011. There has been no action. Immediate action of Chief Secretary is required for expeditious decision of the Govt.
- (v) Shri S K Nanda, Ex-Chairman, OSEB has submitted as under:
- On Demand Side Management of DISCOMs, he suggested as under:
- The LT distribution loss may be reduced to the desired level as fixed by the Commission from time to time.
 - DISCOMs may avail fund from EEFP for reduction of distribution loss through Energy Audit of their Distribution System.

- DISCOMs should also encourage use of energy efficient equipment and gadgets in collaboration with the manufacturers and provide incentives in form of purchase of equipments on hire purchase basis to be collected from the consumers through electricity bills through a tripartite agreement with the Supplier, Bank and Consumers.
- (vi) Shri R C Satapathy on behalf of National Institute of Indian Labour submitted as under:
- Expressed anguish and concern that SLDC even after ring fencing by the Commission since 1st April, 2009 has failed to function as an Independent System Operator.
 - The financial and operational functions of SLDC are in very bad shape in spite of specific fund allocation for establishment EASSC, since last three years, OPTCL failed to install EASSC under SLDC till date for which State Energy Accounting, weekly UI accounting etc. are held up.
 - With the approval of MoP, an autonomous Power System Corporation of India (POSOCO) is functioning since March, 2009 as a subsidiary of POWERGRID. A similar subsidiary Odisha Power System Corporation Ltd. (OPSCL) may be created immediately to manage SLDC. Govt. of Odisha, DoE should be advised suitably.
- (vii) Rural Electrification Corporation (REC), Bhubaneswar submitted as under:
- REC is having two nos. of wholly owned subsidiaries to look after the different areas of specialization:
 - REC PDCL: (a) To promote develop, construct, own, operate, distribute and maintain 66 KV and below system and lines. (b) Promote develop, construct, own and manage Decentralized Distributed Generation (DDG) and associated distribution system.
 - REC TPCL: To promote develop, construct, own, operate, distribute and maintain 66 KV and above system and lines.
- (viii) Shri Bibhu Swain on behalf of Power Tech. Consultant submitted as under:
- RPO targets should be fixed for solar and non-solar type of renewable power. There should not be any target for procurement of Cogeneration Power by CGP or GRIDCO as there is very limited RE based cogeneration potential available in the State. It will be inappropriate to consider fossil fuel based energy under REC scheme as this is contrary to the present provision of Central Agency.
 - 13 nos. of Co-Gen plant are actually using Coal, HSD and LDO all of which are fossil fuels as they are not using the non-fossil fuel like Rice Husk, Coffee Husk, Wood Waste etc for their generation. Waste Heat Recovery Boiler (WHRB) is also one type of conventional power plant and hence can't be considered as Conventional plants.
 - These WHRB Plants should be considered as Obligated Entities and are liable for RPO.
 - The compliance auditor as per the RPO & compliance regulation should be appointed by the Commission at the earliest.

- Govt. of Odisha should have a very good policy; provide land, grid connectivity etc. for establishment of RE projects particularly in the solar power generation.
- (ix) Shri J K Mishra, Ex-Sr. GM, OPTCL submitted as under:
- Shri Mishra advocated for using SMARTGRID in Transmission Network of Odisha while recommending for electricity augmentation planning upto 2020.
 - SLDC should be totally independent of all other Constituents of Power Sector.
 - All new Substations should have Equipments conforming to IEC61850 Protocol.
 - All existing Substations Equipments should be replaced by equipments conforming to IEC1850 standards over a definite period.
 - All Substations should have GPS synchronizing equipments so that all metering, control equipments, monitoring equipments should have a common time base.
 - Complete full proof planning for SMARTGRID using Phase Monitoring Units (PMUs) and Voltage Instability Predictors (VIPs) etc. and that should be the responsibility of SLDC.
- (x) OPGC, Bhubaneswar submitted as under:
- The State Govt. should consider floating of tariff based Case-II Projects through a Nodal Agency instead of signing MoUs with Power Developers.
 - On the issue of failure of Odisha to participate in 1st Phase of Orange Revolution organized by MoP, MNRE etc. in January, 2011 and strengthening of the implementing agency to implement and monitor the Energy Conservation and Energy Efficiency projects with scale and speed, OPGC suggests the Govt. mechanism in its present form will not be able to give justice to the efforts even if the EIC (Electricity) is further strengthened. Appointing a Central /State PSU or a separate agency as a SDA will be a better option.
 - On the issue of Demand Side Management, OPGC suggests that the foremost requirement is to mandate system and processes to bring in transparency in operation.
 - OPGC of the view that development of distribution business is a paramount importance if the entire cycle of power sector is to succeed. A service and efficiency oriented business is the need of hour.
- (xi) Canyon Consultancy Pvt. Ltd., Bhubaneswar submitted as under:
- A proper study may be done for real assessment of the Solar Potential of the State and OREDA's assessment of 14000 MW solar potential is logical which will be more if Roof Top Solar potential is taken into consideration. The State Govt. should come up with a Solar Map.
 - Canyon suggests that Smart Grid adoption will increase the sustainability and enhance the quality of supply and reduce the theft of electricity in the State.

- Canyon suggests that GRIDCO should ask NTPC to put some Solar Power Projects in the remote areas at Kandhamal, Nawarangpur and other backward districts to meet the SPO of Odisha in stead of purchasing Solar Power from NTPC Projects at Dadri and Faridabad.
 - Canyon also suggests for adoption of IGBC or LEED Certified Green Buildings in the State.
- (xii) NTPC through a written note submitted as under:
- NTPC has suggested the following action points for tackling delay in Coal Block development in Odisha.
 - Creating of Special Cell for processing of NTPC's land acquisition & forest proposal will help in expeditious processing of proposals.
 - Early finalization of land rates by Sundargarh Dist. Admin. may be facilitated for preparation of Rehabilitation Action Plan (RAP) by NTPC.
 - Early processing of forest proposal and its forwarding to MoEF.
- (xiii) Shri R P Mohapatra, Ex-Member (Generation), OSEB submitted as under:
- The Demand Side Management Regulation under finalization by OERC should have the following provisions.
 - There should be provision of penalty on the DISCOMs for non-performance, in addition to incentive for achieving targets.
 - That the benefits to the consumers, particularly in the non-industries section should be widely publicized both in the print and audio-visual media, in addition to the DISCOMs organizing consumer meets in the rural / urban areas. It should be clearly brought to the notice of the consumers how use of energy efficient products and design of houses to permit long hours of natural light etc., will result in financial benefit.
 - It is needless to say that the illegal extraction of energy from the distribution system should be drastically reduced, if not totally eliminated. The present attitude of the State Govt., regarding functioning of the Energy Police Stations / establishment of Special Courts has to change, so as to prevent illegal extraction of energy.
 - OERC should closely monitor the performance of the DISCOMs so that the Demand Side Management is effective.
- (xiv) Shri Alekh Chandra Mallick, Ex-Director (Com.), GRIDCO submitted during the hearing as under:
- SLDC should be separated and to be led with person having strong back ground with regulatory, open access, ABT & someone who can effectively coordinate with Govt., Transmission, Distribution, Gridco, ERPC, ERLDC & POSOCO.
 - While industries & IPPs are displacing and setting up projects, it is very dis-attending that OHPC which were heavily criticized for not adding '1 MW', their proposal of Sindols are out rightly rejected. Media & People should rise to the occasion to extent supportive hand.

They should not only connect on lack of performance of utilities but encourage if an utility is working towards better.

(xv) Shri Sanjeev Das, Convener Energy Panel, CII has submitted as under:

- Most utilities are in debt crunch. An amount of Rs.75000 Cr. is the estimated debt of all State utilities combined. Power developers will find it difficult to have a contract and work their business plans besides debt servicing.

C. The Commission vide Lr. No. 1547 dtd. 23.08.2011 sent on any other point for strengthening of Odisha Power Sector to Secretary DoE, Secretary S&T Detp., CMD GRIDCO, CMD OPTCL, Chief Executive, OREDA, EIC (Electricity), GoO and CEO of all 4 DISCOMs to offer the specific views of the State Govt., GRIDCO, OREDA, EIC (Electricity), OPTCL and that of DISCOMs and submit before the Commission on or before 31.08.2011. The status of response as well as the comments received from the following utilities/organization are mentioned as under:

- DoE, Govt. of Odisha has not offered any views.
- S&T Dept., GoO has not offered any views.
- EIC (Electricity), Govt. of Odisha has not offered any views.
- OREDA has not offered any views.
- GRIDCO has submitted its views as under:
 - **On the issue raised by NTPC that GRIDCO insisted to develop evacuation system by itself for the State share of power from upcoming NTPC Stations in Odisha and declined to to give consent to sign BPTA with PGCIL**, GRIDCO submitted that OPTCL is making necessary arrangement for power evacuation of the State share for which consent to sign BPTA with PGCIL by NTPC has not been given
 - **On the issue raised by OPGC for appointing a Central/State PSU or a separate agency as a SDA for energy conservation and efficiency measures**, GRIDCO submitted that GRIDCO having the required infrastructure and expertise may be considered as the SDA of Odisha.
 - **On the issue raised by M/s. Canyon Consultancy Pvt. Ltd. that GRIDCO should ask NTPC to put Solar Power Projects at backward districts of Odisha to meet the SPO instead of purchasing from NTPC Projects at Dadri & Faridabad**, GRIDCO submitted that GRIDCO is committed to meet its SPO specified by the Commission. As the required obligation not being met from the existing solar plants coming up in the State, GRIDCO has signed PPAs with NTPC & NVVN. Further, NVVN is putting up 2 MW solar projects in Bolangir district, power from all the solar projects coming up in the State can be purchased by GRIDCO
 - **On the issue raised by EIC (Electricity), Odisha for formation of a Core Committee on reduction of AT& C loss, bringing OREDA under administrative control of DoE, GoO for promotion of RE and organizing a workshop to address development of SHEPs in the State**, GRIDCO submitted that GRIDCO agrees with the above views of EIC (Electricity), Odisha. GRIDCO is making its all out

effort to meet the RE requirements as specified by the Commission for the respective years through the available means.

- OPTCL in its response vide Lr. No. 687 dtd. 03.09.2011 submitted its views as under::
 - **On functioning of SLDC as independent system operator**, OPTCL submitted that as a part of the ring fencing exercise SLDC is practically functioning as the independent system operator with the financial and operational autonomy. After segregation of assets and liability of SLDC and full fledged reinforcement of SLDC with requisite human resource and infrastructure, a subsidiary Odisha Power System Corporation Limited (OPSCL) like POSOCO may be created by Govt. of Odisha.
 - **On the suggestion to form State Level Nodal Team to demarcate 'Transmission Corridors'**, OPTCL submitted that OPTCL will develop Transmission Corridor Plan in consultation with GA Dept., Revenue Dept., Forest Dept, Industry Dept. and Regional Development Agency.
 - **On evacuation of Odisha share of 3860 MW power from Darlipalli, Gajamara and TTPS State-III of NTPC**, OPTCL submitted that Odisha share of power from the upcoming NTPC projects will be evacuated through CTU network. OPTCL network will not be directly involved in the evacuation process.
 - **On the suggestion of formation of a State Level Integrated Planning Body to plan, co-ordinate and advise the power sector**, OPTCL submitted that the State Level Integrated Planning Body may be formed to be headed by Engineer-in-Chief (Electricity) to function under the supervision of the Dept. of Energy, Govt. of Odisha.
 - **On the suggestion of REC to be a partner with development of transmission network in Odisha**, OPTCL submitted that REC TPCL has been requested to offer their consultancy services for 7 nos. EHT Grid sub-stations and transmission lines to be establish in Odisha through PPP mode and competitive tariff bidding route.
 - **On the response for introducing SMARTGRID in transmission network of Odisha using Phase Monitoring Units (PMUs) and Voltage Instability Predictors (VIPs) and all the new sub-stations should have GPS synchronizing equipments conforming to IEC61850 Standards Protocol**, OPTCL submitted that the proposal SMARTGRID in transmission network is being examined by OPTCL and appropriate decision will be taken in this regard. GPS clock have already been installed in 22 nos. of Grid sub-stations in the first phase and it will be extended to all Grid sub-station in second phase. The relay of new Grid sub-station will conform to IEC61850 Standards Protocol. PGCIL will install PMUs in some strategic locations. These PMUs can take care of some of the 220 KV network elements of OPTCL. However, OPTCL will examine and if required will use PMUs and VIPs in future.

Commission's Observations

8.0 General

8.1 We had floated a Draft Consultative Paper on Odisha Power Sector on the following 5 (five) issues in OERC website www.oriarc.org on 2nd July, 2011 and had published Public Notice in local Newspapers 2nd and 3rd July, 2011 inviting the views/suggestions on the Consultative Paper for submission by 31.07.2011.

- Action Plan to meet the Power Demand of the State upto 2016-17 (end of the 12th Plan);
- Action Plan for Evacuation Plan from the IPPs/ MPPs including Odisha share of Power.
- Promotion of Energy Conservation and Energy Efficiency – need for re-organisation and restructuring;
- Harnessing Renewable Power both Solar and Non-Solar and to promote Cogeneration to meet Renewable Purchase Obligation (RPO) of the State.
- Any other suggestions/opinions/views for strengthening Odisha Power Sector excepting the issues mentioned above.

8.2 We had sent the copy of the Draft Consultative Paper as well as the copy of the Public Notice to Secretary, Dept. of Energy, Govt. of Odisha and EIC (Electricity) vide OERC Lr. No. 1191 dtd. 05.07.2011 to submit the views of the Govt. and that of EIC (Electricity) by 31.07.2011. The views /comments received from individual / industry bodies / Govt. Organizations on the Draft Consultative Paper were sent vide OERC Lr. Nos. 1543-1547 all dtd. 23.08.2011 to offer the specific views of the State Govt. and that of EIC (Electricity) by 31.08.2011. We had neither received any comment/view from Dept. of Energy GoO nor from EIC (Electricity) despite giving sufficient opportunity till writing of this order on 23.09.2011.

8.3 During 1st hearing on the Consultative Paper on 08.09.2011, nobody from Dept. of Energy attended and during 2nd hearing on 17.09.2011, EIC (Electricity) on behalf of Govt. requested for another 7 (seven) days time to submit the views of the Govt. to which we directed him to submit views of the Govt. by 20th September, 2011. With deep anguish, we are forced to record here that Dept. of Energy has not furnished the views of the State Govt. on the issues mentioned at Para 8.1 above either in writing or orally during the two hearings held on the aforesaid Consultative Paper though the Dept. of Energy – the Administrative Dept. of Govt. of Odisha is responsible to ensure that power is available to meet the growing demand of the State of Odisha.

9.0 Analysis of Power Demand of Odisha upto FY 2016-17 (end of 12th Plan)

9.1 We have three scenarios of Power Demand Forecast before us as shown in table:

Table – 15
Power Demand Forecast(In MW)

FY	Submitted by OPTCL to OERC	As per 17th EPS of CEA	As per 18th EPS (Draft) of CEA
2011-12	4300	4459	3998
2012-13	5270	4783	5030
2013-14	5694	5130	5327
2014-15	5927	5502	5409
2015-16	6135	5902	5594
2016-17	6362	6330	5786

- 9.2 We have observed that Odisha has witnessed a GSDP growth @9.57% per annum during first three years of 11th Plan from FY 2007-08 to 2009-10 (2007-08 – 10.91%, 2008-09 – 7.24% and 2009-10 – 10.57%) and due to massive industrialization and rural electrification under RGGVY, BGJY and BSVY, the demand for power is slated to grow @ 10% per annum during 12th Plan.
- 9.3 We have, therefore, considered the demand forecast of 17th EPS as acceptable one and comparing the capacity addition expected during 12th Plan period projected by GRIDCO, we had observed in the Draft Consultative Paper that Odisha Power System may witness surplus both in Capacity and Energy from FY 2013-14 onwards.
- 9.4 Confederation of Indian Industry (CII), National Institute of Indian Labour and some other respondents during hearing submitted before us that non-availability of required quantity of indigenous coal from Coal India Ltd. (CIL), high volatile international market price for imported coal, lack of Common Railway Freight Corridors in Mahanadi Coal Field Area proposed to be built by IDCO, lack of Port capacity, reluctance of Financial Institutions to sanction loan for Power Sector specifically for Thermal and Hydel Projects and crashing of market price in Indian Capital Market etc., may negate the expected capacity addition during 12th Plan and therefore, Odisha may witness a power shortage scenario right up to end of 13th Plan (FY 2021-22).
- 9.5 We have also perused two recent Notifications of the MoP, GoI which are mentioned below:
- **Memorandum dtd. 17.06.2011 which underlines the following criteria for coal linkage for Thermal Power Plants for 12th Plan**
“Actual Drawal of Coal will be subject to 85% of Power being tied up through long-term PPA with DISCOMs through Tariff-based Competitive Bidding (except PSU Projects where PPAs were signed by 05.01.2011.)”
 - **Notification of July, 2011 of MoP, GoI mentioning Sector wise priority for coal and the allocation during 12th plan period shall be as under:**
 - 65% for Power Projects under Central Power Sector Utility.
 - 30% for IPP projects
 - 5% for CGPs
- 9.6 GRIDCO and OPTCL have submitted before us that PRDC, Bangalore made a study by Monte-Carlo Simulation Method as well as by Analytical Method to assess the quantum of surplus power during the terminal year of 11th Plan i.e. during FY 2011-12 and during 12th Plan period based on the forecast of demand made by OPTCL as well as in 17th EPS of CEA mentioned in Para 8.4 above and submitted their Report to GRIDCO in August, 2011 which observes as under:
- “Odisha State will not be surplus up to FY 2015-16 and Odisha Power Sector would witness a surplus scenario from FY 2016-17 onwards.”*
- 9.7 We have analysed the emerging power scenario of Odisha during 12th Plan as shown in table below:

Table-16**Emerging Scenario of deficit/surplus of power during FY 2011-12 & 12th Plan period***(All in MW)*

FY	Peak Demand as per 17 th EPS of CEA	Maximum Peak Demand that can be met	Deficit(-)/Surplus(+)
2011-12	4459	3125	(-)1334
2012-13	4783	3650	(-)1133
2013-14	5130	4050	(-)1080
2014-15	5502	4200	(-)1302
2015-16	5902	5880	(-) 22
2016-17	6330	9768	(+)3438

- 9.8 We are, therefore, inclined to accept the submission of GRIDCO and OPTCL that Odisha Power Sector will witness a shortage scenario up to FY 2015-16 and will witness a long term surplus scenario from FY 2016-17 onwards.

10.0 Evacuation Plan from IPPs/MPPs

- 10.1 We had observed in the Consultative Paper that the associated Transmission Network and Evacuation Plan for transfer of power to be generated from new generating stations including drawal of State quota of power from IPPs, MPPs and Central Sector Power Stations located in Odisha are yet to be finalized.
- 10.2 We had also observed that IPPs and MPPs signed MoUs with the State Govt. had applied to CTU for connectivity. We had mentioned the classic example of evacuation of State share of power of 768 MW from M/s. SEL (2400 MW), Jharsuguda. The State is now availing about 250 MW from M/s. SEL through the existing 220 KV transmission network and for balance 518 MW, Odisha consumers will have to bear the CTU charges and CTU losses for evacuation of such state share of power through CTU network which is about 35 paise/Kwh over and above the OPTCL transmission charges of 25 paise/Kwh.
- 10.3 We have, therefore, invited suggestion that what best arrangement will be appropriate for OPTCL to adopt so that the evacuation system should be ready at least 6 months ahead of the commissioning of the units of forth-coming Thermal Projects in the State so that the State is not required to pay CTU wheeling charges and transmission loss to draw Odisha share of power rather the State will have an opportunity to earn revenue in wheeling full IPP/MPP power to outside the State.
- 10.4 OPTCL submitted before us during hearing on 17.09.2011 as under:
- OPTCL has estimated that 16 nos. of IPPs and MPPs (Details at Annexure-B) having installed capacity of 24190 MW from which Odisha share of 8273 MW are expected to be under commercial operation during 12th Plan period for which OPTCL has planned **Phase-I Evacuation Plan**.
 - Under the proposed **Phase-I Evacuation Plan** 5 nos. of 400 KV Pooling Stations at Lapanga, Nisha, Khuntuni, Bhusan and GMR are being planned.

- OPTCL has proposed that out of 5 nos. of Pooling Stations, Lapanga will be constructed by OPTCL and other 4 nos. Pooling Stations will be executed on Design, Build, Finance, Operate & Transfer (DBFOT) model for 25 years and to be transferred to OPTCL after 25 years.
- OPTCL has proposed that other IPPs and MPPs including OPTCL will be considered in **Phase-II Evacuation Plan**.
- OPTCL has suggested that Odisha share of 4860 MW from Gajamara, Darlipalli and TTPS Stage-III of NTPC and that of Odisha UMPP expected from FY 2016-17 onwards may not be required for consumption in Odisha hence GRIDCO can sell directly this quantum of power to outside State through Inter-State Transmission System (ISTS) Network.
- OPTCL has estimated that by such arrangement 15260 MW power will be evacuated through STU Network and 19050 MW power will flow directly to CTU Network

10.5 We have observed from the Press Release of Dept. of Energy in Business Standard dtd. 20.09.2011 that the following 4 (four) IPPs / MPPs are expected to be under commercial generation by September, 2012.

- GMR Kamalanga Energy Ltd. – 1400 MW
- KVK Nilachal Power Ltd. – 1050 MW
- Monnet Power Company Ltd. - 1050 MW
- Ind-Barath Energy Ltd. - 700 MW

10.6 We have also observed from the aforesaid Press Release only 6 (six) IPPs / MPPs have made some significant investments in Odisha for their TPPs as mentioned hereunder:

Table - 17

Name of the Company	Amount Invested
Sterlite Energy Ltd.	Rs.7400 Cr.
Ind- Barath Energy (Utkal) Ltd.	Rs.1200 Cr.
GMR Kamalanga Energy Ltd.	Rs.1145.83 Cr.
Jindal India Thermal Power Ltd.	Rs.641.58 Cr.
Lanco Baband Power Ltd.	Rs.873.12 Cr.
Monnet Power Company Ltd,	Rs.570 Cr.

10.7 In view of various constraints submitted before us for execution of Thermal Power Plants both under MoU and Merchant Route mentioned in Para 9.4 above and the recent policy changes for availability of coal to new IPPs and MPPs by MoP, GoI mentioned in Para 9.5 above, we do not visualize of commercial generation of power from 16 nos. of IPPs and MPPs during 12th Plan period submitted by OPTCL before us (mentioned in Annexure-B enclosed herewith) having installed capacity of 24190 MW from which Odisha share is about 8273 MW.

10.8 We are of the view that OPTCL should re-look their **Phase-I Evacuation Plan** based on the ground status of IPPs/MPPs for commercial generation of power and prioritize 400 KV State Pooling Stations with associated connectivity to the IPPs/MPPs. We feel, in any case, 400 KV Lapanga Pooling Station is already delayed which should be constructed by OPTCL on war footing.

11.0 Energy Conservation & Energy Efficiency

- 11.1 We have perused the Energy Conservation Act, 2001 which is in force since October, 2001 which stipulates and MoP Gazette Notification dtd. 19.03.2007 notifies that 9 Power Intensive Industries viz. Thermal Power Stations, Fertilizer Plants, Cement, Iron & Steel, Aluminium, Railways, Textiles and Pulp & Paper Industries are Designated Consumers which should follow mandatory Energy Efficiency standards.
- 11.2 We have observed that the Prime Minister's Council on Climate Change approved "in principle" one of the core mission of NAPCC i.e. National Mission on Enhanced Energy Efficiency (NMEEE) on 24.08.2009. The Union Cabinet on 24.06.2010 had approved the implementation framework for NMEEE which seeks to strengthen the market for energy efficiency by creating conducive regulatory and policy regime.
- 11.3 We have further observed that Govt. of India through a Press Note dtd. 24.06.2010 announced that NMEEE has envisaged to foster innovative and sustainable business model on a Public-Private-Partnership (PPP) basis which is estimated to be around Rs.74, 000 Cr. by 2014-15 which will help achieve total avoided capacity addition of 19,598 MW, fuel saving of around 23 million tonnes of energy equivalent per year and Green House Gas (GHG) emission reductions of 98.55 million tonnes per year.
- 11.4 We have observed that NMEEE spelt out 4 new initiatives to enhance energy efficiency like PAT, MTEE, EEP and FEEED and the flagship of the Mission is Perform, Achieve and Trade scheme (PAT) - a market-based mechanism to enhance energy efficiency in 714 nos. of the 'Designated Consumers' (large energy-intensive industries and facilities).
- 11.5 We have observed that Bachhat Lamp Yojana (BLY) was launched by Govt. of India, MoP on 25.02.2009. AP, Uttarakhand, Rajasthan, Himachal Pradesh, Punjab, Kerala, Karnataka, Assam, Delhi, Madhya Pradesh, Chhattisgarh and Haryana have implemented BLY in their States by distributing 20 million CFL bulbs and have reduced their Evening Peak Demand. Haryana had showcased Sirsa District as First District of India having 100% CFL installation for domestic, commercial and public institution categories of consumers.
- 11.6 We have further noted that Odisha has the potential of saving of about 400 MW in Evening Peak hours if 100% CFL installation like Sirsa District of Haryana is achieved, but even after 2 ½ year of launch of BLY in National level, not a single CFL bulb under BLY scheme has been installed in any of the areas of 4 nos. of DISCOMs of Odisha.
- 11.7 We have therefore, sought the opinion on how the office of the EIC (Electricity), Odisha is required to be strengthened so that it can play the effective role of SDA of Odisha to implement and monitor the Energy Conservation and Energy Efficiency Projects with scale and speed which is the need of the hour. What would be the appropriate approach whether to strengthen the present organization under EIC (Electricity), Odisha or to designate any of the State Power Sector PSU as SDA of Odisha?
- 11.8 During hearing on 08.09.2011 EIC (Electricity), Govt. of Odisha submitted before us as under:
 - The last "BLY Stakeholder Consultation Meet" was organized by BEE on 16.03.2011 to monitor and review the status of BLY implementation in the country.

- Kerala SDA have presented its successful implementation whereas other states raised different problems faced in carrying out such implementation.
 - SDA, Odisha has suggested the State Govt. to adopt an alternative financing model in line with Kerala Model for successful implementation of BLY in the State in response to compliance of the Standing Committee relating to Energy Dept.
 - One of the primary and preliminary requirements of PAT was identification of Designated Consumers (DCs) in the State of Odisha. SDA Odisha has successfully conducted such survey for updating the DCs list and for identification of new DCs of the State besides actively interfacing with them for furnishing energy returns.
 - Workshops on e-filing of energy returns was also organized by SDA Odisha.
- 11.9 We have received a number of views like creation of an Independent Authority / Corporation to handle Energy Conservation and Energy Security etc., for creation of a separate Chief Engineer under EIC (Electricity) who may be assigned all programs under Orange Revolution, Energy Conservation and PAT Scheme under NMEEE etc., to assign a State Sector PSU / Central Sector PSU to execute Energy Conservation (EC) & Energy Efficiency (EE) Scheme with scale and speed, to assign Energy Efficiency Projects to OREDA and to declare GRIDCO – a State PSU as State Designated Authority (SDA) of Odisha.
- 11.10 GRIDCO has submitted that GRIDCO is better equipped to handle EC and EE Projects with scale and speed and has expressed its willingness to act as SDA of Odisha and has submitted the following Road Map for implementation of EC and EE Schemes which is as under :
- Energy Auditing
 - Formulation of strategies and creating awareness among people about the benefits of Energy Conservation and Efficiency on the pattern of PCRA doing the job of conservation in the Petroleum Sector.
 - R&D Activities to reduce Energy usage & promote efficiency.
 - Impact studies
 - Industry sponsored projects
 - Training & Technical Advisory Services.
 - Institutional (National & International) linkages to share energy conservation tips
 - Educational Campaign in Schools/Colleges
 - Any other Programmes as are envisaged in the NMEEE Guidelines etc.
- 11.11 Power Tech Consultants, Cuttack submitted before us that BEE has identified 498 nos. Designated Consumers (DCs) in India under 1st PAT Cycle and PRDC – the Empanelled Agency of BEE for Odisha with consultation of SDA of Odisha has only included 32 nos. of DCs under 1st PAT Cycle (the detailed list is enclosed as Annexure-C) whereas at least 100 nos. of DCs of Odisha should have been included as all the 9 (nine) categories of Power Intensive Industries mentioned in Para 8.19 above are available in the State of Odisha.

- 11.12 We have also noted that at Para 7 of Summary of Discussion and Action Point for Compliance decided in the 4th State Co-ordination Forum meeting held on 28.06.2011 it was stated as under:

“7. Regarding Energy Conservation and Energy Efficiency it was indicated by the Additional Secretary, Department of Energy that EIC(Electricity) has been notified as the Nodal Agency to oversee various action relating to various energy conservation and energy efficiency measures and an Executive Engineer has been specifically assigned the job. But it was noticed that because of inadequate manpower no perceptible steps have been taken in the matter of energy conservation and energy efficiency. Much more is needed to create public awareness for the need of energy conservation and use of energy efficient equipment. These measures have large potential of saving energy and thus avoiding the need for additional generation to that extent. Besides this, a dedicated cell is required to study various policy documents of Govt. of India and submit proposals for accessing Central fund. Further, since Govt. of India is receiving Rs.50 per ton for coal exploitation in the State, it is all the more necessary to claim fund from the Green Energy Fund available with Govt. of India. This would be possible only when we exploit our mini/small hydro potential as well as take concrete steps for generation of energy from other renewable sources such as solar, wind, biomass etc. It is suggested that a dedicated cell may be created in GRIDCO to monitor various activities on energy conservation and popularizing energy efficient equipments. For this GRIDCO may engage experienced retired engineers/professionals and bring one engineer from office of the EIC(Electricity) and one officer from OREDA on deputation. Since the benefit from energy conservation and measures of use of energy efficient equipment is substantially higher and the benefit is much larger for the State, the expenditure for such dedicated cell to be constituted in GRIDCO can very well be accommodated in Annual Revenue Requirement of GRIDCO if necessary, after taking into account the fund available under Green conservation fund and renewable energy fund that may be released to the State Govt.”

12.0 Harnessing Renewable Power to meet RPO

- 12.1 For harnessing Renewable Energy in Odisha, the State is presently under nascent stage of development. OREDA – the State Nodal Agency for Renewable Energy has assessed Renewable Energy potential of about 16230 MW, Science and Technology Dept., Govt. of Odisha has assessed the feasible potential as 11820 MW whereas WISE- engaged as Consultant by OERC has assessed RE potential of the State of about 7874 MW as shown in Table:

Table – 18
Assessment of Renewable Energy Potential
(in MW)

Source	Science & Technology Dept. Govt. of Odisha	OREDA	WISE
Wind	800	1700	2430
Solar	10000	14000	5000
Biomass	900	350	240
Small Hydro	120	160	184
Municipal waste	NIL	20	20
Total	11820	16230	7874

- 12.2 We have observed that against the above assessed potential the following Renewable Energy Projects have been commissioned in Odisha till date.

Table – 19

Name of the Plant	Installed Capacity (MW)
Middle Kolab Project by Meenakshi Power	25
Lower Kolab Project by Meenakshi Power	12
Samal Barrage Project by OPCL	20
Solar Power Plant at Sadeipalli, Bolangir	01
Solar Power Plant at Barang, Cuttack	01
Total	59

- 12.3 National Action Plan on Climate Change (NAPCC) aims at increasing the share of Renewable Sources of Energy from 5% of the total energy mix in 2010 to 15% by 2020. We have, therefore, vide Notification dt.30.09.2010 issued OERC (Renewable & Cogeneration Purchase Obligation and its Compliance) Regulation, 2010 and vide Regulation-3 fixed the year-wise as well as source-wise RPO for compliance by GRIDCO and the obligated entities during the obligated period from FY 2011-12 to 2015-16 as shown in the Table.

Table – 20**Renewable Purchase Obligations from FY 2011-12 to FY 2015-16**

Year-wise target	Minimum quantum of Renewable Energy purchase in % of total Energy consumption in the State			
	Renewable		Co-generation	Total
	Solar	Non-solar		
2011-12	0.10	1.20	3.70	5.00
2012-13	0.15	1.40	3.95	5.50
2013-14	0.20	1.60	4.20	6.00
2014-15	0.25	1.80	4.45	6.50
2015-16	0.30	2.00	4.70	7.00

- 12.4 We have observed that Odisha is expected to witness a GSDP growth @ 9% + per annum leading to increase in power requirement @ 10% per annum during the 1st obligated period from FY 2011-12 to 2015-16 simultaneously meeting its annual RPO both Solar and Non-Solar failing which Odisha has to resort to purchase of RECs from Power Exchanges at a market clearing rate burdening the ultimate consumers of the state.
- 12.5 We have further observed that Odisha has 13 nos. of Cogeneration plants having installed capacity of 633.50 MW and Captive Generating Plants having installed capacity of 4912.48 MW. All industries of the State having Captive and Cogeneration Plants are also the obligated entities as per OERC Regulation, 2010 and have to discharge their Solar and Non-Solar Renewable Power Obligation (RPO) during FY 2011-12 to FY 2015-16 (the 1st obligated period approved by OERC).
- 12.6 We have noted that in the States like West Bengal, Rajasthan, A.P., Karnataka, Madhya Pradesh etc. a separate Green Power Corporation has been created to develop Renewable Energy Projects. The Govt. of West Bengal is now planning to form a separate Dept. for Non-conventional Energy divesting from Dept. of Power and NCES.
- 12.7 We have further noted that GoI, MNRE has created a separate Company namely, National Solar Energy Company (NSEC) for the purpose of over seeing the implementation of all Grid connected / off Grid Solar Projects to be undertaken under JNNISM. MNRE felt that NSEC with experts from industries, Govt. and Academicians as Director is believed to drive the solar programme in India better than Govt. doing it by itself.

- 12.8 We have observed that at present, the Renewable Energy Sector in Odisha is in a very complex shape being looked after by multiple Govt. agencies like Science and Technology Dept., OREDA, Dept. of Energy, Engineering-in-Chief (Electricity), Engineering-in-Chief, Water Resources, GRIDCO etc. We have, therefore, sought the opinion / views in the Consultative Paper what would be the appropriate approach whether to create a new Green Power Corporation or to strengthen OREDA or to assign all RE Projects to any of the State Power Sector PSU to execute such projects with scale and speed?
- 12.9 Many respondents during hearing submitted to create the Green Power Corporation under Dept. of Energy whereas a number of respondents also submitted that OREDA should be suitably re-structured as an Engineering Organization with adequate competent technical personnel relating to generation of power from solar, wind, biomass and other RE sources.
- 12.10 OREDA submitted before us during hearing dtd. 08.09.2011 that based on OERC RPO Regulations, 2010 OREDA has assessed the cumulative capacity addition required during the 1st Obligated Period to meet the RPO of the State as shown in table:

Table – 21

FY	Consumption (in MU)	Capacity Addition from different sources (in MW)					
		Solar	Wind	SHEPs	Bio-mass	Co-gen	Total
2011-12	30358	8	0	0	58	267	333
2012-13	36862	27	0	0	24	79	130
2013-14	39912	15	25	0	10	52	102
2014-15	40578	15	25	0	10	41	91
2015-16	43062	16	50	0	0	41	107
Total		81	100	0	102	480	763

- 12.11 We have observed that OREDA has not taken into consideration the total energy mix required during the 1st Obligated Period. It is estimated that during FY 2011-12 the Grid consumption is about 24000 MU and the consumption of the obligated industries through their captive sources is about 20000 MU. Hence OREDA as the Nodal Agency for Renewable Energy Sources has to arrange Renewable Energy for 5% of 44000 MU during FY 2011-12 and 7% of about 70000 MU during FY 2015-16 and the required capacity addition from RE Sources needs to be substantially increased.
- 12.12 Science and Technology Dept., Govt. of Odisha vide letter No. 4940 dtd.07.09.2011 submitted before us as under:
- Odisha has great potential to accelerate the use of its renewable sources to meet its energy requirement and enhance economic growth. It is to state that OREDA will be able to fulfill the necessary requirement for harnessing the renewable energy potential in Odisha. OREDA has already taken steps for setting up Renewable Energy Power Plants in the State.
 - The renewable energy sources will pick up in a big way in Odisha from FY 2012-13 onwards due to Wind Resource Assessment (with 80 mt. high mast), setting up of Renewable Energy Industrial Parks and Solar Industrial Parks, reduction in capital cost of solar energy and lower cost of generation of electricity resulting into good prospects in the technology for both solar and wind.
 - Keeping in view the available potential, continuous improvement in the technology and reduction in cost of electricity generation, **S&T Dept. and**

OREDA are taking timely action not only for meeting RPO but also harnessing renewable energy potential in a big way in Odisha.

- In order to enhance the activities of OREDA, **necessary steps will be taken for raising the manpower with requisite expertise in future so that renewable energy is fully tapped for meeting energy requirement for the State.**

13.0 Any other suggestions for strengthening Odisha Power Sector

- 13.1 Some respondents submitted before us that Govt. of Odisha is forcing OHPC to restrict the minimum reservoir level to 595ft. at Hirakud against the design MDDL of 590 ft. violating the Rule Curve resulting in loss of generation of 32.4 MU/annum which at times giving rise to Power regulation in peak hours. We have noted from the submission of OHPC that the level of Hirakud Reservoir was restricted to RL 595 ft. in view of Khariff Irrigation supply to Hirakud Command Area as directed by DOWR and Working Table for 3 consecutive Water Years reflected the same. Due to such direction of DOWR, there is loss of generation of about 32.4 MU/annum to OHPC since last 3 financial years. This issue may have to be re-looked.
- 13.2 We have observed in this Water year 2011-12 that there is flood discharge from Hirakud and Rengali Reservoir but OHPC has failed to maximize seasonal generation of power in Hirakud, Chiplima and Rengali Power Houses due to machine constraint/unit availability. OHPC has submitted before us that they want to undertake Renovation, Modernisation & Uprating (RM&U) of Units 5 & 6 at Hirakud Power House, Unit 3 at Chiplima Power House & 6 Units of Balimela Power House during 12th Plan Period. This is to be attended to on war-footing basis for maximization/optimization of hydel generation in the State which is the urgent need of hour to maintain the requisite Thermal-Hydro mix.
- 13.3 One Respondent submitted before us during hearing on 17.09.2011 that even after repeated direction of the Commission, SLDC has failed to function as an Independent System Operator. He submitted that DoE, Govt. of Odisha may advise to allow a wholly owned subsidiary Odisha Power System Corporation Limited (OPSCL) under OPTCL immediately in the line of POSOCO functioning under POWERGRID since March, 2009.
- 13.4 One Respondent through written submission before us suggested for the complete conversion of the Transmission Network of Odisha into a full-fledged SMARTGRID.
- 13.5 One Respondent through written submission before us suggested that the State Govt. should come up with a Solar Map for Odisha.

14.0 In view of our observations from para-8 to para-13 above, we conclude as under:

- Odisha Power Sector will witness a shortage scenario up to FY 2015-16 and will witness a long term surplus scenario from FY 2016-17 onwards.
- OPTCL should prioritize their **Phase-I Evacuation Plan** based on the ground status of IPPs/MPPs for commercial generation of power in the changed scenario mentioned above.
- EIC (Electricity), Odisha should be divested of the responsibility as SDA Odisha and GRIDCO may be declared as SDA of Odisha to execute the Energy Conservation and Energy Efficiency Schemes with scale and speed which is the need of the hour so that Odisha can conserve to the tune of 500 MW of power under the 1st PAT cycle period (2011-14).

- As both S&T Department and OREDA have submitted before us their strong commitment for adequate generation of Renewable Energy from different RE sources so as to meet Renewable Power Obligation (RPO) required during each Financial Year of the 1st obligated period, we are of the opinion that the existing arrangement of OREDA as the State Nodal Agency for Renewable Energy will continue till further review in the matter in 2012.

15.0 In view of our observations in Para-8 to para-14 above, we direct as under:

- 15.1 As Odisha Power Sector is expected to witness the shortage scenario up to FY 2015-16, we hereby direct that Secretary, Dept. of Energy should review the project status of all IPPs/MPPs which have signed MoUs with the State Govt. once every month. It is also desirable that the Chief Secretary should review the status of all such Power Projects once in each quarter so as to ensure coordinated implementation of MoU based Projects and enable commissioning of Projects so that power flow commences to ward off shortages.
- 15.2 GRIDCO is hereby directed to immediately draw an Action Plan to meet the power shortage scenario up to FY 2015-16 and file before us the detailed Action Plan to meet the power demand of the State by 31st December, 2011.
- 15.3 OPTCL is directed to prioritize the **Phase-I Evacuation Plan** prepared considering the power availability from the 16 nos. IPPs and MPPs during 12th Plan period as mentioned in Annexure-B. The revised **Phase-I Evacuation Plan** after discussion with GRIDCO, IPPs and MPPs should be filed before us by 30th November, 2011.
- 15.4 We have missed the bus to participate in 1st Phase of Orange Revolution launched in January, 2011 to usher “Energy Security” and “Energy Independence” in India. Now we have observed that we have also lost the golden chance to reap the benefit under 1st PAT Cycle as due to inaction of SDA of Odisha, only 32 Industries of Odisha have been included as Designated Consumers (the list enclosed at Annexure-C) by BEE. It was also decided in the 4th State Co-ordination Forum Meeting held on 28.06.2011 to handover the works relating to Energy Conservation and Energy Efficiency Schemes to GRIDCO. GRIDCO during hearing on 17.09.2011 submitted before us that GRIDCO is fully geared up to undertake the works of SDA Odisha. We, therefore, direct Govt. of Odisha, Dept. of Energy to declare GRIDCO as State Designated Authority (SDA) of Odisha by 30th November, 2011 and take up with BEE and Ministry of Power immediately to include at least 100 nos. of Industries of Odisha as Designated Consumers under 1st PAT Cycle.
- 15.5 As the state is facing low hydro condition during Water Year 2011-12 and there is a scope of saving of about 400 MW during Evening Peak hours if 100% CFLs are substituted in place of incandescent bulbs in Odisha, we direct Secretary, DoE, Govt. of Odisha to discuss and decide the Financing Model suggested by SDA of Odisha in line with Kerala Model by 30th November, 2011 so that Odisha DISCOMs will be able to implement the scheme to replace all incandescent bulbs with CFLs by March, 2012 and Odisha will be saved the area load restrictions/power cuts during Evening Peak hours in Summer months of 2012.
- 15.6 We appreciate the submission of Dept. of Science and Technology before us that S&T Dept. and OREDA are taking timely action not only for meeting the RPO but also for harnessing Renewable Energy potential in a big way in Odisha. We have also noted the strong commitment of S&T Dept., Govt. of Odisha that in order to enhance the activities of OREDA, necessary steps will be taken for raising the manpower with requisite expertise in future so that Renewable Energy is fully tapped for meeting

energy requirement for the State. The Commission wants to see these commitments are converted to actual action.

- 15.7 We direct the S&T Dept., to restructure and revamp OREDA as a Technical Organization drawing the expertise from various Departments of the State Govt., GRIDCO, OHPC and from Private Sectors if required so that RPO of 5-7% of total energy mix of the State can be met and Odisha should not have any occasion to go to Power Exchanges to purchase RECs to meet the requisite RPO during the 1st Obligated Period.
- 15.8 We hereby direct that a High Level Committee under the Chairmanship of CMD, GRIDCO shall be constituted to review the status of all Renewable Energy Projects (excepting Small Hydro) once in each quarter so as to meet the RPO of the State. Director (Commercial), GRIDCO will act as Member Convener of the Committee. Representatives from S&T Dept., Dept. of Energy, OPTCL, OHPC and SLDC should be co-opted by the Chairman of the Committee. The Member Convener of the Committee should file the Resolution of each Meeting for the information of the Commission. The Energy Dept. should issue the resolution/notification constituting this High Level Committee on or before 15.10.2011.
- 15.9 We hereby direct that a High Level Committee under the Chairmanship of Principal Secretary, Water Resources Dept. shall be constituted to review the status of development of all Small/Micro/Mini Hydel Projects once in each quarter. Secretary, Dept. of Energy, EIC (Water Resources), MD OHPC, CE, WAPCOS and EIC (Electricity) will be the Members of the Committee. EIC (Electricity) will act as Member Convener of the Committee and file the Resolution of each Meeting of the Committee for information of the Commission. The Energy Dept. should issue the resolution/notification constituting the said Committee on or before 15.10.2011.
- 15.10 Dept. of Energy, Govt. of Odisha in their letter No.7828 dt.20.09.2011 have asked for another 2 weeks time to give their views/comments on various suggestions of different stakeholders/respondents forwarded to them vide Commission's letter Nos. 1543-47 all dated 23.08.2011. We have now formulated our suggestions/advice based on the feedbacks received from various stakeholders during the course of open hearing held on 08.09.2011 and 17.09.2011. We hereby direct State Govt., GRIDCO, OPTCL, OHPC and OREDA to take the follow up actions on the suggestions, observations and the directions of the Commission contained in para-8 to para 15 above. The Commission would like to review the action taken on various suggestions/observations/directions contained in this order at regular intervals.

In view of the above we direct the copy of this Order may be sent to Principal Secretary, DOWR, Secretary DoE, Secretary S&T Dept. of Govt. of Odisha and all Respondents to the Consultative Paper of the Commission and may be posted in OERC website for information of all concerned.

Sd/-
(B.K. Misra)
Member

Sd/-
(K.C. Badu)
Member

Sd/-
(B.K. Das)
Chairperson

List of Govt. Departments / Organizations/ individuals who responded to the Draft Consultative Paper of OERC

1. Dept. of Science & Technology, Govt. of Odisha
2. OREDA, Bhubaneswar
3. EIC (Electricity), Govt. of Odisha, Bhubaneswar
4. Shri S K Jena, Ex-Member, OERC
5. Shri S K Nanda, Ex-Chairman, OSEB
6. Project Development Consultant (Shri K C Mohapatra, Ex-Chairman, OSEB, Bhubaneswar)
7. Shri B N Ray, Ex-Chief Engineer, Mahanadi Vihar, Cuttack – 4
8. CII, Forest Park, Bhubaneswar
9. GRIDCO, Bhubaneswar
10. OPGC, Bhubaneswar
11. NTPC, ER-II Headquarters, Bhubaneswar
12. OTPCL, Bhubaneswar
13. OPTCL, Bhubaneswar
14. Rural Electrification Corporation (REC), Bhubaneswar
15. National Institute of Indian Labour (Shri R C Satapathy)]
16. Power Tech Consultants, Cuttack
17. Shri J K Mishra, Ex-Sr. GM, OPTCL, GGP Colony, Bhubaneswar
18. M/s. Canyon Consultancy Pvt. Ltd., Bhubaneswar
19. Shri R P Mohapatra, Ex-Member (Generation), OSEB, Bhubaneswar
20. OHPC, Bhubaneswar .
21. Shri Alekh Mallick, Ex-Director (Commercial), GRIDCO, Bhubaneswar

ANNEXURE- B

**List of IPPs/ MPPs expected to be under commercial operation during
FY 2011-12 and during 12th Plan period i.e. from FY 2012-13 to 2016-17**

Sl. No.	Name of IPPs	No of Units x unit capacity (MW)	Installed Capacity (MW)	Capacity allocation for Odisha (MW)
1	M/s. Sterlite Energy Ltd	4x600	2400	768
2	M/s. GMR Energy Ltd. (Phase 1 & 2)	4x350	1400	630
3	M/s Ind-Barath Energy (Utkal) Ltd.	2x350	700	84
4	M/s. Mahalakshmi (Navbharat) Power Ltd.(Phase 1 & 2)	3x350 2x600	2250	1013
5	M/s Monnet Power Company Ltd.	2x525	1050	473
6	M/s. KVK Nilachal Power Ltd.	3x350	1050	473
7	M/s. Jindal India Thermal Power Ltd. (Phase-1& II)	3x600	1800	252
8	M/s. TATA Power Company Ltd.	2x660	1320	594
9	M/s Lanco Babandh Power Ltd.	2x660	1320	594
10	M/s. CESC Ltd.	2x660	1320	594
11	M/s. Jindal Steel & Power Ltd.	2x660	1320	158
12	M/s. OPGC Ltd. (Expansion Project 3 rd & 4 th Units)	2x660	1320	660
13	M/s. Bhusan Energy Ltd. (Phase 1 & 2)	4x660	2640	1188
14	M/s. Visa Power Ltd.	2x500	1000	396
15	M/s JR Power Generation Ltd	3x660	1980	238
16	M/s BGR Energy Systems Ltd	2x660	1320	158
Total			24190	8273

ANNEXURE- C

List of Designated Consumers in Odisha under 1st PAT Cycle

Sl No.	Name of the Company	Sl No.	Name of the Company
1.	OCL India Limited Rajgangpur, Orissa-770017	17.	Ballarpur Industries Ltd Unit-Sewa, Gaganapur, Jeypore (RS)-764002 Dist: Koraput, Orissa
2.	Rourkela steel Plant, Rourkela, Orissa- 769011	18.	Vedanta Aluminium Ltd P.O: Lanjigarh-766027
3.	M/s. Rungta Mines Limited Regd. Office- 8A , Express Tower, 42-A, Shakespeare Sarani, Kolkata-700017 Plant location: Karakolha, Barbil, Keonjhar, Orissa	19.	M/S-Vedanta Aluminium Ltd Vill: Bhurkhamunda, Jharsuguda-768202 Contact Person: Mr. pankaj Khanna
4.	M/S. Scan Steel Ltd. Vill-Ramabahal, P.O: Laing Dist: Sundargarh, Orissa	20.	Jharsuguda Cement Works P.O: ARDA Dist: Jharsuguda, Orissa-768202
5.	M/s. Suraj Products Ltd. Work Office: Barpali , po-Kesarmal, Via- Rajgangpur, Sundergarh, Orissa	21.	Action Ispat and Power (P) Ltd. Vill-Marakuta, Pandripathar Dist: Jharsuguda-768202, Orissa
6.	Vikram Iron & Steel Pvt. Ltd. P.O: Tumkela, Via- Rajmunda Dist: Sundargarh, Office: TTT-6, Civil Township, Rourkela-4	22.	IB Thermal Power Station, OPGC Ltd. Banharpali, Jharsuguda-768234
7.	JSL Ltd. Kalinga Nagar Industrial Complex, P.O: Danagadi, Duburi, Jajpur- 755026, Fax: 06726-266006	23.	SMC Power Generation Ltd. Hirma, Jharsuguda-768202
8.	VISA Steel Ltd Kalinga Nagar Industrial Complex AT/PO- Jakhapura-755026 Dist: Jajpur (Orissa)	24.	Orient Paper Mills At/PO- BrajarajNagar-768216 Dist- Jharsuguda
9.	Nilachal Ispat Nigam Limited Kalinga Nagar Industrial Cmplx Duburi, Jajpau Road, Orissa	24.	M/s Deepak Steel & Power Limited Head Office-Ispat Bhawan, A/P- Barbil-758035, Dist-Keonjhar, Orissa Plant Location-Topadihi, Keonjhar, Orissa
10.	M/s. Adhunik Metallic Limited Regd Office: 14, N.S. Road, 2 nd Floor, Kolkata-700001 Plant location-vill.: Chadrihariharpur, Po-Kuarmunda, Dist- Sundergarh, Orissa	26.	Orissa Sponge Iron & Steel Ltd. AT-P.O: Palaspanga, Dist: Keonjhar
11.	National Aluminium Company Limited Captive Power Plant, P.O: Banarpal, Dist: Angul, Orissa-759128 Fax: 06764-220646	27.	Shree Metalics Limited Regd. Office: Power House Road, Rourkela-1
12.	Bhushan Steel Limited Project Office: Narendrapur, Meramandali, Dhenkanal, Orissa-759121	28.	Tata Sponge Iron Limited, JODA At./P.O: Bileipada, Dist. Keonjhar, Orissa- 758034, Contact Person: Suresh Thawani
13.	Naba Bbarat Ventures Ltd. Kharagprasad village, Near Meramandali Railway station Dist: Dhenkanal, Orissa-759121	29.	M/s Suryaa Sponge Iron Limited Redg. Office-B-40.(1 st Floor), Saheed Nagar.Bhubaneswar-751007 Plant Location-Budhakendua, P.o- Kalkala Dist – Jajpur-754082, Orissa
14.	Indian Metals and Ferro Alloys Ltd, AT-Choudwar Dist: Cuttack-754071	30.	Balasore Alloys Ltd. Balgopalpur, Dist: Balasore-756020
15.	Aarati steels Limited Ghantikhal, P.O. Mahakalabasta, Via Athagarh, Dist.-Cuttack-754029 (Orissa)	31.	Emami Paper Mills Limited Balgopalpur, Rasulpur, Balasore-756020
16.	Mines & refinery Complex, Damanjodi Dist: Koraput, Orissa Contact Person: Shri P.K Pattnaik (ED(M & R))	32.	J.K Papers Ltd. Unit- J.K Mills PO: Jaykaypur Dist: rayagada, Orissa-765017