

## **ACTIVITIES REPORT OF ENERGY DEPARTMENT FOR THE YEAR 2016-17**

The Department of Energy was created on 24<sup>th</sup> April 1990 consequent upon bifurcation of the then Irrigation & Power Department. Electricity is one of the prime inputs for both the economic development as well as overall wellbeing of the people. Increase in power generation has cascading effect on all sectors leading to increased growth particularly in industry, agriculture and other ancillary trade and business activities. The objective of the Government is to provide 24x7 quality power supply to all. It is also contemplated to develop an integrated energy management system with robust generation, transmission and distribution network. The State of Odisha has the distinction of being the pioneer in the country in implementing reforms in power sector.

The present generation capacity of the State is:-

(a)	Hydro Generation (OHPC)	-	2023 MW
(b)	Thermal Power Generation	-	2224 MW
(c)	Central allocation.	-	1392MW
(d)	New & Renewable Energy	-	<u>215 MW</u>
	<b>Total</b>	<b>-</b>	<b>5,854 MW</b>

At present the Department of Energy is functioning with 5 Heads of Department i.e :-

- (1) E.IC (Elect)-cum-PCEI, Odisha, Bhubaneswar
- (2) C.E-cum-CEI (Central Zone), Odisha,
- (3) C.E-cum-CEI (South Zone), Odisha,
- (4) C.E-cum-CEI (North Eastern Zone), Odisha,
- (5) C.E-cum-CEI (Western Zone), Odisha,

The Department has got seven Public Sector Undertakings Viz. Odisha Hydro Power Corporation (OHPC), Odisha Power Generation Corporation (OPGC), Odisha Power Transmission Corporation Ltd (OPTCL), Grid Corporation Ltd (GRIDCO), Odisha Thermal Power Corporation (OTPC), Green Energy Development Corporation (GEDCOL) and Odisha Coal and Power Ltd (OCPL)

The activities of the Department in respect of different public sector undertakings as well as Heads of Department are presented briefly as under:-

## **REVENUE COLLECTION, INSPECTION & LICENSING ACTIVITIES**

The EIC(Electricity)-cum-PCEI(O), Bhubaneswar has been delegated with the powers to look in to the matters regarding Collection of Revenue, Electrical Accident Enquiry, Issue of Electrical License, Offence relating to Electricity Theft etc.

Electricity Duty (ED) constitutes an important source of the Government Revenue. Collection of Revenue from various electricity consumers comes in the form of ED, inspection fees, fees for testing equipment/standard and fees for issuing electrical permit and licenses to the Electrical wireman, Lineman, supervisor and contractor.

Highlight of the last seven years achievement on revenue receipt against the target fixed is given below:

### **During 2010-11 to 2015-16**

Sl. No.	Year	Target fixed (Rs. In Cr.)	Achievement (Rs. In Cr.)	Remarks
1	2010-11	600.00	458.06	Revenue Receipt in respect of non-captive, captive ED and inspection fees.  * - Arrear ED.
2	2011-12	550.00	551.72	
3	2012-13	700.00	591.16	
4	2013-14	710.00	670.11	
5	2014-15	800.00	850.00 & * 872.00	
6	2015-16	1200.00	1212.94	
7	2016-17	1500.00	1003.62 (by 31.11.2016)	

The above figure shows a rising trend of revenue collection.

Target fixed for the current financial year is Rs. 1500.00 Cr.

During the Financial Year 2016-17, an amount of ₹1003.62 crore of revenue (ED) has been collected by 30.11.2016 against the annual target of ₹1500.00 Crore. Steps are being taken to achieve the target fixed for this year.

Regular monitoring is being done for recovery of Govt. dues (Arrear ED) locked up in Court Cases. Initiation has been taken up and is under process for out of court settlement of arrear ED with M/S RSP, Rourkela.

The Electricity (Duty) amendment Act 2016 has been passed in the assembly and published in Odisha Gazette on 05.11.2016 providing opportunity for aggrieved consumer to appeal before the next higher authority. The maximum ceiling in ED rates has been enhanced to Rs. 2.00 per unit for own use & auxiliary consumption in CPP & IPP and upto 15% in other cases i.e. ad valerum basis. The lower limit capacity of the generators has been raised from 10KVA to 50KVA in respect of inspection & levy of Electricity Duty. A three tier redressal system has been introduced for better justice to the consumer in dispute resolution.

The Rule for above amendment act is under preparation. After the rule comes out process of recovery of arrears shall be smoother.

### **RURAL ELECTRIFICATION SCHEMES**

#### **(a) Biju Gram Jyoti Yojana (BGJY):**

In order to ensure “Electricity to all” the State Government has launched a flagship scheme called Biju Gram Jyoti in 2007-08 for electrification of habitations having less than 100 population and the BPL Household Electrification in those habitations which are not covered under RGGVY. Initially there was a target to cover 10,000 habitations during the 11<sup>th</sup> Five Year Plan under the scheme against which 17167 nos. of habitations have been electrified as on 30.11.2016.. The State Government, till 30.11.2016 has provided ₹820 crore to the Districts for implementation of the Scheme against which an expenditure of ₹510.66 crore has been made for the purpose as on the date. For the Financial Year 2016-17 a plan provision of ₹255.00 crore has been made under the scheme.

#### **(b) Rajiv Gandhi Grameen Vidvutikaran Yojana (RGGVY):**

This flagship programme of Govt. of India launched in April, 2005 aims at providing access to electricity to villages having population of 100 or more envisaging 90% capital subsidy and 10% as loan component for the State.

There was a target to electrify 14856 un-electrified/ de-electrified villages, 29351 partially electrified villages and 3257471 BPL households in all 30 districts during the RGGVY-X & XI Plan Period. Against this 14402 nos. of Un-Electrified villages have been electrified and in 26353 Nos. of Partially-Electrified villages, electrification have been completed. Moreover, 2876149 nos. of BPL kits have also been installed and 2315605 nos. of BPL houses electrified.

In the RGGVY-XII Plan Period, Work is under progress to electrify 3144 un-electrified villages and 16533 un-electrified habitations for which Government of India

have sanctioned ₹3550.75 crore. As on 30.11.2016, 511 nos of un-electrified villages remains to be electrified out of the 3144 nos of villages taken up for electrification.

During the Financial Year 2016-17 plan provision of ₹100.00 crore has been made in the State budget for this purpose.

### **BIJU SAHARANCHALA VIDYUTIKARAN YOJANA(BSVY)**

For providing access to electricity to the people living in un-electrified areas of urban local bodies, the State Government has launched a flagship programme namely, Biju Saharanchala Vidyutikarana Yojana (BSVY) during the year 2010-11. Under the scheme un-electrified habitations with minimum population of less than hundred along with BPL household electrification and system improvement are being taken up. Five (5) Municipal Corporations, 45 Municipalities and 61 NACs of the State have been covered under the Scheme.

As on 30.11.2016 the State Government has released ₹118.15 crore to the Districts under the Scheme against which 2635 nos of slums/wards/habitations have been electrified. For the Financial Year 2016-17 a provision of ₹12.00 crore has been made under the scheme.

### **CONSTRUCTION OF NEW 33/11 KV SUB-STATIONS UNDER ODSSP**

1. Electricity is the key factor for the growth of society. Electricity is used in the entire segment whether it is Agriculture, Industry, domestic or commercial purpose.
2. Government of Odisha observes that there has not been sustained development in the electricity infrastructure down the stream in order to supply reliable and good voltage to the people of Odisha.
3. It was seen that the infrastructure at 220 KV, 132 KV level is well managed but there is requirement of infrastructure at 33 KV level i.e. 33/11 KV Sub-station.
4. For giving uninterrupted reliable and quality supply with proper voltage to consumers of the State even in remote areas, it is proposed to construct 500 nos. of 33/11 KV Substations at a cost of Rs.2600.00 crore to be executed by OPTCL as Nodal Agency. After construction and charging of the Substations, the same will be handed over to respective DISCOMs for operation and future maintenance. This will help in reduction of T&D loss of DISCOMs so that their financial condition will improve and reduce their financial burden. 1% of reduction of T&D loss will ensure annual revenue gain of about Rs.85.00 crore to the DISCOMs in the State. Target for annual reduction

of T&D loss has been fixed at least 3% per annum which will yield Rs.255.00 crore annually.

5. In the different meeting with Energy Department, OPTCL & DISCOMs, it was decided to have 33/11 KV Air Insulated Switchgear (AIS) Substation in all the proposed places except in the urban areas. The Gas Insulated Switchgear (GIS) Substations was proposed to be installed in the urban areas like Berhampur, Bhubaneswar, Cuttack, Rourkela, Sambalpur and etc. in the view of constraint in land availability.

6. Numbers of meeting was held between Energy Department, OPTCL and DISCOMs and it was agreed that a Project Monitoring Unit (PMU) Cell will be opened under OPTCL in order to execute the Construction of 500 nos. of 33/11 KV Substations with associated lines. Two Technical Executives and one Finance Executive shall be deputed from each DISCOM to PMU Cell of OPTCL to carry out the Construction work of 33/11 KV Substation. The PMU Cell will be headed by an Executive of OPTCL designated as Project Manager.

7. This scheme envisages investment of Rs.2600.00 crore to be executed over a period 3 years by OPTCL. A budget provision of Rs.179.00 crore during the financial year 2013-14, Rs.150.00 crore in the financial year 2014-15 and Rs.890.00 crore in the FY 2015-16 were made to continue the project work. In the FY 2016-17 a provision of Rs.900.00 crore has been made under the scheme. The funds are being released in favour of OPTCL, the Nodal Agency for implementation of the project. The work is in progress.

### **CAPEX PROGRAMME**

CAPEX Scheme was launched during the FY 2011-12 with a total outlay of ₹ 2400 Crore to be executed over four years for strengthening the Electricity Distribution Network of the State of Odisha. Following the launching of the schemes like ODSSP, DDUGJY and IPDS with similar objectives, it was decided to limit the CAPEX programme to phase-I. There was an outlay of ₹.960.83 crore under the scheme for phase-I. Govt. of Odisha have released ₹.755.83 crore, out of which ₹.666.53 crore have already been utilised till 30.11.2016. Subsequently, in the Expenditure Finance Committee (EFC) held on 14.05.2015, it was decided that CAPEX programme is to be closed and State Govt. will not provide any fund beyond the FY 2014-15. Thereafter, in the Monitoring Committee of the CAPEX, it was viewed that, as the works taken up are on advance stage of completion, no economic benefit will flow from the said projects/assets and the expenditure incurred so far may go complete waste. Hence, additional requirement of funds to complete the balance portion of the project is very

much necessary. Considering the same, a provision of ₹.122 crore has been made in the supplementary budget for the FY 2016-17.

### **ENERGY CONSERVATION**

Each unit of energy saved is energy generated. To Co-ordinate, Regulate and enforce provisions of the Energy Conservation Act, 2001, EIC (Electricity) functions as State Designated Agency (SDA) for Odisha, and coordinates with Bureau of Energy Efficiency (BEE), Government of India, Government of Odisha, Private Organizations and other Stake-holders. Odisha Energy Conservation Building Code (ECBC) has been notified for adoption in the State and Odisha has become the first state to frame such code in the country.

- As part of Energy Conservation action plan, recommendations of the investment grade energy audit (IGEA) are being implemented in four Drinking Water Pumping Stations (DWPS) in phase-I and in nine major drinking water pumping stations in phase-II with the support of respective Public Health divisions, under Housing and Urban Development Dept., Govt. of Odisha. IGEAs of 137 Nos. of DWPS are also being undertaken to widen the opportunity for energy savings.
- Energy efficiency implementation in 3763 Lift Irrigation (LI) systems under the Pani Panchayats are being implemented through the Odisha Lift Irrigation Corporation in two phases. The project is estimated to contribute towards substantial reduction of grid demand as a demand side management initiative besides benefiting the farmers of the state by reducing their operating energy expenses.
- IGEA of 127 nos. Govt. buildings, District Collectorate Office and District Headquarter hospitals, and 8 nos. Agricultural farms and 4 nos. of Universities have been completed and are under progress. The recommendations of the IGEA study are being planned to be subsequently implemented to improve energy efficiency in the building sector of the State. Several workshops have been conducted to spread awareness.
- Implementation of energy efficient street lighting projects in 105 ULBs of the State by undertaking retrofitting of existing inefficient street lights with LED with associated control systems to demonstrate and showcase benefits of energy efficiency is being undertaken. EESL, Govt. of India has evolved a business model to facilitate investment in the ULBs / DISCOMs and the consequent reduction in energy and maintenance cost of ULBs / DISCOMs shall be used to repay the investment over a period of time.

- Block, District and State level quiz competitions have been organized with the support of Centre for Environmental Studies (CES), Forest and Environment Department, Govt. of Odisha for creating awareness among school students and general public. Energy Conservation awareness programmes have been organized in 120 schools by inaugurating Energy Clubs. As part of the National awareness campaign for Energy Conservation, State Level function is being organized each year on the occasion of Energy Conservation Day on 14th December at Bhubaneswar.
- The Odisha State Energy Conservation Award (OSECA) has been instituted to promote state level recognition of entities every year across six sectors that have made systematic and continued attempts for efficient utilization and conservation of energy in the State. The sectors are MSME, IT Industries, Hospitals, Educational Institutions, Commercial Buildings and Hotels.
- Formulation of a state level road map and different capacity building programmes have been taken up to facilitate implementation of Odisha Energy Conservation Building Code.
- Theory cum practice workshops, hands on training programs for the Boiler Operators have been facilitated through National Productivity Council to improve the skills of the State's boiler workforce.
- Implementation of UJALA (Unnat Jyoti by Affordable LEDs for All) previously known as DELP has been launched on 18.04.2016. Under this programme upto 10 LED bulbs of 9 W is being provided to domestic consumers, upto 20 such bulbs to commercial consumers and required no. of bulbs to public institutions. About 1 cr. bulbs has been initially proposed to be provided at a cost of Rs. 85/- per bulb to about 60 lakh domestic consumers in Odisha. This programme targets complete replacement of ordinary bulb and CFLs. LED bulbs are not only energy efficient but also long lasting. After replacement, it is expected to result in 185 MW capacity avoidance on generation front, besides contributing towards climate change mitigation.
- UJALA 20 Watt LED tube light and 50 Watt BEE 5 star labeled fans have been launched in the state on 19.9.2016. The sale through EESL's Channel Partners will commence soon.
- Two villages of Odisha i.e. Satyabhamapur (Cuttack District) and Raghurajpur (Puri District) were covered under the LED Village Campaign in the first phase. The project have been implemented with the support of CESU where in 3 nos 10W LED bulbs have been given to each family and 20W LED street lights have

been installed in these two villages. In the second phase of the project 4 Villages (Sarei, Barun, Sasad, Khandahata) under NESCO and one village under WESCO have been chosen for the campaign and the implementation is under progress.

- **Compliance Monitoring of Perform, Achieve and Trade (PAT) Scheme of Central Government:** PAT Scheme is a “Cap and Trade” incentive based mechanism launched under the Union Government’s National Action Plan for Climate Change. The Scheme aims at improving energy performance of energy intensive industries in sector such as Iron and Steel, Aluminum, Cement, Pulp and Paper, Thermal Power Plants, Textile etc. Energy intensive industries which are notified as Designated Consumers (DC) are given Specific Energy Consumption reduction targets and have three years for compliance. DCs exceeding the target will be awarded Energy Savings Certificates (EScert) and DCs unable to meet the target have to buy the shortfall amount from the EScert trading exchange. O/o EIC(E)-cum-PCEI as the State Designated Agency acts as an interface between BEE and Designated Consumers for PAT scheme/ provisions of EC Act 2001 by seeking Energy Returns, Energy audit reports and compliance checks etc. 27 energy intensive industries were notified as Designated Consumers in Odisha in PAT Cycle I (2012-2015). PAT Cycle II has commenced from 2016 and a total of 34DCs were notified in the state of Odisha.
- To promote energy conservation in the dairy sector, the energy efficiency implementation in OMFED Bhubaneswar Plant has been taken up as a unique project through investment from Revolving Investment Fund to facilitate improvement of energy performance as per the recommendations of the IGEA. About Rs. 1 Crore has been placed before OMFED to improve their energy performance.
- An energy efficiency and energy conservation promotion stall was organized during Baliyatra 2016. Daily quiz, painting competition, slogan competition etc. on energy conservation was conducted in the stall. Short awareness video, demonstration of energy audit instruments was also being conducted in the stall to encourage visitors, particularly school children and spread awareness.
- Awareness programs and dissemination of energy conservation messages in different print and electronic media are being taken up to spread the message of energy conservation among all the stakeholders.
- In FY 2016-17 a budget provision of ₹5.00 crore has been made to carry out the energy conservation activities and awareness campaign in the State.



### **SYSTEM STRENGTHENING FOR ELEPHANT CORRIDOR**

In order to strengthen the Electrical Infrastructure along the Elephant Corridor and thereby to provide safety to the elephants and other wild animals, Govt. of Odisha has taken up a special scheme called System Strengthening for Elephant Corridor. In the Phase-I, the work in 9 corridors has been completed out of the 11 corridors taken up. In the Phase-II, work in 9 corridors has been completed out of the 12 and works in rest of the corridors are in full swing. In the Phase-II, work in all the 14 corridors is in progress.

A plan provision of ₹27.17 Crore was provided under the scheme during the FY 2015-16. Keeping in view its importance ₹20.00 Crore has been made provision for the FY 2016-17. Funds are being released for implementation of the project.

### **SHIFTING OF TRANSFORMERS LOCATED IN GOVT.SCHOOLS & ANGANWADI CENTRES**

Shifting of electrical infrastructure located in Government Schools and Anganwadi Centres in the State was felt necessary on safety point of view. Out of 5162 Schools & Anganwadi Centres, work in 4816 nos has been completed till 31.11.2016 and in the rest work is in progress. In the FY 2016-17 ₹50.00 lakh have been provided like the same in the previous FY. Funds are being released to the Executing Agencies for implementation.

### **NABAKALEBAR**

Keeping in view the load of electricity on account of Nabakalebar of Lord Jagannath held in 2015, Government decided to take special drive for up-gradation of electricity transmission system and other electrical infrastructures in Puri and its surroundings through OPTCL and CESU. For the purpose, plan proposal of ₹67.09 crore was kept under the scheme in the FY 2015-16 and have been released in favour of OPTCL for execution of the project. The Sub-station work in Puri Town and the SCADA Testing work have been completed. A token amount of Rs.1000.00 has been kept under the scheme for the FY 2016-17.

### **UNDERGROUND CABLING OF IMPORTANT SITES**

During the year 2011-12, Govt. has decided for underground cabling of Grand road and Temple Area, Puri to be implemented by CESU. Later on underground cabling work of Lingaraj Ratha Danda, Bhubaneswar and Konark Temple area was added to it which has already been completed by CESU.

Similarly, the underground cabling of Maa Samaleswari Temple area, Sambalpur & Ratha Danda, Baripada were taken up by WESCO and NESCO. 70% of the underground cabling work of Maa Samaleswari Temple area has been completed and

work for the rest is in progress. The Underground cabling work of Rathadanda, Baripada is also in progress. In the FY 2015-16 a plan provision of ₹1.00 crore was made under the scheme. In the FY 2016-17 a plan provision of ₹2.00 crore has been kept under the scheme.

### **DEDICATED AGRICULTURE & FISHERY FEEDER**

In order to promote agriculture and pisci-culture, Government of Odisha has decided to provide Dedicated Electrical Feeders to Agriculture and Fishery sectors. The commissioning of dedicated feeders not only facilitate irrigation but also will provide growth support to the sector with development of ancillary activities like Cold storage, Food Processing Unit. Similarly for supply of reliable and quality electricity as required for maximizing fish and prawn production, their cleaning, grading, refrigeration and preservation, the need of separate Electrical Feeder is felt. Hence, Government in Energy Department has made a plan provision of ₹101.00 crore in the FY 2013-14 and ₹ 67.00 crore in FY 2014-15 for commissioning of dedicated Agriculture and Fishery Feeders. Nodal agency OPTCL has issued LOA for 19 nos of fishery feeders out of which, work for the 16 feeders is likely to be completed during Dec, 2016 to March, 2017. Work for the rest 3 is likely to be started from Dec, 2016. In the FY 2015-16 there was a token provision of ₹1.00 lakh under the scheme. A token of ₹1.00 thousand has been kept for the FY 2016-17.

### **ODISHA'S SHARE FOR UMPP (BEDABAHAL)**

UMPP is one of the flag-ship projects of Government of India as a primary producer of power. In order to provide Odisha's Share towards additional land cost for UMPP (Bedabahal), in Sundargarh District, budget provision of ₹55.41 crore was kept in the Financial Year 2014-15. In the FY 2015-16 a budget provision of ₹48.75 crore was made under the scheme. For the FY 2016-17 a token provision of Rs.1000.00 has been kept under the scheme.

### **EQUITY SHARE INVESTMENT IN OPTCL.**

State Government has decided to infuse additional equity of ₹ 300 Crore in a period of 5 years to support OPTCL in taking up transmission Projects in the financially unviable areas such as KBK, Western Odisha. During the FY 2011-12, ₹43.00 Crore was provided in the State Budget. During FY 2012-13, 2013-14 & 2014-15 funds to the tune of ₹50.00 crore each were provided to OPTCL for this purpose. In the Financial Year 2015-16 a plan provision of ₹57.00 crore was kept. In the Financial Year 2016-17 a provision of ₹50.00 crore has been kept under the scheme.

### **EQUITY INFUSION TO OHPC:**

The State Government has decided to provide financial assistance to OHPC through equity infusion. The scheme is intended for development of Solar Power Project at Manamunda in Boudh District through Green Energy Development Corporation of Odisha Ltd. (GEDCOL) which is a 100% of subsidiary company of OHPC.

It aims at promoting investment in renewable energy projects and various green energy sources, to develop and execute special renewable energy project on commercial and/ or demonstration basis and to plan, organize, implement, maintain and operate renewable energy projects to generate and sell electric power anywhere in India.

Ministry of New & Renewable Energy, Govt. of India through SECI(Solar Energy Corporation of India) has issued allocation proposal for development of 750 MW of Solar PV Power (each 375 MW in DCR & Non-DCR category) with VGF (Viability Gap Funding) support. SECI has allotted 20 MW Solar PV Project at Manamunda through VGF support of ₹48 cr. (@ of 30% of project cost) with an agreement for procurement of generated power by SECI @ ₹ 5.45/ unit. The state Govt. has decided to contribute 50% of the total equity capital required for the above project of GEDCOL.

Thus, a plan provision of ₹25.00 crore in the F.Y 2015-16 was made under the scheme and a plan provision of Rs.30.00 crore has been made by the State Govt. in the F.Y 2016-17 to extend equity support to GEDCOL through OHPC.

### **INFRASTRUCTURE ASSISTANCE TO GEDCOL**

In order to promote Green Energy in the State, Govt. of Odisha has established Green Energy Development Corporation Ltd. (GEDCOL), as a 100% subsidiary of OHPC, which has started its operation from the F.Y. 2013-14. For developing different projects in its own domain, financial assistance is being provided by the State Government. A budget provision of ₹10.00 crores each were made under this scheme in the F.Y 2014-15 & 2015-16. In the FY 2016-17 plan provision of another ₹10.00 crore has been made under the project. GEDCOL, through an allotment of SECI, has developed a 20 MW solar power generating system at Manmunda in Boudh District and is developing 4 MW Cuttack-Bhubaneswar Roof-Top Solar Power Project, for which work order has already been placed. Further, it is also replicating the Roof Top Solar Projects in 15 other towns in the state viz. Balasore, Bhadrak, Baripada, Burla, Hirakud, Sambalpur, Rourkela, Puri, Khurda, Berhampur, Chhatrapur, Jeypore, Koraput, Sunabeda and Nabarangpur.

### **GPS SURVEY OF INFRASTRUCTURE**

In order to prepare a need based action plan for future projects, GPS survey of electrical infrastructure was felt necessary for which a plan provision of ₹1.00 crore during the FY 2013-14, ₹10.00 crore in the FY 2014-15 & ₹1.00 crore in the FY 2015-16 were made. In the FY 2016-17 a plan provision of Rs.1.00 crore has been kept under the scheme. The work has been entrusted to OPTCL for implementation of the project.

### **STANDARD TESTING LABORATORY**

Standard Testing Laboratory functions as an electrical laboratory at Bhubaneswar for testing the standard & calibration of different electrical equipment, particularly energy meters. In case of challenge between supplier and consumers, the energy meters are tested in the Standard Testing Laboratory by regulation as a statutory authority and as a practice of standard acceptance to the public.

New STL buildings have been constructed in the same compound with more space than earlier. This building will help us to accommodate more & more testing facilities required by the different electrical equipment and installation in the power sector. Neighbouring states like Jharkhand, Chhatisgarh are depending on our STL. Since technology is fast changing, more and more advanced energy meters and other equipment are coming into the power sectors. The STL requires continuous upgradation of its strength and support together with skill development of technicians as well as engineers which have become the need of the hour to cope up with the advancement.

In the FY 2016-17 a plan provision of Rs.50.99 lakh has been kept under the scheme.

### **ODISHA TRANSMISSION SYSTEM IMPROVEMENT PROJECT (EAP)**

This is a JICA assisted project to be implemented in the State for the project period from 2016-20 with a total project cost of ₹1289.08 crore including State counterpart funding of ₹ 142.32 crore. The project will be implemented through OPTCL, Bhubaneswar a wholly owned Govt. company with an objective address the issue of increased load demand of the State through creation of adequate transmission infrastructure which will enhance the capacity and reduce the transmission loss. The project aims at augmentation of transmission network to be taken up in 400 KV (2 project in Ganjam & Bhadrak), 200 KV (8 project in Dekhanal, Gajapati, Mayurbhanj, Angul, Nayagarh, Deogarh & Malkangiri) and 132 KV (9 project in Phulbani, Cuttack, Balasore, Dhenkanal, Jharsuguda, Sundargarh, Kendrapara, Kalahandi & Bargarh)

levels. A budget provision of ₹ 100.00 crore has been made for implementation of the project for the FY 2016-17 under the scheme.

### **DEENDAYAL UPADHYAYA GRAM JYOTI YOJANA(DDUGJY)**

Deendayal Upadhyaya Gram Jyoti Yojana is a Govt. of India scheme which aims at strengthening the Sub-Transmission and Distribution Infrastructure in the rural areas with separation of agriculture and non-agricultural feeders to regulate power supply to the agricultural consumers as and when needed for effective Demand Side Management (DSM) and proper energy accounting by means of metering arrangement at Distribution Transformers, Feeders and Consumer end. The scheme subsumes the RGGVY as a rural electrification component and the Outlay under the RGGVY is carried forward to the DDUGJY with its (DDUGJY) original Outlay made by Govt. of India. Under this Scheme, the detail survey of the un-electrified villages has been completed and LOA issued. In the FY 2015-16 a provision of ₹ 20 crore was kept under this scheme. In the FY 2016-17 a plan provision of Rs.100.00 crore has been made as State share.

### **INTEGRATED POWER DEVELOPMENT SCHEME (IPDS)**

Integrated Power Development Scheme is a Ministry of Power, Govt. of India scheme introduced in 2015-16 in order to create a strong infrastructure for strengthening the Sub-Transmission and Distribution Network with IT enabled Smart Metering of Distribution Transformers, Feeders and Consumers vis-a-vis reduction of losses in the urban and semi-urban areas by means of supplementing financial assistance to the DISCOMs. The Rooftop Solar Project, Installation of solar panels as well as smart and net metering are mandatory components under the scheme. The scheme subsumed the RAPDRP scheme and keeps it as a separate scheme under it. For the FY 2015-16 a provision of ₹ 10 crore was kept under this scheme. In the FY 2016-17 a plan provision of Rs.50.00 crore has been made as State share.

### **State Capital Region Improvement of Power System (SCRIPS)**

The Comprehensive Development Plan (CDP) for Bhubaneswar Cuttack Urban Complex has made to think of the infrastructural expansion and renovation of energy sector looking at tremendous infrastructural growth in all fronts across Bhubaneswar city and nearby area during the recent days. Taking these into consideration, Govt. of Odisha has adopted the concept of **State Capital Region Improvement of Power System (SCRIPS)** which is visualized with an objective of 24X7 uninterrupted stable power supply to all classes of consumers including public services. Underground cabling

work alongside 4 major roads i.e. Cuttack Road, Janpath, Sachivalay Marg & Bidyut Marg has been taken up where LOAs have been issued in Nov, 2016. 132 KVA UG cabling line from Chandaka –B GIS Grid to Mancheswar-B GIS Grid is to be taken up with issue of LOA in Nov, 2016. LOAs have been issued on August, 2016 for UG cabling work at Cuttack. In the FY 2015-16 a provision of ₹70.00 crore was made under the scheme. In the FY 2016-17 a plan provision of Rs.180.00 crore has been made under the scheme. The work is under progress.

### **Smart Grid**

The Smart Grid is a progress from the present state of grid towards adding a set of smarter system or applications in a phased manner according to the priorities of each constituent utility. Indian Smart Grid Task Force (ISGTF), with close association with Indian Smart Grid Forum, develops the norms from Smart Grid adaption which has been approved by MOP as the Smart Grid vision and road map for India. The Govt. of Odisha has taken initiatives for adaption of Smart Grid Technology in power sector (Transmission and Distribution Sector) having the component name v.i.z. GIS, SCADA, OPGW and AMI for un-interrupted and reliable power supply to the consumers of the State. In the FY 2015-16 a budget provision of ₹30.00 crore was kept under the scheme. In the FY 2016-17 a plan provision of Rs.80.00 crore has been made under the scheme.

### **RADIAL TO RING CONVERSION PROJECT**

The Radial to Ring Conversion Project is conceptualized in transmission and distribution sector to meet the current as well as anticipated demand of power in the State in coming years. In this system, one Substation can be fed from two sources of power which is capable of supplying power at the time of need from other sources. Thus the system will ensure uninterrupted power supply. Keeping in view the supply of quality and un-interrupted power to the consumers, Energy Department has launched a project called ‘Radial to Ring Conversion Project’. For this purpose a plan provision of ₹34.99 crore was made in the FY 2015-16 under the scheme. In the FY 2016-17 a plan provision of Rs.40.00 crore has been made under the scheme. The project work is continuing.

### **DISASTER RESPONSE CENTRE**

Since there is no Disaster Response Centre or Wing in power sector either in distribution or in transmission sector to combat the disaster and to restore the power supply with minimum time span, it became a herculean task to meet the requirement at the time of natural calamities. The last experience in Phailin and Flood has made to think for a Response Centre which will be built up with minimum man power and technical capability to meet the challenge. Energy Department has launched this project

named as 'Disaster Response Centre' for this purpose. A budget provision of ₹10.00 crore has been made in the FY 2016-17 under the scheme like that in the previous year.

### **DISASTER RESILIENT POWER SYSTEM**

The massive devastation of transmission and distribution infrastructure of the energy sector in last Phailin and Flood, played the major role to think for a 'Disaster Resilient Power System' in the State. So the scheme conceptualized for creation of energy infrastructure having capability to combat the natural calamities like Cyclone and Flood. A budget provision of ₹.20.01 Crore was made under the scheme in the FY 2015-16. In the FY 2016-17 a plan provision of Rs.30.00 crore has been made.

### **DISTRICT HEADQUARTER PROJECTS**

In order to make the different regions of the State disaster resilient and to ensure un-interrupted power supply, it is decided to launch a project for Disaster Resilient Power Infrastructure in all Districts Headquarters. For this purpose, a token amount of ₹1.00 Lakh was kept under the scheme in the FY 2015-16. In the FY 2016-17 a token provision of Rs.1000.00 has been kept under the scheme.

## **NEW SCHEMES/PROJECTS & INITIATIVES**

### **EQUITY INFUSION TO OPGC**

The State Government has decided to provide financial assistance through equity infusion to OPGC. For this purpose plan provision of ₹ 247.35 crore has been kept under the scheme in the plan budget for F.Y 2016-17.

### **POWER SUPPLY TO NEW BANK BRANCHES OF UNBANKED G.P.s**

In order to provide Power Supply to the New Bank Branches of unbanked GPs the State Government has initiated this scheme. In the FY 2016-17 a plan provision of ₹ 2.5 crore has been made under the scheme.

### **OPTIC FIBRE SYSTEM FOR G.P. LEVEL INTERNET CONNECTIVITY**

In order to implement Optical Fibre System for GP level Internet Connectivity, the State Government has made a plan provision of ₹ 15 crore under the scheme.

### **BIJU KBK**

With a view to improve the power supply position in KBK districts, State Government have decided to start a new scheme namely BIJU KBK in place of RLTA from the Financial Year 2016-17. For this purpose a token provision of ₹ 1 thousand has been made in the plan budget for the F.Y.2016-17.

**ACTIVITIES OF STATE PUBLIC SECTOR UNDERTAKINGS (PSUs):**

**ODISHA HYDRO POWER CORPORATION LTD. (OHPC)**

Odisha Hydro Power Corporation (OHPC) Ltd. was set up on 21st April 1995 consequent to the reform and restructuring of Power Sector in Odisha. Thereafter, all the Hydro Units of erstwhile OSEB & Govt. of Odisha were transferred to OHPC on 01.04.1996.

At present, OHPC has six Hydro Electric Projects in operation alongwith one Joint Hydro Electric Project with APGENCO having total installed capacity of 2063.50 MW.

The detailed unit wise installed capacity and design energy are given below.

Sl. No.	Name of the Units	Installed Capacity (MW)	Design Energy (MU)		Design Energy for Sale (MU)
1	Hirakud	275.50	684		677.16
2	Chiplima	72	490		485.10
3	Balimela	510	1183		1171.17
4	Rengali	250	525		519.75
5	Upper Kolab	320	832		823.68
6	Upper Indravati	600	1962		1942.38
	Sub-Total	2027.50	5676		5619.24
7	Machkund (Odisha share 50% as per 1978 Agreement)	36.00		262.50	259.87
	<b>TOTAL</b>	<b>2063.50</b>	<b>5938.50</b>		<b>5878.87</b>

**Power Generation**

OHPC generates hydro power and supplies the same to the State of Odisha at cheapest rate. The average tariff approved by OERC for the financial year 2016-17 is 85.20 Paise/Kwh. The Power generation from different power stations for the Year 2016-17 up to 31st Dec'16 is 3433 MU (excluding Machhaknd) and 3680 MU (including Machhaknd). It is programmed to generate 5213 MU of electricity in the current financial year.



Power Generation from different power stations of OHPC for 2016-17 up to the end of Dec'16 in MU:

Year 2016-17	Hirakud	Chiplima	Balimela	Rengali	Upper Kolab	Upper Indravati	Sub Total	Machh kund	Total
Upto 31st Dec'16	472	160	740	509	440	1112	3433	247	3680

#### RESERVOIR LEVEL:

Due to normal rainfall in the current year, water levels in all the reservoirs are in comfortable position to generate adequate electricity to meet State demand in the coming months. As on 31.12.2016, the reservoir level in different reservoirs in comparison to the previous years is given below:

Sl. No	Name of the Power Stations	FRL / MDDL	RL as on Dated 31.12.15	RL as on Dated 31.12.16	% filled up
1	Hirakud	630 ft. / 590ft.	628.25 ft	624.77 ft	79.05%
2	Balimela	1516 ft. / 1440 ft.	1504.20 ft	1497.90 ft	66.08 %
3	Rengali	123.5 m / 109.72m	122.54 m	118.21 m	50.78 %
4	Upper Kolab	858 m / 844 m	856.39 m	855.94 m	78.90 %
5	Upper Indravati	642m / 625 m	639.01 m	634.96m	49.51 %
6	Machhkund (JT)	2750 ft. / 2685 ft.	2743.05 ft	2740.60 ft	-

#### The important activities undertaken by OHPC for 2016-17 are as follows:

- i) DPR for a 600 MW capacity Pumped Storage Power Plant of Upper Indravati, Mukhiguda is under preparation. The conceptual layout plan for the proposed plant has been approved by the Deptt. of Water Resources, Govt. of Odisha. Topological survey has been completed and Geo-technical investigation is under progress.
- ii) Contract Agreement for R&M work of Unit#3 of CHEP, Chiplima signed on dtd.15.10.2015 with M/s Voith Hydro Private Limited, Noida at a project cost of Rs.65.67 crore. R&M work of the unit is in progress. The

refurbishment work of Intake Gate and Draft tube gate along with associated concrete structures has been completed. Dismantling of old Generator, Turbine and its auxiliaries have also been completed. The erection of Turbine, Generator and its auxiliaries will be taken up soon after receipt of new equipments.

- iii) Contract Agreement for R&M work of Unit #5 & 6 of HHEP, Burla signed on dtd.16.10.2015 with M/s Voith Hydro Private Limited, Noida at a project cost of Rs.158.77 crore. Refurbishment works of Intake gate and draft tube gate is being carried out at present. Dismantling of Generator and Balance of Plant equipment of Unit #6 completed and dismantling of Unit #5 has been started. After completion of dismantling work refurbishment of embedded parts including associated civil works of both the units will be carried out.
- iv) Contract Agreement for R&M of Unit #1 to 6 (six units) of BHEP, Balimela signed on 21.09.2016 with M/s BHEL at a project cost of Rs.382.91 crore. As per the schedule dismantling of Unit #1 will be taken up shortly.
- v) Capital maintenance work of Unit #1 UKHEP, Upper Kolab completed on 13.07.2016 with the replacement of Generator Stator and other associated works at a capital expenditure of Rs.16.85 crore.
- vi) Capital maintenance work of Unit #3 UIHEP, Mukhiguda completed on 01.08.2016 with a capital expenditure of Rs.8.82 crore.
- vii) Capital maintenance of Unit #2 HHEP, Burla is being carried out at a capital out lay of Rs. 17.84 crore. The scope of work also includes replacement of Turbine.
- viii) Replacement of Thrust collar of Unit #2 RHEP,Rengali will be carried out in the current financial year with an expenditure of Rs.1.98 crore by M/s BHEL.
- ix) Water Leakage from the expansion joint of unit # 6&7 in the 470 dewatering and drainage gallery of HHEP, Burla was arrested successfully by the contractor M/s Dynosure Concrete pvt. Limited and was completed on 29.04.2016.

## **GREEN ENERGY DEVELOPMENT CORPORATION LTD (GEDCOL)**

### **A. Small Hydro Electric Projects:**

- i. PFRs of 13 (thirteen) nos. SHEPs (approx.168 MW) have been prepared. Out of these, request has been made to State Technical Committee (STC) for allotment of 4 (four) nos. of SHEPs in favour of GEDCOL i.e. Kharag-I, II, IIA & III (approx. 96 MW) in Kandhmal District for development.
- ii. Preparation of PFR for another 01 (one) SHEP viz. Garjan Khol (approx.10 MW) in Anugul District is under progress.
- iii. DPRs have been prepared for 2 (two) nos. SHEPs i.e. Kanpur (4.2 MW) in Keonjhar & Jambhira (3 MW) in Mayurbhanj District. Tender document is under preparation for implementation of these projects.
- iv. GEDCOL & SAIL have agreed to develop Mandira SHEP (15 MW) in JV mode. Preparation of DPR for the same project is under progress by M/s MECON.

#### **B. Solar Power Projects:**

- i. GEDCOL has successfully completed commissioning of 20 MW Solar Power Plant at Manamunda in Boudh District under JNNSM Phase-II, Batch-I in the month of June-2016 through M/s BHEL under an EPC contract.
- ii. DPR has been prepared for development of 16.4 MW Solar PV power project utilizing surplus land inside OPTCL Grid Sub-stations. Preparation of tender documents is in advanced stage.
- iii. Project Implementation Agreement (PIA) has been signed in July-2016 with the developer for implementation of minimum 4 MW Rooftop Solar Project in PPP mode utilizing Rooftops of Govt. buildings in Cuttack and Bhubaneswar. Work is under progress.
- iv. Replication of the Solar Rooftop project on the Govt. Buildings in other cities of Odisha is under active consideration.
- v. Identification of land for the allotted 1000 MW capacity Ultra Mega Solar Power Project (UMSPP) under MNRE, Govt. of India scheme is under progress.
- vi. Tender has been finalized for development of 20 MW Solar Power Plant towards Solar Purchase Obligation (SPO) of GRIDCO.

A comprehensive Renewable Energy Policy for the State of Odisha covering Solar, Wind, Small Hydro, Biomass and Waste to Energy etc. sources of Renewable Energy has been notified.

OPGC a Gold category state PSU has been incorporated in the year 1984 under the Companies Act 1956. It works to establish, operate and maintain electric power generating station, tie lines, sub-stations and transmission lines & connection therewith. It develops and deals in fuels i.e., coal, lignite, coke, coal-bed methane etc.

The authorised Share Capital is Rs.1000 crore and the paid of capital is Rs.490.2174 crore. The share holding pattern is as below:

Shareholders	Percentage	No. of Shares	Amount (Rs.)
Govt. of Odisha	51	25,00,109	250,01,09,000
AES	49	24,02,065	240,20,65,000
Total	100	49,02,174	490,21,74,000

The dividend declared so far is Rs.1364.68 crore. Out of this State Govt. share (51%) is Rs.712.50 crore and AES share (49%) is Rs.652.18 crore. The initial investment in share capital for the project is Rs.451 crore and the cash returned so far to the State Govt. is Rs.504 crore in disinvestment and Rs.712.50 crore in dividend.

### **FUNCTIONS & ACTIVITIES DURING FY 2016-17**

#### **1. Unit 1 & 2 of 420 MW (2 X 210 MW)**

The present Installed Capacity of OPGCL is:

SI. No	Particulars	Capacity
1.	Thermal	420 MW

At present the current price per unit of electricity is ₹2.099 (Approx.)

OPGC has set up 2 thermal power plants with a capacity of 210 MW each in the IB Thermal Power Station, Banharpali in the District Jharsuguda (Odisha) at a cost of ₹1135Crore. The entire generation from the existing two units of 210 MW each of IB Thermal Power station is committed to GRIDCO Ltd on the basis of a long term PPA.

#### **2. Unit-3 & 4 Expansion Project of 1320 MW (2 X 660 MW)**

OPGC is pursuing expansion project comprising of (2x660 MW) power plants in the same location i.e., IB Thermal Power Station (ITPS) in the District of Sundargarh at an estimated cost of ₹10,165/- crore. The construction of power plants has been awarded in favour of BHEL & BGRE and the construction work is in progress. The power plant

is scheduled for commercial operation towards the last part of FY 2017-18. Half of the power from the proposed units will be available to the state of Odisha through GRIDCO.

**Generation and Profitability (last six years)**

<b>Year</b>	<b>Units of power generated [in MU]</b>	<b>PLF %</b>	<b>Turnover ₹in Crore</b>	<b>Net Profit after Tax ₹in Crore</b>
2010-11	3184.70	86.56	504.14	115.04
2011-12	2950.15	79.97	572.78	137.08
2012-13	3181.59	86.47	636.03	167.43
2013-14	2855.902	77.62	622.64	127.57
2014-15	2798.92	76.07	630.00	150.57
2015-16	3117.316	84.50	705.95	114.83

**ODISHA COAL & POWER LTD. (OCPL)**

Odisha Coal and Power Limited (OCPL) is a Joint Venture Company of Odisha Power Generation Corp. Ltd (OPGC) & Odisha Hydro Power Corp. Ltd. (OHPC) with a shareholding pattern of 51:49 . The Manoharpur & Dip-side Manoharpur coal blocks have been allotted to OCPL by the Nominated Authority, Ministry of Coal (MoC), GoI on 31st August 2015 to supply coal exclusively to OPGC expansion power plant (4x660 MW).

These coal blocks are situated in Ib- Valley coalfields in the district of Sundargarh. The Manoharpur coal block is an explored block whereas the Dip-side Manoharpur coal block is regionally explored. The total coal reserve of Manoharpur coal block is 181 Million Ton and of Dip-side Manoharpur coal block is 350 Million Ton.

**Project Activities:**

**A. Manoharpur coal block**

**1. R&R:**

- Construction of R&R colony at Sukhabandh for resettlement of PDFs of Manoharpur village completed in all respects.
- 68 PDFs shifted to the R & R colony till Dec 2016.

- Process initiated for the construction of R&R colony Ph-II for the PDFs of Sanghumuda village.
2. Permits/Clearances/ Compliances:
    - The major permits and clearances including forest clearance, environment clearance, consent to establish, road diversion permission, nalla diversion permission, environment clearance for R&R colony, consent to establish & consent to operate for R&R colony are in place.
    - Grant order issued by Govt. of Odisha and execution of mining lease is under progress.
    - Approved Mine Plan & Mine Closure Plan (Rev-I) is in place and Mine Plan & Mine Closure Plan (Rev-II) have been submitted with MoC for its approval.
  3. Land:
    - 856 Ac. out of 982 Ac. of Private land allotted in favour of OCPL.
    - 741 Ac. out of 787 Ac. of Govt. land allotted in favour of OCPL.
    - Possession for 491 Ac. out of 495 Ac. of forest land taken over.
  4. Financing:
    - The Board of OCPL has approved the project cost of Rs.1382 Cr towards development of coal blocks.
    - PFC & REC have sanctioned a loan of Rs.518 Cr each to OCPL for the project. Agreement executed with PFC and the process of execution with REC is under progress.
  5. Coal Production Schedule:
    - As per the Allotment Agreement signed with the Nominated Authority, MoC, the production of coal will start by April, 2019 and reach the full production (8 Million ton) by end of year 2022.
- B. Dip-side Manoharpur coal block**
1. Prospecting License:
    - Prospecting License has been executed with State Govt.
  2. Exploratory Drilling & preparation of GR of Dip-side coal blocks:
    - Drilling of 71 boreholes in Dip-side Manoharpur coal block completed. CMPDI has been appointed for preparation of Geological Report (GR).
- C. Manpower:**
1. A dedicated team of 76 people, including deputation from OPGC, are working for development of the coal blocks.

## **ODISHA POWER TRANSMISSION CORPORATION LTD.(OPTCL)**

### **IMPORTANT ACTIVITIES OF OPTCL DURING THE YEAR 2016-17.**

Odisha Power Transmission Corporation Limited (OPTCL) ensures development of an effective and economical system of Intra-state & Inter-state transmission lines for smooth flow of electricity from generating station to load center.

The infrastructure of OPTCL network is as follows:-

126 nos. of Grid Sub-Stations including Switching Station with transformation capacity of 15582MVA and 12876.263Ckt.Kms.of Transmission lines of 400KV, 220 KV

and 132KV rating. The present peak demand of the state is around 4166MW, which is handled by the existing network and equipment of the system.

**(A) Important activities of Operation & Maintenance Wing (2016-17):-**

**(a) Completed Works :-**

- (i) 15MVA Transformation capacity addition in 2 nos. of Grid S/s.
- (ii) Commissioning of LILO line from 220KV Katapali-Bolangir feeder up to Bolangir PG sub-station and charged on Dt.04.05.2016.
- (iii) Commissioning of LILO line from 132KV Burla PH-Chipilima PH Tie-I Line up to Katapali sub-station and charged on Dt.22.10.2016.
- (iv) Commissioned successfully with latest Digital Technology for 3 nos. of 33KV Bays of Chandaka Grid Substations. Conventional CT with analogue merging unit in two nos of bays installed. One bay is installed with optical current transformer (optical sensor intelligence). Conversion of optical signal (current, voltage) to analogue value is adopted for conventional process bus Technology as per IEC 61850-9-2 LE). The project is completed successfully on Dt.31.08.2016.
- (v) Commissioning of 220 KV Feeder Bay at Balimela on Dt.19.08.2016 with T-connection of 220 KV Balimela – Jayanagar ckt-II for having alternate power supply to Balimela substation.
- (vi) Completed replacement of old conductor with new in 132 KV Burla – Sambalpur, 132KV Paradeep – IFFCO DC Line and 132KV Paradeep – PPT DC Line.
- (vii) completed installation of Capacitor Banks 10 MVAR each at Boinda & Jaleswar.

**(b) On-going Works :-**

- (i) Conversion of S/C (Single Circuit) to D/C (Double Circuit) of 132KV Jajpur Road-Anandpur line, Paradeep-Jagatsinghpur line, New Bolangir-Patnagarh line, New Bolangir-Sonepur line, Akhusingh- Paralakhemundi line.
- (ii) Up gradation of 132KV Joda-Barbil line and Mendhasal-Khurda line.
- (iii) Addition of 132KV feeder bays at Balasore, Saintala & Khurda.
- (iv) Addition of transformer bays at Budhipadar, New Bolangir, Sambalpur, Basta, Phulnakhara, Anandapur, Khurda, Therubali, Rayagada & Purushottampur.

- (v) Replacement of old conductor with new in 132KV Khurda-Puri, Berhampur-Digapahandi, Kendrapara-Paradeep- I & II, TTPS-Duburi-II, Jajpur Road-Bhadrak and 220KV Joda-TTPS-I, Meramundali-Bhanjanagar-I.
- (vi) Substation Automation System (SAS): A protection upgradation and SAS is in progress for 132/33 KV Grid Substation Jajpur Road and Kendrapara. The substation will be equipped with IEC 61850 complied IED and distributed architecture with Bay Control Units. Tender has already been floated for another 4 nos. of Grid substations i.e. Aska, Rayagada, Brajarajnagar and Sambalpur.
- (vii) Substation Automation System to 9 nos. of substations having IEC 61850 complied protection relays adopting distributed architecture with retrofitting BayControl Units has been under progress.
- (viii) Installation of Capacitor Banks at Kendrapara & Sonapur.
- (ix) Replacement of old & obsolete breakers, CT, PT, LA, isolators etc. and relays. Renovation of Earthing System at selected Grid S/s.
- (x) Pollution Mapping is being conducted as per guide lines of ERPC at 102 locations.
- (xi) Renovation of 132/33KV Ganjam Grid Substation.
- (xii) Energy conservation is followed through replacement of conventional lighting by LED fittings in Switch Yard and installing Star rated AC Machines. Monthly Energy Audit and loss calculation is going on.

**(B) Important Activities of Construction Wing (2016-17):-**

(a) Balance Projects Completed During FY 2015-16

400KV line: Meramundali-Lapanga DC line completed.

132KV S/S & line: Mania (Tangi), Padampur, Dabugaon & Somanathpur (Balasore).

(b) Projects Completed During FY 2016-17

220KV S/S & line: Atri, Puri(Samangara), Basundhara & 220KV Bidanasi-Cuttack line.

132KV S/S & line: Bangiriposi.

(c) Projects to be Completed During FY 2016-17

400KV S/S: Installation of 3rd ICT at Mendhasal

220KV S/S & line: Infocity-II, Nuapada(Cuttack), Malkangiri, Bonei.



132KV S/S & line:Khajuriakata, Bhograi, Olavar, Salipur – Kendrapara line, Potangi, Podagada, Muniguda, Kuchei-Jaleswar line, Somanathpur-Balasore line, Dhenkanal-Nuapatna line, Agarpada, R. Udaygiri, Betanoti (Mayurbhanj), & 132KVJaynagar-Sunabeda line.

(d)Other Ongoing Projects (FY 2016-17)

400KV S/S & line: Lapanga

220KV S/S & line: Pratapsasan, Kesinga, Baliguda, GodaChhak, Jaynagar-Jaynagar(PG), Narasinghpur(Cuttack), Chandaka-B, Bargarh(New), Keonjhar GIS, Keonjhar( PG )- Keonjhar GIS, Pratapsasan –Pandiabil, Kalimela, Kasipur, Jaipatna, Tfr bay at Laxmipur, Aska.

132KV S/S & line: Satasankha, Tirtol, Dhenkikote(Tikira), Chkiti, Kantabanjhi, Nuapatna-Banki, Nuapada-Padampur, Brajabiharipur, Birmaharajpur, Tusra, Ghens, Kesinga-Junagarh, Chandbali GIS, Khuntuni(Athagarh) GIS, Unit-III (BBSR)GIS, Mancheswar(BBSR)GIS, Phulbani-Boudh, Bhadrak-Anandpur, Udala, Maneswar, , Jaynagar-Tentulikhunti line & Boriguma.

(A)Other New Projects (Expected to be Awarded in 2016-17)

400KV S/S: Meramundali-B

220KV S/S & line: Dhamra, Telkoi.

132KV S/S & line: G. Udaygiri

**(B) Other JICA Funded New Projects (Expected to be Awarded in 2016-17)**

220KV S/S & line: Deogarh, Lephripada, Daspalla, Kiakata,

132KV S/S & line:Rajnagar, Gondia, Bahugram, Thuapali, Lakhanpur.

**(C) Important Activities of Telecom Wing (2016-17):-**

In addition to the regular maintenance/Repair/Renovation works of existing PLCC/SCADA/OPGW equipment in all over the state, the following Ongoing and New Projects are undertaken by the Telecom Wing.

**ONGOING PROJECTS:**

1. Provision of SCADA Interface points at all 220KV Grid s/s of OPTCL:

- The project is under execution of consultancy services of POWER GRID at an estimated cost of Rs 67.54 Cr. Target of completion: March-2017

2. Extension of ULDC SCADA System to all existing grid sub-stations of OPTCL:

- The project is under execution of consultancy services of POWER GRID at an estimated cost of Rs 36.00 Cr. Target of completion: March-2017

3. Reframing of Microwave network in OPTCL in ULDC scheme:

- The work is completed.

4. Provision of PLCC/SCADA facilities for 19 nos of new Grid sub-station under OPTCL:

- Work at 11 nos is completed. Rest of the work is under progress and to be completed by March-2017.

5. Provision of Optic fibre channel to IT wing of OPTCL:

- 100 Mbps optic fibre channel has been provided to IT wing of OPTCL for smooth ERP operation in OPGW link covered Grid Sub-stations as per availability so far.

6. Leasing of spare fibre to PGCIL:

- Spare optic fibre in existing OPGW links have been leased out to Power grid in different line segments. by which OPTCL is able to earn some revenue.

7) Extension of SCADA facility to DISCOMs:

- DISCOMs have been provided real time data through Remote Visual Display Unit (RVDU) at respective ABT cells.

8. Maintenance of CUG scheme:

- All the executives of OPTCL have been provided with Closed User Group (CUG) mobile SIM cards under supervision of Telecom wing of OPTCL.

9. Provision of Tele-protection system in all 220KV & above lines through OPGW SDH equipment:

- Work order has been awarded to M/s Alstom T&D Ltd. and commissioning activities shall be completed by March-2017.

10. Availability of data of real time power flow of feeders covered under UFLS:

- Work has been completed.

11. Laying out of OPGW in 132KV Lines of OPTCL:

- E-tendering activities are completed and awarded. Work is in progress

**(D) Important Activities of IT Wing (2016-17):-**

1. The OPTCL, GRIDCO & SLDC Wide Area Network (WAN) which is a full hybrid network of various connectivity technologies went through a major upgrade. 90+ MPLS links were extended to all field offices including substations with a minimum bandwidth of 256 Kbps. 20+ OPGW connections were also commissioned for OGS-WAN network with a minimum bandwidth of 2 Mbps. Internet leased line at OPTCL HQRS was upgraded to 30 Mbps.
2. Installation of AMI infrastructure has been completed at 124 Locations of OPTCL. Automatic data collection from 100+ substations has been completed. The connectivity backbone of the project is served through OGS-WAN as well as back up GPRS links. Once Gone Live, the project shall enable OPTCL in

automatic collection of energy accounting data around 824 metering points and the Energy Accounting Settlement Services can run on weekly basis.

3. Video Conferencing facility has been established at 20 Major Grid Substations of OPTCL. The facility is majorly operated over OGS-WAN network and hence is very successful. The facility now shall be extended to 74 more locations involving all engineering departments and SLDC.
4. Four major grid substations of OPTCL shall be monitored 24x7 through CCTV on pilot basis. The project adopts modern technologies like motion based recording, Local recording and remote monitoring through IP cameras, 24x7 surveillance through PTZ cameras and night vision cameras. Video Analytics shall be bundled with the project for identifying major events, breakdowns and incident reporting.
5. OPTCL, GRIDCO and SLDC Website shall go through a major overhaul and thus make way for a web-portal instead of static websites.

**(E) Important Activities of Govt. Grant Schemes (2016-17):-**

**(a) ODSSP**

- i) Govt. of Odisha have sanctioned Rs.2600 Crore as Grant for construction of 500nos. of 33/11KV Sub-stations in the state of Odisha. OPTCL is the Nodal agency for construction of the above Sub-stations.
- ii) LOA have been issued to the EPC Contractors in different Phases for construction of 473nos 33/11KV Sub-stations in the state of Odisha at a Contract Price of Rs 3625 Crore.
- iii) 87nos, 33/11KV Sub-stations have been Test Charged.
- iv) Additional 65nos 33/11KV Sub-stations are likely to be Charged by March, 2017.

**(b) ODAFFP**

- i) Govt. of Odisha have sanctioned Rs 1000 Crore as Grant for construction of 11KV dedicated Agriculture & Fishery feeders in the state. OPTCL is the Nodal agency for construction of the above dedicated feeders.
- ii) LOA for construction of 19nos of 11KV dedicated Fishery feeder was issued to M/s Gupta Power Infrastructure Limited on 10.06.2015. (Contract Price- Rs 128.93Crore)
- iii) Out of the above, construction work for 16nos 11KV Dedicated Fishery Feeders is going on and likely to be completed during Dec'2016 to March'2017 in phased manner. Work for balance 03nos Fishery

feeders in Kendrapara District was delayed due to water logging, forest clearance and Paddy crop. The construction will start by Dec'2016.

**(c) Puri Nabakalebar Project:-**

- i) This project is done under Govt. of Odisha Grant Scheme.
- ii) The Sub-station works in Puri Town completed in June, 2015. SCADA Testing work is going on and likely to be completed by Dec, 2016.

**(d) SCRIPS (State Capital Region Improvement of Power System):-**

i) BHUBANESWAR UG CABLING WORK:

- a. Bhubaneswar Underground Cabling work alongside four major roads (Cuttack Road, Janpath, Sachivalaya Marg & Bidyut Marg) and some of their connecting roads: LOA has been issued in Nov'2015
- b. 132KV line from Chandaka-B GIS Grid to Mancheswar-B GIS Grid through Underground Cabling: LOA to be issued in Nov' 2016.

ii) CUTTACK UG CABLING WORK:

Cuttack Underground Cabling: LOA issued in Aug'2016.

**(e) Radial to Ring Conversion Project(RRCP) :-**

Keeping in view to supply quality and un-interrupted power to the consumers, out of the proposed 11 different line works in "Radial to Ring Conversion Projects", 3 nos. have been completed, 4 nos. under progress, 1 no. already tendered, 2 nos. to be tendered and for the rest one survey work is in progress. In this system, one Sub-station can be fed from two sources of power which is capable of supplying power at the time of need from other sources.

**( f ) Disaster Resilient Power System(DRPS) :-**

This scheme conceptualized for creation of energy infrastructure having capability to combat the natural calamities like Cyclone and Flood. Out of the proposed total 7-projects, 1-project is completed, 4-projects under progress and rest 2-projects are to be tendered.

**(g) Disaster Response Centre(DRC) :-**

From the experiences learnt from PHAILIN, in order to restore power supply within minimum possible time, the organization started maintaining "Transformer Banks" at 9(nine) distributed locations having total capacity of 875 MVA at different voltage levels which will come in handy for replacement during any transformer failure.

12 sets of ERS(Emergency Restoration System) towers suitable for 400KV are going to be received very soon.

**(h) Smart Grid :-**

The progress of Smart Grid ( addition of smarter system or applications to the Grid) technology having the components like GIS(Geographical Information System),

SCADA(Supervisory Control And Data Acquisition), OPGW (Optical Ground Wire),AMI(Advance Metering Infrastructure) are taken care by IT and Telcom wings as mentioned above.

**(i) Deen Dayal Upadhaya Gram Jyoti Yojana (DDUGJY, Central Govt. Scheme)**

In Deen Dayal Upadhaya Gram Jyoti Yojana (DDUGJY), letter of award(LOA) issued. Details survey of UE (un-electrified) villages completed. Site activities also started.

**(j) Integrated Power Development Scheme(IPDS, Central Govt. Scheme) :-**

In IPDS, letter of award(LOA) has been issued. Details Survey for M/s CESU & M/s WESCO utility completed and for M/s NESCO & M/s SOUTCO utility will be completed very soon.

**GRID CORPORATION OF ODISHA LTD (GRIDCO LTD)**

Pursuant to the implementation of Orissa Electricity Reform Act (OERA), 1995, GRIDCO was registered as a State owned Corporation of the Government of Odisha on 20th April, 1995 under the Companies Act, 1956 as the successor Organization to the erstwhile Orissa State Electricity Board (OSEB). Following implementation of the Electricity Act, 2003, the transmission activities was hived off from GRIDCO whereby GRIDCO presently carries out its bulk supply function as a Deemed Trading Utility. Being designated by the State Government as the State Designated Entity for procurement & sale of power in bulk to meet the State demand, GRIDCO procures the State share of power from inside and outside the State and supplies the same in bulk to the Electricity Distribution Companies (DISCOMs) for onward retail sale to the consumers of the State. Surplus Power, if any is traded to maximise the revenue.

**Recent Development:**

In a development during March, 2015, the Retail Supply License of the erstwhile RIL Managed 3 DISCOMs (WESCO, NESCO & SOUTHCO) was revoked and the management and control of the 3 DISCOMs Utilities was vested with the Chairman-cum-Managing Director (CMD), GRIDCO as the Administrator of the said Utilities under the overall supervision of the Principal Secretary, Government of Odisha w.e.f. 04.03.2015 as per the Hon'ble Odisha Electricity Regulatory Commission (OERC) Order dated 04.03.2015 in Case No. 55/2013. In order that the electricity supply in the respective area of the DISCOM Utilities is not affected, the Administrator took effective measures like placing Authorized Officers who were later assisted by appointing Chief

Operating Officers in each of the said 3 DISCOM Utilities. The DISCOM Utilities, as of date, are functioning smoothly under the Office of the Administrator.

Although the DISCOMs immediately moved an appeal, with Appeal No.64/2015 on the very next day i.e. 05.03.2015 before the Hon'ble Appellate Tribunal for Electricity, New Delhi against the above OERC Order dated 04.03.2015 for stay, the Tribunal, in an Interim Order dated 21.04.2015 dismissed the contention of the Appellants and upheld the OERC Order dated 04.03.2015. However, the Appeal is now sub-judice in the Tribunal for disposal.

**Power Procurement: Important activities carried out by GRIDCO during 2016-17 are furnished as under:**

Source-wise actual power procurement during the FY 2015-16 and approval of OERC for 2016-17 & actual up to Sep-2016, by GRIDCO is furnished in the Table below:

Generator (Source)	FY 2015-16 (Actual)		FY 2016-17 (As per approval of OERC)		FY 2016-17 (Actual up to Sep)	
	(MU)	(Rs. Crore)	(MU)	(Rs. Crore)	(MU)	(Rs. Crore)
Hydro (Old) [BRL, CPL, BLM, RGL, UKB]	2,511	270.32	3,677	332.41	1,645	164.89
Indravati HEP	1,587	139.38	1,942	146.37	809	65.82
Machhkund HPS	280	9.64	263	12.58	152	7.28
<b>Total State Hydro</b>	<b>4,378</b>	<b>419.34</b>	<b>5,882</b>	<b>491.36</b>	<b>2,606</b>	<b>237.99</b>
OPGC	2,775	567.22	2,862	544.43	1,389	336.02
TTPS (NTPC)	3,362	851.50	3,150	859.81	1,653	498.55
IPPs (Vedanta, GMR, Jindal India, Ind-Barath & NBVL)	5,259	1,200.50	8,034	1,783.35	2,314	543.29
CGP & Co-gen. Plants	644	17.71	-	-	-	-

Renewable Sources						
SHEPs	262	96.48	320	118.06	162	59.58
Bio-mass	24	13.87	115	68.35	36	20.60
Solar	169	138.62	230	163.30	99	76.31
<b>Total Renewables</b>	<b>455</b>	<b>248.97</b>	<b>665</b>	<b>349.71</b>	<b>297</b>	<b>156.49</b>
Central Sector – Hydro						
Chukha HEP	272	58.43	254	54.31	194	49.00
Tala HPS	140	32.24	141	29.14	102	25.08
Teesta-V HEP	537	144.55	511	122.34	366	80.85
<b>Total Central Sector – Hydro</b>	<b>949</b>	<b>235.22</b>	<b>906</b>	<b>205.79</b>	<b>662</b>	<b>154.93</b>
Central Sector – Thermal						
Talcher STPS, Stage-I	2,381	577.50	2,157	519.14	1,240	332.84
Talcher STPS, Stage-II	1,530	365.77	1,327	315.49	724	172.23
Farakka STPS, Stage-I & II	1,106	451.28	-	128.89	666	226.12
Farakka STPS, Stage-III	431	224.22	-	100.60	313	125.60
Kahalgaon STPS, Stage-I	595	231.60	245	154.67	411	144.46
Kahalgaon STPS, Stage-II	163	60.45	263	102.39	115	38.68
Barh STPS, Stage-I & II	223	224.45	-	-	452	238.36
NVVNL Bundled Coal Power	107	33.89	-	-	-	-
<b>Total Central Sector – Thermal</b>	<b>6,536</b>	<b>2,169.16</b>	<b>3,992</b>	<b>1321.18</b>	<b>3,921</b>	<b>1,278.29</b>
ER UI Power	356	64.57	-	-	169	15.67

Purchase through PX	17	3.56	-	-	-	-
<b>PGCIL Trans. charges</b>	-	*	-	<b>260.43</b>	-	<b>176.75</b>
<b>ERLDC &amp; Reactive Energy charges</b>	-	<b>9.50</b>	-	<b>3.10</b>	-	<b>1.78</b>
<b>Additional RE</b>	-	-	-	<b>30.00</b>	-	<b>0</b>
<b>Total</b>	<b>24,731</b>	<b>5,787.25</b>	<b>25,491</b>	<b>5,849.16</b>	<b>13,011</b>	<b>3,399.85</b>
<b>Per Unit Charges (Rs./kWh)</b>		<b>2.34</b>		<b>2.29</b>		<b>2.61</b>

### 1. Power Scenario, Commissioning of IPPs & Capacity Addition:

Given below are the details of Installed Capacity / entitlement of availability of power by GRIDCO from various sources:

<u>Sources of Power</u>	<u>Allocation (MW)</u>
State hydro	: 2,023
OPGC	: 420
TTPS	: 460
IPP (Vedanta, GMR, Jindal India & NBVL):	1,344
New & Renewable sources	: 215
Sub-total (State)	: 4,461
Central allocation (Hydro)	: 189
Central allocation (Thermal)	: 1,203
Sub-total (Central Allocation)	: 1,392
<b>Total</b>	<b>: 5,854</b>

Keeping in view of the growing power demand in the State and in the country Govt. has executed MoUs with 27 nos. of IPPs for setting up of coal based thermal power stations in the State and GRIDCO has signed PPAs for procurement of state's entitlement of a total of about 7,000 MW.

Out of the above IPPs, M/s. Vedanta Ltd. (VL), M/s. GMR Kamalanga Energy Ltd. (GKEL) and M/s. Jindal India Thermal Power Ltd. (JITPL) have already started commercial operation of their thermal power plants of 2,400 MW, 1,050 MW and 1,200 MW capacities respectively. Odisha has shares of 720 MW, 472.50 MW and 144 MW respectively from these aforesaid power plants.



GRIDCO has executed PPA with M/s. Nava Bharat Ventures Ltd. (NBVL) on 31-10-2014 & the Revised PPA dated 23-09-2015 for procurement of State share of power 7.2 MW from their 60 MW Unit, which has been commissioned on 26-02-2013.

Further, the 2x350 MW thermal power plant of M/s. Ind-Barath Energy (Utkal) Ltd. (IBEUL) at Sahajbahal, Jharsuguda is likely to commence commercial operation by the end of this FY 2016-17. Odisha shall have a total share of 12%, i.e., 84 MW from the generating units of IBEUL.

M/s. Monnet Power Company Ltd. (MPCL) has scheduled to commission their Units in Jun. & Dec. 2017. Odisha has a share of 472.50 MW from this Project.

M/s. Lanco Babandh Power Ltd. (LBPL) has taken up construction activities of their 2x660 MW thermal power plant at Kurunti, Dhenkanal on war footing basis and they are hopeful of commissioning of their Units in Sep-2017 and Mar- 2018. Odisha shall have a share of 594 MW from this plant.

In view of comparatively high cost of power of NTPC stations and surplus power situation in the State, GRIDCO has requested for surrender of capacities allocated to the State from proposed stations of NTPC & its JV Companies, including costly Barh STPS, but, excluding share from the proposed 3x660 MW North Karanpura STPS, tariff for which is comparatively cheaper and affordable.

## **2. Procurement of Power from New & Renewable Sources and meeting RPO:**

At present GRIDCO has 215 MW to its credit from different New & Renewable sources of Energy, out of which 57 MW is from Small Hydro Electric Projects, 138 MW from Solar PV Projects and 20 MW from Bio-mass Power Project.

It is expected that 10 MW of Biomass Energy from M/s. Octant Industries Ltd. will to be available by the end of 2016-17. For future requirements GRIDCO has executed PPAs with 4 nos. of SHEPs for total installed capacity of 54.5 MW, with 1 no. of Bio-mass project of 6 MW installed capacity and with a MSW Waste to Energy project developer with an installed capacity of 11.5 MW.

## **3. Power Sales to DISCOM Utilities & Power Trading:**

During FY 2015-16, GRIDCO transacted 24,411 MU as detailed below:

Sale to four DISCOM Utilities	:	22,984	MU
Sale to IMFA & NALCO	:	9	MU
Sale to CGPs	:	63	MU

Sale through Power Exchange	:	87	MU
Return through Power Banking	:	156	MU
Sale through trading		:298	MU
Sale towards intra-state UI	:	756	MU
Sale towards inter-state UI	:	59	MU

The total amount of sales witnessed by GRIDCO is around Rs. 6,983 Crore during the FY 2015-16.

#### **4. Facilitating smooth Grid Management:**

GRIDCO being one of the major entities drawing power from the Eastern Region Pool, follows grid stipulations strictly, especially with regard to schedule and drawl of power. GRIDCO's scheduling and drawal of power in the past has in fact helped in smooth and prudent management of the grid operation. This has helped grid management by SLDC easy.

#### **5. Finance:**

During FY 2015-16, GRIDCO has witnessed a turnover of Rs. 6,811 Crore, but suffered losses of about Rs. 407 Crore (provisional) especially due to provisioning of Rs. 353 Crore, comprising of receivables on account of SLDCUI and NTPC Bond. It is expected that financial position of GRIDCO is likely to improve during the coming years due to availability of surplus power for trading.

#### **ODISHA THERMAL POWER CORPORATION (OTPC)**

Pursuant to the decision of the State Govt of Odisha, the Odisha Thermal Power Corporation Limited (OTPC) was established on 29th Jan'2007, as a joint venture company of two State Public Sector Undertakings namely, the Odisha Mining Corporation Ltd (OMC) and The Odisha Hydro Power Corporation Ltd (OHPC) having equal share. OTPC is setting up a coal based super critical thermal power plant of 3200MW (3x800MW + 1x800MW Future) capacity in Kamakhyanagar Tahasil of Dhenkanal district.

- The total land for the project including the railway corridor after deliberation & visit of CEA is finalized at 1833.927 acres.
- 60% of payment of compensation for private land has been made. Alienation of non-forest Govt land is under process by the Tahasildar-cum-Land Acquisition Officer, Kamakhyanagar.

- The cost of the project estimated at Rs.18,218 Crores i.e. Rs.7.59 Crores per MW. The levelised tariff for 25 years with discount factor 10% is estimated at Rs.4.04 per kwh. An expenditure of Rs.220 crores has been incurred on the project on the project till Jan'2015.
- Power Purchase Agreement (PPA) for the sale of entire power of OTPC has been executed with GRIDCO
- Site specific studies like soil investigation, ground water survey, socio economic study, geological study, contour survey, area drainage study, hydrological study etc have been completed. DoWR has confirmed allocation of required water for the project.
- Forest diversion proposal work has been awarded to M/s CEMC Pvt. Ltd., Bhubaneswar to obtain stage-I & II clearance from the appropriate authority.
- Boundary wall work of acquired property has been started by M/s IDCO.
- Peripheral developmental activities have been going on in project affected areas.
- Terms of Reference (TOR) granted by MoEF & CC, Govt. of India, on 05.03.2013, it was mandated to submit final compliance within a period of three years from the date of issue. M/s MECON have completed EIA study & Public hearing has also completed. The final revised report would be submitted after allocation of a coal block which is mandatory on or before 05.03.2017 i.e. validity of TOR extended for one more year by MoEF & CC.
- The Govt of India, Ministry of Coal has been requested several times through State Govt to cancel the Tentuloi coal block allotted to OTPC in August'2013 as it is not feasible for mining and not viable for operation.
- OTPC has registered with the MSTC as per the notification dtd 21.01.2015 of the GoI, MoC for making application for new suitable coal blocks in lieu of Tentuloi coal block to meet its coal requirement of 16 MT per annum. State Govt has written several letters in this regard to MoC, GoI.

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