
rest of the Control period (FY 2022-23 & 2023-24) has been done as well and has been attached to the Business Plan. OPTCL has stated that solar pooling sub-stations at Manmunda & Nildungri have been cancelled by MNRE and 220/33kV S/S at Chitalo is currently not feasible. However, OPTCL has indicated that it may consider the above mentioned projects in future with proper justification. OPTCL has further stated that the delay in filing Business Plan on account of unprecedented pandemic and things beyond their control may be considered.

3. The petitioner, OPTCL has stated that it is involved in intrastate transmission business in the State of Odisha as notified by Clause-10 of the Govt. Notification No.6892 dated 09.06.2005 as the State Transmission Utility (STU) under Section 39(1) of the Act with effect from 01.04.2005. By virtue of the 2nd Proviso to Section 14 of the Electricity Act, 2003, OPTCL has been a deemed Transmission Licensee under the Act, and is now governed by License Conditions set forth in OERC (Conduct of Business) Regulations, 2004, at Appendix 4B issued u/S.16 of the Act, as modified by Commission's Order dated 27th October 2006.
4. Petitioner OPTCL in the petition has stated that Regulation 4 of the OERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2014 provides procedure for preparation of business plan. The Regulation provides that the business plan should contain the following:
 - Forecast of energy to be wheeled for each year of the business plan
 - Transmission loss reduction trajectory for each year of the business plan
 - Trajectory for achievement of quality targets set by commission from time to time
 - Scheme wise Capital investment plan
 - i. Capital structure, Cost of financing, ROE, Terms of existing loan agreement
 - ii. Purpose of investment,
 - iii. Capitalization schedule,
 - iv. Financing plan,
 - v. Cost-benefit analysis,
 - vi. Performance improvement to be envisaged in the control period
 - O&M cost estimated for base year along with two years prior to base year with detail along with forecast for each year of the business plan period
 - Detail of depreciation

- Targets proposed for other controllable items such as working capital, availability of transmission system, Quality of supply targets etc.
 - Proposals for non-tariff income with item wise descriptions & detail.
 - Proposals in respect of income from other business.
 - Other Information (as thought appropriate by transmission licensee for consideration during determination tariff)
 - SLDC Charge
5. OPTCL has submitted that presently it is carrying the intra state transmission and wheeling of electricity activities under a license issued by the OERC. The Company is also discharging the functions of State Load Despatch Centre. The Peak Demand handling capacity of network has gone up from 3981 MW in FY 2014-15 to 5427 MW in FY 2018-19.
 6. In compliance to Regulation 4 of OERC (Terms and Conditions for determination of Transmission Tariff) Regulations 2014, the Transmission Licensee shall file Business Plan for approval of the Commission before commencement of the control period. OPTCL is required to prepare the Business Plans targeting the objective set out in the regulations as wells as National Electricity Policy, Tariff Policy notified by Govt. of India which should also be in conformity with National Electricity Plan notified by Central Electricity Authority.
 7. OPTCL stated that since the Control Period' defined in Regulation 2.1(k) of OERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2014 indicates that the 1st control period is from 01.04.2014 to 31.03.2019 therefore the aforesaid control period can be considered as the 1st control period under the current Regulation. Further, the 2nd control period has been defined vide OERC letter No.951 dt.19.07.2019 to cover the period 01.04.2019 -31.03.2024. Accordingly, the present submission has been made by OPTCL.
 8. OPTCL has stated that the Business Plan petition from the year FY 2019-20 to FY 2023-24 was submitted before the Commission which was registered as case No-63/2020. In the Business Plan, the audited figures for financial year 2018-19 have been taken into account while preparing the projected financial and other statements. OPTCL has stated that it has prepared the Business Plan with an objective of improving the long term financial viability of the power sector in Odisha and also with a view to fulfil the objectives of National Electricity Policy and Rural Electrification Policy such as access to electricity, availability of Power, Supply of reliable and quality power of specified standards in an efficient manner

at reasonable rates, Financial turn around and commercial viability of electricity sector and protection of consumer interests.

9. This Business Plan is intended to project OPTCL's investment requirements from FY 2019-20 to FY 2023-24. This enables OPTCL to harness its resources to provide access to electricity to the residents of Odisha and ensure supply of reliable and quality power.
10. OPTCL has submitted that the present Business Plan attempts to project the likely performance of the Company for the period FY 2019-20 to FY 2023-24. The primary focus of the plan is:
 - Identifying key strengths and opportunities for improvements;
 - Developing performance improvement trajectory through capital investment/addition plan;
 - Identifying key opportunities to increase the revenue of the company;
 - Developing financial forecasts based on the performance improvement trajectory
11. OPTCL has submitted that it owns Extra High Voltage Transmission system and operates about 14,359 Ckt kms of transmission lines at 400 kV, 220 kV, 132 kV levels and possesses about 20882 MVA transformation capacity at 156 nos. of EHT Substations as on 31.03.2020. OPTCL has submitted that it has made a gradual increase in its numbers of substation and length of transmission lines to evacuate power from the various upcoming power plants and renewable energy generators. The details of Transmission Lines and Substations are given in table below:

Table - 1
Transmission Lines and Sub-Stations

Sl. No.	Item	Unit	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20
A	Transmission lines								
1	400 kV lines	Ckm	532	728	1130	1130	1133.404	1196.872	1196.872
2	220 kV lines	Ckm	5705	5730	5877	5911.208	5922.812	5974.856	5974.856
3	132 kV lines	Ckm	5490	5629	5821	6030.821	6385.692	6823.303	6979.138
B	Sub-stations								
4	400 kV	Nos.	3	3	3	3	3	4	4
5	220 kV	Nos.	21	21	23	27	29	30	33
6	132 kV	Nos.	83	89	99	102	108	114	119
	Total	Nos.	107	113	125	132	140	148	156
C	Transformation Capacity	MVA	12837	13692	15142	16502	17529	19231	20882

Transmission Projects (proposed)

12. OPTCL stated that it has carried out a detailed transmission planning exercise for the State of Odisha with the help of the consultant M/s.Power Research and Development Consultants Pvt. Ltd.(PRDC). Projects approved by the Commission in Case No.18/2017 dt.09.04.2019 as a part of 13th transmission plan for the period FY 2019-20 to 2021-22 along with the projects spilled over from previous year have been factored into the Business Plan. Further, transmission plan for the FY 2022-23 to FY 2023-24 has also been submitted by OPTCL. The investment proposal has been prepared based on the comprehensive transmission study of the system considering the load growth, generation addition and other technical requirements. The study was carried out by modelling of the Odisha transmission system from 400 kV upto 33 kV buses and considering the Eastern Region 400 kV transmission network upto 220 kV bus of 400 kV Sub-stations, Load flow studies and short circuit studies have been conducted along with the transient stability studies and off-peak load flow analysis. Accordingly, OPTCL has proposed to add the following nos. of GRID sub-stations in the Business plan period.

Table - 2

Voltage Level (kV)	Existing as on 01.04.2020	2020-21 (Addition)	2021-22 (Addition)	2022-23 (Addition)	2023-24 (Addition)
400/220/132/33	4	-	1	0	1
220/132/33	22	2	4	3	1
220/33	11	1	7	2	0
132/33	97	6	8	7	3
132/33/25	1	0	0	0	0
132/33/11	1	0	0	0	0
132 KV Switching Stations	3	0	0	0	0
132 KV LILO switching station of industries	17	0	0	0	0
Total	156	9	20	12	5

Technological Advancement

13. OPTCL has proposed to undertake the following Key Technological advancements programme for efficient operation of its transmission system.
- **Integrated ERP system:** OPTCL is in the process of implementation of ERP system to integrate all its business functions across locations.
 - **Use of HTLS conductor:** OPTCL has successfully commissioned High Temperature Low Sag (HTLS) conductors, which is capable of carrying higher quantum of power for 3 nos EHT lines in Bhubaneswar.

- **Implementation of SCADA and Automation system:** Telecommunication wing of OPTCL is extending SCADA system to all its 220 KV and above sub-stations to provide real time visibility to system operators.
- **Gas Insulated Switchgear (GIS) sub-station:** Installation of two nos. GIS sub-stations is in progress (Infocity – II and Chandaka-B)
- **Implementation of Geographical Information System (GIS):** OPTCL has completed the pilot implementation of GIS based asset mapping system for EHT (O&M) Circle, Cuttack and GIS mapping for rest of Odisha is in progress.
- **Smart Grid:** Considering the importance of Smart Grid, OPTCL has prepared the Smart Grid roadmap for implementation components like Advanced Metering Infrastructure (AMI), Wide Area Measurement Systems (WAMS) with Synchro phaser Measurement Units (PMUs), integration of micro generation with EHT grid, self-healing transmission network etc.
- **Underground cables:** OPTCL has successfully commissioned underground EHV cables at Bhubaneswar.
- **Digitisation of Bays:** Digitisation of 3 nos. 33 KV feeder bays is under progress at Chandaka sub-station on Pilot basis.

In addition to above, OPTCL is planning to introduce automation in existing sub-stations, Fibre optics cable, underground EHV cables etc.

Capital Expenditure:

14. OPTCL submits that it has prepared the comprehensive capital expenditure plan for the Business Plan period for construction of sub-stations and lines, improvement of IT infrastructure, building infrastructure for telecommunication, civil work and Operation and Maintenance.
15. OPTCL submitted that the growth in demand had followed its trajectory with respect to the implementation of schemes like Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY), Biju Gramya Jyoti Yojana programme (BGJY), Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY), Saubhagya etc. in the past. Such demand would require more power flow in transmission lines therefore this scenario is considered while preparing the capital expenditure plan. Due to rapid industrialisation, growth of complex transmission system, voltage regulation and outages are expected to cross the limits.

16. OPTCL has stated that it has prepared its capital expenditure plan considering all these factors and is fully committed and geared to strengthen the capacity of the transmission system of the state by employing innovative and modern technologies, judicious use of IT to improve system efficiency, proper recording and monitoring, better maintenance of lines and transformers to reduce outages and increase system availability.
17. OPTCL stated that it has developed the capital expenditure plan based on analysis of the future system requirement in the following areas:
- To meet increased demand of distribution companies.
 - To meet the demand of long-term Open Access Consumers.
 - To improve system availability and reduce outages.
 - To achieve reduction in transmission losses.
 - To replace/ repair the old or obsolete equipment through a well-defined maintenance plan.
 - To make the system more efficient, responsive for better monitoring, control and recording of system parameters
 - To enhance the IT reach and implement integrated system for improving efficiency of the organisation.
 - To meet the communication requirements as per Odisha Grid Code (OGC).
18. The abstract of Capital expenditure and source of funding submitted by OPTCL in the petition are given in the following table :

Table – 3
Proposed Capital Expenditure Plan for FY 2019-20 to FY 2023-24

(In Rs. Cr.)

Investment Heads	2019-20	2020-21	2021-22	2022-23	2023-24	Total
Telecommunication	11.88	76.81	43.21	39.00	8.82	179.72
IT	1.51	77.73	9.50	4.25	4.25	97.24
Civil	20.55	25.31	18.56	15.40	5.50	85.32
Construction	645.35	1008.60	1207.77	1261.84	1233.29	5356.84
O&M Capex	68.03	75.59	54.00	41.76	41.45	280.83
Total Investments	747.32	1264.04	1333.04	1362.24	1293.32	5999.95
Funding Scheme						
Projected Capital Expenditure to be funded from Loan	609.71	944.44	1042.89	1106.20	1113.32	
Equity Funding	69.70	50.00	50.00	-	-	
Loan to be Received	276.50	802.83	552.83	295.33	-	
Funding to be sourced from new Loan	263.51	91.60	440.06	810.86	1113.32	

19. The capitalisation plan proposed by OPTCL excluding Government funded projects are given in the table below:

Table – 4
Proposed Capitalization Plan for FY 2019-20 to FY 2023-24 (₹ Cr.)

Investment Heads	2019-20	2020-21	2021-22	2022-23	2023-24	Total
Telecommunication	3.00	59.64	58.21	35.75	58.82	215.42
IT	0.00	65.99	17.50	2.50	17.00	102.99
Civil	17.15	64.11	10.11	18.82	17.00	127.19
Construction	444.91	726.20	1492.24	816.29	112.6	4097.81
O&M Capex	57.43	136.41	54.00	41.76	41.45	331.05
Total Investments	522.49	1322.51	1632.05	952.86	444.53	4874.45

20. OPTCL has submitted that the Contribution from Govt. grant under State Capital Region Improvement of Power System (SCRIPS), Radial to Ring Conversion Programme (RRCP), Disaster Response Centre (DRC), Disaster Response Power System (DRPS) schemes are included in the above but for calculation of Interest on loan, return on equity contribution from Government grant has not been considered.

Transmission Loss (%)

21. OPTCL has submitted that the transmission loss in OPTCL system has been reduced substantially in the last few years and has reached level of 3.28% in 2018-19. The transmission losses in OPTCL have always been at a reasonable level and are comparable with the better-managed utilities in the country. OPTCL has further submitted that they have taken various measures like addition of capacitor bank, load bifurcation, modification in system configuration, procurement of more efficient equipment, conductor augmentation and replacement etc. for reduction of the losses. The details of Transmission loss of past years are given below.

Table - 5

Parameter	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Approved losses (%)	5.00	4.50	4.00	4.00	3.90	3.80	3.80	3.75	3.75	3.70	3.50	3.00
Actual loss(%)	4.82	4.52	4.11	3.93	3.88	3.84	3.79	3.73	3.67	3.58	3.34	3.28

22. OPTCL has projected gradual increase in efficiency and reduction in transmission loss for FY 2019-20 to FY 2023-24 control period in the manner as mentioned below:

Table - 6

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Transmission loss	3.25%	3.20%	3.15%	3.10%	3.10%

System Availability

23. OPTCL has submitted that the availability factor of the transmission network for the year 2018-19 was 99.98%. Comparatively there is a continuous improvement of performance of OPTCL in terms of system availability from 99.84% in year 2010-11 to 99.98% in the year 2018-19.

Table – 7
System availability of OPTCL

Sl. No.	Item	2014-15	2015-16	2016-17	2017-18	2018-19
1	Transmission System Availability of OPTCL system	99.95%	99.96%	99.97%	99.98%	99.98%
2	Normative Transmission System Availability as per CERC Regulations, 2009 & Regulations, 2014	98.5%	98.5%	98.5%	98.5%	98.5%
3	Normative Transmission System Availability as per OERC Regulations, 2014	98.5%	98.5%	98.5%	98.5%	98.5%

24. OPTCL has stated that against the normative NATAF of 98.5%, the projected system availability is as follows.

Table - 8

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
OPTCL System Availability	99.98%	99.98%	99.98%	99.98%	99.98%

Demand Forecast of Distribution Companies:

25. OPTCL has stated that the growth in demand of DISCOMs has been estimated considering implementation of various government schemes along with addition of industries. Demand has been calculated considering the growth in individual consumer category. OPTCL has considered the inputs from GRIDCO with regard to the projections of future demand by the DISCOMs. OPTCL has considered the demand projection for FY 2019-20 and FY 2020-21 in line with the approval by the Commission in its ARR Orders and for the rest of the period i.e. FY 2021-22 to FY 2023-24 demand projection received from GRIDCO has been considered for preparation of this business plan.

26. The summary of system demand projection of distribution companies is given below:

Table – 9

(Fig. in MU)

Name of the DISCOM	FY 2019-20		FY 2020-21		FY 2021-22		FY 2022-23		FY 2023-24	
	Approved in LTDF order dated 15.01.19 (MU)	Approved in OPTCL Tariff Order dtd. 29.03.19	Approved in LTDF order dated 15.01.19 (MU)	Approved in OPTCL Tariff Order dtd. 21.04.20	Approved in LTDF order dated 15.1.19 (MU)	GRIDCO letter dated 14.09.20	Approved in LTDF order dated 15.01.19 (MU)	GRIDCO letter dated 14.09.20	Approved in LTDF order dated 15.01.19 (MU)	GRIDCO letter dated 14.09.20
CESU/TPCODL	9693	9740	10372	9740	11142	8644	11729	8899	12312	9255
NESCO/TPNODL	6161	6310	6342	6570	6520	6825	6672	6885	6829	7047
WESCO/TPWODL	7293	7750	7357	8000	7465	8880	7592	9288	7717	9804
SOUTHCO/TPSODL	3873	4040	4021	4050	4165	4233	4300	4283	4439	4334
Total	27020	27840	28092	28090	29292	28782	30293	29555	31297	30641

New Generation Capacity Addition:

27. The petitioner submits that the Govt. of Odisha have signed MoUs with 30 nos. of Independent Power Producers (IPPs) for establishment of coal based thermal power plants at different locations in the State. Out of the same, 3 nos. of IPPs have already implemented their projects which are as follows:

- ▶ 4x600 MW thermal power plant at Jharsuguda by M/s. Vedanta Ltd., commissioned in FY 2010-11 and 2011-12. Three nos. of Units have been converted to the status of CGP with effect from 01.04.2015, however, the share of 600 MW from the entire project has been kept intact.
- ▶ 3x350 MW thermal power plant at Kamalanga, Dhenkanal by M/s. GMR Kamalanga Energy Ltd., commissioned in FY 2012-13 and 2013-14. Odisha is having a share of 262.5 MW from the project. Commissioning of the remaining Unit-4 is deferred.
- ▶ 2x600 MW thermal power plant at Derang, Angul by M/s. Jindal India Thermal Power Ltd. commissioned in FY 2013-14 and 2014-15. Odisha is having a share of 144 MW from the project. Commissioning of the remaining Unit-3 is deferred.

28. The status of other ongoing projects submitted in the petition are as follows:

- Construction activities of 2x30 MW thermal power project by M/s. Maa Durga Thermal Power Company Ltd., at Tangi, Cuttack are in the advanced stage of completion. Commissioning of the project is expected by the end of FY 2020-21.

- M/s. Ind-Barath Energy (Utkal) Ltd. has completed commissioning activities of Unit-1 of 350 MW capacity in June 2015 at Sahajbahal, Jharsuguda and construction activities of Unit-2 of 350 MW capacity are in the advanced stages of completion. However, at present the project has been referred to National Company Law Tribunal (NCLT).
- At present these projects have been referred to NCLT.
 - 2x525 MW project of M/s. Monnet Power Company Ltd., Raipur at Nisa village of Angul
 - 2x660 MW project of M/s. Lanco Babandh Power Ltd., Hyderabad at Kurunti, Dhenkanal
 - 3x350 MW project of M/s. KVK Nilachal Power Pvt. Ltd., Hyderabad at Rahangol, Athagarh, Cuttack
- In the meanwhile, MoUs of the following IPPs have been cancelled:
 - M/s. Essar Power (Orissa) Ltd., Mumbai,
 - M/s. Vijaya Ferro & Power Pvt. Ltd., Raipur

Projected Energy Requirement (in MU)

29. Based on demand projections and loss reduction target as mentioned above, the summary of the system demand during the Business Plan Period is as shown below:

Table – 10
Projected Energy Requirement (MU)

Particulars	*FY 2019-20	*FY 2020-21	*FY 2021-22	FY 2022-23	FY 2023-24
CESU/ TPCODL	9740	9740	9290	8899	9255
NESCO/ TPNODL	6310	6570	5880	6885	7047
WESCO/ TPWODL	7750	8000	8600	9288	9804
SOUTHCO/ TPSODL	4040	4050	4100	4283	4334
Demand from Discoms	27840	28090	27870	29555	30641
Less: Loss of Energy transmitted in 33 kV and 11 kV	200	200	200	200	200
Energy available for DISCOM	27640	27890	27670	29355	30441
Wheeling to industries from CGPs	600	600	600	600	600
Sale to CGP by GRIDCO	30	60	60	60	60
Total energy	28270	28550	28330	30015	31101

Proposed Annual Revenue Requirement (ARR) for FY 2019-20 to FY 2023-24

30. Based on the estimated revenue realization and expenses as detailed in various sections of Business Plan, the estimated Revenue Gap/ Surplus are summarized below:

Table – 11

Projected Annual Revenue Requirement for FY 2019-20 to FY 2023-24 (Rs. Cr.)

Particulars	19-20	20-21	21-22	22-23	23-24
Employee Cost	482.69	516.11	575.06	573.85	610.67
R&M costs	126.11	155.07	167.53	170.74	180.85
A&G Expenses	27.55	28.76	29.40	30.06	30.74
Grid Coordination Committee Expense	0.43	0.50	0.53	0.55	0.58
Depreciation & Amortisation Expense	185.68	226.29	292.70	347.52	381.94
Interest and finance charges	37.97	61.01	125.36	142.23	146.54
Rebate to Beneficiaries	18.72	21.48	26.43	27.97	29.83
Return on Equity	123.95	131.70	139.45	139.45	139.45
Tax on Income	7.93	8.28	29.00	29.41	30.10
Interest on Working Capital	27.01	28.67	32.95	33.76	35.90
Incentive from Transmission System Availability	5.00	5.00	14.06	16.13	19.86
Total ARR required	1,043.05	1,182.86	1,432.47	1,511.68	1,606.46
Less: Inter-state wheeling revenue and SLDC and Open access Revenue and other income	107.14	109.04	111.00	113.03	115.12
Net ARR required	935.91	1,073.82	1,321.47	1,398.66	1,491.35
Units to be wheeled (MU)	28,270	28,550	29,242	30,015	31,101
Expected Revenue	706.75	713.75	*1,321.47	*1,398.66	*1,491.35
(Deficit) / Surplus	(229.16)	(360.07)	-	-	-

** The revenue for FY 2021-22 to FY 2023-24 has been considered same as the ARR for the respective years*

31. The petitioner has submitted to approve the above required transmission charge for recovery of total ARR.
32. One of the Objector, TPWODL has supported the proposal of OPTCL and submitted that the execution of the projects may be expedited to avoid low voltage, frequent power failure, consumer dissatisfaction etc. in their area of operation

COMMISSION'S OBSERVATIONS:**General Observations on Business Plan**

33. Heard the parties at length. During the hearing on 13.04.2021, OPTCL through its consultant has presented the background, inputs and assumptions and the projections made in the Business Plan emphasising on developmental objective of OPTCL. The Commission has directed OPTCL to further clarify on certain related issues. Several rounds of discussions were held between the Officers of the Commission with the concerned officials of OPTCL. The information / data submitted by them during the discussion and through e-mail thereafter have been taken into record.
34. The Commission, for approval of Business Plan of OPTCL for the period from FY 2019-20 to 2023-24 is guided by the provisions of the OERC (Terms and Conditions for

determination of Transmission Tariff) Regulations, 2014, National Electricity Policy (NEP), 2005, Tariff Policy (TP), 2016 as well as other statutory notifications and directives, while giving due considerations to the complexities of the Odisha Power Sector.

Fixation of Reference Year/Base Year:

35. The Commission has notified OERC (Terms and Conditions for determination of Transmission Tariff) Regulations, 2014, which was effective from October, 2014. Based on OERC Transmission Tariff Regulations, 2014, OPTCL has filed 5 year Business Plan starting from FY 2014-15 to 2018-19. OERC vide its order dated 30.07.2016 in Case No. 5/2016 had approved the said Business Plan of OPTCL with certain directives for compliance. The Control Period' defined in Regulation 2.1(k) of OERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2014 indicates that the 1st control period is from 01.04.2014 to 31.03.2019. Hence, the aforesaid control period has been considered as the 1st control period under the current Regulation. OERC vide its letter No.951 dt.19.07.2019 has defined the 2nd control period to cover the period from 01.04.2019 to 31.03.2024. Accordingly, the present submission for the FY 2019-20 to 2023-24 has been made by OPTCL.

Transmission Loss Reduction

36. OPTCL stated that Transmission loss is purely technical in nature and dependent on the location of generation sources, system configuration and power flow requirements at different load centres. OPTCL has no control over the transmission loss due to several factors, which is evident from the transmission loss achieved during different years. However, there is a limited control of OPTCL to manage losses beyond a certain level. The Commission does not accept this view. Further, OPTCL enclosing the load flow study has submitted that the transmission loss during FY 2022-23 & FY 2023-24 would be 2.71% & 2.68% respectively. Therefore considering the findings from the PRDC study, submission of OPTCL and evaluating the present loss level, the Commission approves the following loss trajectory for the transmission system of OPTCL during the present Business Plan period.

Table –12

Parameter	2019-20	2020-21	2021-22	2022-23	2023-24
Transmission loss	3.00%	3.00%	3.00%	2.71%	2.68%

37. Further, the Commission directs that OPTCL shall continuously monitor the operation of the transmission system, prevent overloading/under loading wherever possible by load diversion and adopt advanced practices /innovative action for optimum loading of the existing network. Further, huge investment has been made in the transmission network for system

strengthening, automation, utilisation of energy efficient equipment's etc. Hence, effective utilization of transmission elements and their impact on transmission loss need to be intimated to the Commission along with reduction strategies during tariff proceeding annually. Efforts should be made by OPTCL to reduce the loss further.

Demand Projections:

Forecast for DISCOMs' Requirements

38. The growth in demand has been estimated considering implementation of various government schemes along with addition of industries. Demand has been calculated considering the growth in individual consumer category. OPTCL has considered the inputs from GRIDCO with regard to the projections of future demand by the DISCOMs. It is to be noted that Railways is purchasing its required power from the State DISCOMs. For calculation purpose, the demand projection for FY 2019-20 and FY 2020-21 approved by the Commission in its ARR Orders have been taken. For rest of the period i.e. FY 2021-22 to FY 2023-24 demand projection received from GRIDCO has been considered for preparation of business plan. The growth in demand from DISCOMs has been estimated considering the increase in demand due to implementation of various Government, Schemes, addition of industries, purchase by Railways, CGPs etc. The following is the demand projection/forecast. The energy requirements of each DISCOMs have been finalised after due deliberations, the summary of which is given in the table below:

Table – 13
DISCOMs' Energy Requirement (MU)

Name of the DISCOM	FY 2019-20		FY 2020-21		FY 2021-22		FY 2022-23		FY 2023-24	
	Approved in LTDF order dated 15.01.19 (MU)	Approved in OPTCL Tariff Order dtd. 29.03.19	Approved in LTDF order dated 15.01.19 (MU)	Approved in OPTCL Tariff Order dtd. 21.04.20	Approved in LTDF order dated 15.1.19 (MU)	GRIDCO letter dated 14.09.20	Approved in LTDF order dated 15.01.19 (MU)	GRIDCO letter dated 14.09.20	Approved in LTDF order dated 15.01.19 (MU)	GRIDCO letter dated 14.09.20
CESU/TPCODL	9693	9740	10372	9740	11142	8644	11729	8899	12312	9255
NESCO/TPNODL	6161	6310	6342	6570	6520	6825	6672	6885	6829	7047
WESCO/TPWODL	7293	7750	7357	8000	7465	8880	7592	9288	7717	9804
SOUTHCO/TPSODL	3873	4040	4021	4050	4165	4233	4300	4283	4439	4334
Total	27020	27840	28092	28090	29292	28782	30293	29555	31297	30641

Particulars	Unit	2019-20	2020-21	2021-22	2022-23	2023-24
Emergency Sale to CGPs	MU	600	600	600	600	600
Wheeling to industries from CGPs	MU	30	60	60	60	60
Total Demand	MU	630	660	660	660	660

39. It is observed from the estimation of energy requirement that the expected demand escalation is less which can be attributed to lower industrial activity arising out of recession.
40. The Commission is of view that the demand as well as the proposed capacity addition may undergo a change in case of any delay in commissioning of these projects and load growth. The Commission has already approved the Long-Term Demand Forecast (LTDF) which covers the present Business Plan period and has also approved demand in the ARR up to the year 2021-22. So, at this stage the commission is not inclined to revisit the demand and it will be properly scrutinised while approving the ARR of OPTCL for the remaining years of the present Business Plan period.

Capital Expenditure:

41. OPTCL has presented a comprehensive capital expenditure scheme during the Business Plan period for construction of sub-stations and lines, improvement of telecommunication, IT, civil infrastructure and Operation and Maintenance. The abstract of the said Capital expenditure Plan is given in the table below.

Table –17

(Rupees in Crores)

Investment Heads	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	Total
Telecommunication	11.88	76.81	43.21	39.00	8.82	179.72
IT	1.51	77.73	9.50	4.25	4.25	97.24
Civil	20.55	25.31	18.56	15.40	5.50	85.32
Construction	645.35	1008.60	1207.77	1261.84	1233.29	5356.84
O&M Capex	68.03	75.59	54.00	41.76	41.45	280.83
Total Investments	747.32	1264.04	1333.04	1362.24	1293.32	5999.95

42. OPTCL has stated that the planned CAPEX has to be done commensurate with the load growth of the state as well as for enhancement of reliability, capability and availability of the transmission system in discharging its functions as a STU/Transmission Licensee. In order to eradicate low voltage problem in different parts of the State, it is necessary to bring out improvement in the system by way of installation of several new transmission lines and Sub-Stations in the State. Technical and economical justification are there for implementation of these additional system reinforcements in the transmission network to meet the system needs during five years Business Plan period.
43. OPTCL has submitted that it intends to spend the planned capital expenditure for Transmission Projects in the following manner:

- Investment in Greenfield Projects: Investment in new sub-stations, lines and equipment to cater the new generation projects coming in the state and to increase the overall system capacity.
 - Investment in System Strengthening Projects: Augmentation of existing system by increasing the number of sub-stations and lines to increase the system capacity.
44. The main thrust and emphasis as well as the fundamental requirements in respect of proposed additional transmission schemes is laid on the following:
- (a) Accommodate the load growth
 - (b) Improve the voltage profile of the system
 - (c) Create the infrastructure to draw power by distribution and other long-term consumers
 - (d) Providing feeders to the industries
 - (e) Reduce the loading of the over-loaded transformers and transmission lines
 - (f) Better utilisation of the high voltage sub-stations
 - (g) Power evacuation from upcoming generating stations/ units
45. The Projects are categorized under following major heads for the period FY 2019-20 to FY 2023-24:
- () Projects completed during FY 2019-20 and FY 2020-21
 - (a) Ongoing Projects
 - (b) New Proposed Projects
46. The list of the completed transmission projects along with their actual Cost and time over-run during 2016-17, 2017-18, 2018-19, 2019-2020 and 2020-21 is annexed to this order as Annexure I.
47. OPTCL has submitted a list of on-going and future projects scheduled to be executed during this business plan period with a CAPEX expenditure plan of Rs.5356.84 Crore involving construction of new substations and lines during the FY 2019-20 to 2023-24. OPTCL has made system studies with the help of M/s PRDC, Bangalore. The status of the projects is listed and provided as annexure to this order as Annexure II.
48. The Commission has already accorded in-principle approval of investment proposals of OPTCL as mentioned in the list, items (A) & (C) (Table at Annexure-II). OPTCL has stated

that solar pooling sub-stations at Manmunda & Nildungri have been cancelled by MNRE and 220/33kV S/S at Chitalo is currently not feasible. For the construction of the new projects mentioned at items (B) & (D) (Table at Annexure-II), the Commission has scrutinised the proposal of OPTCL and has found that although a high demand of 5381 MW has been considered for the year 2023-24, the loading of the proposed s/s in the year 2023-24 are as follows:

Table – 18

Sl. No.	Name of the s/s, Capacity and location	Associated Line	Loading (%)
1	2X40MVA,132/33kV GIS S/S at Hinjili	132kV LILO line from 132kV Berhampur -Aska SC line	47.7
2	2X63MVA, 132/33kV GIS S/S at Nayapalli , BBSR (SCRIPS)	132kV UG Cable from Mancheswar-A to Nayapalli. 132kV UG Cable from Unit-8 GIS to Nayapalli LILO on one ckt. of existing Chandaka to Ranasinghpur 132kV O/H line to proposed Nayapalli substation	47.7
3	2X20 MVA,132kV S/S at Lamtaput with SAS and associated line.	132KV LILO Line from 132KV Machhakund Power House - RTSS Line (0.65 km.)	39.7
4	2x20 MVA, 132/33kV S/S with SAS at Nabarangpur with associated line.	132kV LILO line from Jaynagar-Tentulikhunti CKT-II to 132/33kV Nabarangpur.	47.3
5	2x500 MVA,400/220KV S/S Khuntuni (Dalabhag) & associated line	1. LILO of 400kV D/C line from Meramundali to Duburi at Khuntuni. 2. LILO of 400kV D/C line from Meramundali to Mendhasal at Khuntuni. 3. 220kV D/C line to Dhenkanal 220/132/33kV substation. 4. 220kV D/C line to Bidanasi 220/132/33kV substation.	24.5
6	2X40MVA, 220/33kV S/S, Palei , Balichandrapur with associated line.	220 KV LILO line from the existing Loc. No. 221-A & 221-B of 220 KV New Duburi-Paradeep Ckt.-I (Approx. Line length-1.5 KMs.)	21.9
7	2X160MVA, 220/132KV S/S at Nuapada with line	220kV D/C line from Bargarh New to Nuapada	55.3
8	2X20 MVA, 132/33kV AIS S/S at Athamallick with LILO	132kV D/C line from Kiakata to Athamallick.	46.5
9	2X20 MVA, 132/33kV at Brundabahal with SAS and associated line	132kV LILO line (1 Circuit) from the existing 132kV Jaipatna-Junagarh D/C Line (32.48 kms.)	24.1
10	2X20MVA, 132/33kV S/S at Tarbha with associated line.	132KV LILO line from 132KV Bolangir-Sonepur Ckt-I line(Line Length 6kms. Approx)	32.2
11	2X20MVA, 220/33kV S/S at M. Rampur .	LILO of one circuit of 220kV D/C line from Kesinga to Baliguda at M.Rampur.	31.7
12	2X40 MVA, 220/33 kV S/S, Chitalo	New line Jajpur Town to Chitalo	3.8

49. It is observed that while planning new sub-stations the Transmission Utility is expected to be guided by Transmission Planning Criteria prescribed by Central Electricity Authority (CEA). As per existing Transmission Planning Criteria, 2013 of CEA under Clause 15.2 the maximum short circuit level of any new sub-station bus should not exceed 80% of the rated short circuit capacity of the sub-station. In other words when short circuit level goes beyond 80% of the rated short circuit capacity the establishment of another sub-station can be thought of. From the short circuit studies provided by OPTCL it is found that there is enough margin available in the nearby sub-stations of the proposed sub-station. However, OPTCL due to the expected load growth, improving quality of supply and to meet the N-1 contingency conditions has proposed for establishment of the above sub-stations along with the associated lines. So, we have no other way but to examine the loading of the sub-station without discussing on economic viability at present.
50. As far as the proposal of the 400/220 KV Khuntuni s/s is concerned, the Commission vide its order dated 09.04.2019 in case no 18 of 2017 has not accepted the proposal and observed that the loading at Khuntuni may be reduced due to non-execution of Lanco (1x660 MW) Project. Further, OPTCL has to submit the final decision of the CEA on this proposal. Therefore, we are not inclined to accept the proposal at Khuntuni for 440/220 KV S/s at this stage. In case of adequate information and justification for construction of the said project, OPTCL may approach the Commission along with DPR with cost benefit analysis for consideration of the Commission later.
51. Since, the Utility is required to facilitate smooth and reliable power flow from generating stations to the end consumer and cater to the demand of consumers of remote areas, the Commission feels that a system to meet the contingency conditions should be in place. Hence, some transmission projects are required by the end of Business Plan period although their loadings are not optimum. In view of the exigencies of the proposed projects, the Commission hereby grants in-principle approval of the feasible projects under the Business Plan in item (B) and (D) (Table at Annexure-II), except the one mentioned above.
52. It is directed that that the OPTCL shall approach the Commission for approval of investment proposal of each project along with DPR incorporating system studies under various generation and load scenario during peak and off-peak hours in line with the Licence Conditions and Tariff Regulations along with the cost benefit analysis before any expenditure.

53. Now we analyse the submissions made on the various expenditure heads and accord approval accordingly.

Employee Cost including Terminal Liabilities

54. OPTCL stated that the Basic and Grade Pay for FY 2019-20 has been considered at Rs.168.25 Crore as approved in the ARR for FY 2019-20. The average number of employees for computation of Basic Pay for FY 2020-21 is given in the following table:

Table-20
Projected Employees addition and retirement during FY 2019-20 and FY 2023-24

Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
No. of employees at beginning of the year	2896	2721	2527	2375	2243
Less: Retired/to be retired/ VRS/ Expired/ Resigned during the year	175	194	152	132	130
No. of employees at the end of year	2721	2527	2375	2243	2113
Average no. of employees	2809	2624	2451	2309	2178

55. OPTCL submitted that an annual escalation of 3% over basic pay of each employee been considered while calculating the basic and Grade pay and multiplied with average number of employees similar to the projection given in the ARR. In the business plan, it is assumed that the vacancies created due to retirement/resignation will be immediately filled up by appointing officers with similar salaries/perquisites. Therefore, average employee for the year of calculation and previous year has been considered for calculation of basic and grade pay.
56. OPTCL stated that it proposes to recruit employees for vacancies created because of expansion of network and operations of OPTCL during the planned period. Keeping in view the actual progress of the process of recruitments for posts and the revised schedule of completion of projects, OPTCL has phased the required recruitments. As such, in the business plan period, the year wise recruitment phasing is shown below:

Table-21
Projected Employees addition during FY 2019-20 and FY 2023-24

Particulars	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24
Executive					
MT-JM	0	22	2	7	18
MT-AM	0	130	84	72	85
Non-Executive					
Administrative	0	46	36	38	23
Technical	0	442	296	177	186
Total	0	640	418	294	312

57. OPTCL submitted that in the Executive category, recruitment is only done at Junior Managers (JM) and Assistant Managers (AM) level. At both these levels, new recruits are appointed as management trainees for the first year and are regularised in the subsequent

year with pay structure. The first year pay of JM and AM is assumed as Stipend of Rs.18,000/- and Rs.24,000/- per month respectively, which are subsequently increased as per the norms for existing employees after regularisation.

58. OPTCL submitted that in Non-Executive category, recruitment shall be only for Administrative staff and for Technical staff categories. During the first year pay of Administrative staff and Technical staff are assumed as Stipend of Rs.12,000/- and Rs.10,000/- per month respectively and are subsequently increased as per the norms for existing employees after regularisation.
59. Accordingly the basic and grade pay calculated for the FY 2020-21 to FY 2023-24 has been proposed as under.

Table-22
Projection for basic and grade pay for existing and new employees
for FY 2019-20 and FY 2023-24

	(Rs. Crore)				
Particulars	19-20	20-21	21-22	22-23	23-24
For existing employees	192.28	184.66	177.68	171.65	166.66
For New Recruits after regularisation	-	-	23.59	39.38	51.94
Stipend to new recruits	1.82	5.09	8.36	5.71	5.15

60. OPTCL has proposed Rs.52.94 Cr. towards balance 60% arrear to be paid during FY 2020-21 and FY 2021-22.

Table-23
Arrear Impact of 7th Pay Revision (Rs. Cr.)

Particulars	FY 19-20	FY 20-21	FY 21-22
Arrear impact of 7 th Pay Revision	35.28	8.82	44.12

61. The Commission has gone into the details of the projected employee cost including the plan for new recruitments during the business plan period. The Commission in the ARR estimates the basic pay basing on the number of employees in the year and after prorating the actual expenses made with 3% escalating factor. The Commission also allows the impact of the pay commission recommendations and wage revisions basing on the Government of Odisha notification in this regard. The Commission would continue to allow the basic pay on such basis in the ARR during the current business plan period.

The Commission will continue to allow the Dearness allowance basing on the Government of Odisha notification in this regard in the ARR during the current control period.

House rent allowance/housing benefits

62. OPTCL submitted that all the employees are entitled to get HRA in the range of 18%-20% of the basic pay, depending on the type of city/town they are residing in. Therefore, it has been assumed that HRA shall be around 19% of the basic. It is to be noted that all the employees do not avail this facility. Therefore, for calculation of HRA it has been assumed that 15% of the employees shall not avail the HRA facility and prefer to use OPTCL quarters. For providing a more realistic approach to the calculation, for Business Plan, HRA has been estimated for 85% of the employees @19% of the Basic Pay.
63. The Commission analysed the claim of HRA proposed in the petition. It is seen in the ARR submissions that there are few employees who have availed OPTCL accommodations and therefore the Commission estimates the HRA in the ARR basing on the expenses shown in the previous year audited accounts. The rate of HRA is further based on the notification of the Government of Odisha in this regard. The Commission will continue to allow the HRA on such basis in the ARR during the current control period.

Bonus

64. OPTCL submitted that the Commission approved bonus amounting to Rs. 0.01 Crore for FY 2019-20 in its Tariff Order for FY 2019-20. An increase of 5% has been assumed for each subsequent year of the control period from FY 2020-21 to FY 2023-24.
65. The Commission after analysis observes that the bonus will continue to be allowed basing on the Government of Odisha notification in this regard in the ARR during the current control period.

Outsourced Engagement

66. OPTCL submitted that at present, OPTCL is functioning with less than 60% of its sanctioned strength for employees. For smooth functioning, OPTCL has engaged personnel in different streams through outsourcing. Accordingly, an expense of Rs.3.04 Cr for FY 2019-20 and Rs.3.48 Cr for FY 2020-21 has been considered for projection. For FY 2021-22, expense towards outsourced engagement has been proposed to be Rs.3.83 Cr. as provided below. Further, an escalation of 10% has been considered for each of the subsequent years for rest of the control period. The details of the outsourced engagement are provided in the table below:

Table-24
Expenditure towards Outsourced Engagement for FY 2019-20 to FY 2023-24 (Rs. Cr.)

Sl. No	Designation	No. of Personnel	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	Total
1	DEO	29	0.57	0.63	0.69	0.76	0.84	3.49

Sl. No	Designation	No. of Personnel	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	Total
2	CUG Assistant	1	0.02	0.02	0.02	0.02	0.02	0.10
3	Lady Nurse	1	0.02	0.02	0.02	0.03	0.03	0.12
4	Driver	3	0.05	0.05	0.06	0.06	0.07	0.29
5	Receptionist-cum-Caretaker	1	0.02	0.02	0.03	0.03	0.03	0.13
6	Caretaker	1	0.02	0.02	0.02	0.02	0.02	0.10
7	Attendant	39	0.55	0.60	0.66	0.73	0.80	3.34
8	Plumber	1	0.02	0.02	0.02	0.02	0.02	0.10
9	Helper	1	0.01	0.02	0.02	0.02	0.02	0.09
10	Gardner	3	0.04	0.05	0.05	0.06	0.06	0.26
11	Cook	1	0.01	0.02	0.02	0.02	0.02	0.09
12	TRP	6	0.11	0.12	0.13	0.14	0.16	0.66
13	Sweeper	2	0.03	0.03	0.03	0.04	0.04	0.17
14	GTRP	44	0.79	0.87	0.96	1.06	1.16	4.85
15	JTRP	30	0.41	0.45	0.49	0.54	0.60	2.49
16	Retired Personnel	21	0.38	0.56	0.61	0.67	0.74	2.96
	Total	184	3.04	3.48	3.83	4.22	4.64	19.21

67. The Commission after prudence check allows expenses towards stipend for new recruitments based on the projections made in the ARR. The Commission will continue to allow the same in the similar manner during the control period. The Commission also directs that the OPTCL should follow State Govt models on contractual appointment as a State Govt. entity.

Medical allowance/benefits

68. OPTCL submitted that the effective Medical Allowance has been considered at 5% of the Basic Pay for the control period. OPTCL expects additional liability for incurring medical reimbursements which is projected to be Rs.1.15 Cr. for FY 2019-20 and Rs.0.05 Cr. has been added for each subsequent year of the rest of the control period.
69. The Commission in this regard observes that it will continue to allow the Medical Allowance basing on the Government of Odisha notification in this regard in the ARR during the current control period.

LTC, Honorarium, Ex-gratia, Conveyance Reimbursement

70. The Leave Travel Concession (LTC) has been considered at Rs.0.60 Crore for FY 2019-20 and Rs.0.50 Crore for FY 2020-21 as approved by the Commission in the Tariff Orders. For each subsequent year, an escalation of 5% has been assumed over Rs.0.50 Crore for rest of the control period.

71. The Commission in this regard observes that it will continue to allow the LTC basing on the Government of Odisha notification in this regard in the ARR during the current control period.
72. The honorarium expense has been estimated at Rs.0.05 Crore for FY 2019-20 and has been kept constant for the rest of the period. The ex-gratia expense has been estimated to be Rs.5.00 Crore for FY 2019-20(as approved by the Commission) and Rs.7.00 Crore for FY 2020-21. For each subsequent year same has been projected to increase by Rs.1.00 Crore per year for rest of the control period. Further, expense towards conveyance reimbursement for FY 2019-20 has been projected to be Rs.3.25 Cr. and same has been projected to increase by 10% for each subsequent years of the rest of the control period.
73. The Commission in this regard observes that it will continue to allow the Honorarium and conveyance reimbursement basing on the OPTCL's notification in this regard in the ARR during the current control period.

Capacity Building Expenses

74. OPTCL stated that it undertakes timely capacity building exercise for its existing and new employees. It helps in skill enhancement and efficiency improvement of the manpower. The details of capacity building exercise planned for the control period is provided below.

Table-25

Expenditure towards Capacity Building exercise for FY 2019-20 to FY 2023-24

Designation	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24
External Training					
Level Target Participants	E2-E10	E2-E10	E2-E10	E2-E10	E2-E10
No. of Participants	175	200	230	265	305
Man-days	314	360	415	475	550
Training Expenses (Rs.)	5,13,060	5,64,366	6,20,803	6,82,884	7,51,173
Total (Rs. Cr.)	0.05	0.06	0.06	0.07	0.08
Internal Training					
Level Target Participants	Executive & Non-Executive				
No. of Participants	1226	3410	3920	4510	5190
Man-days	3241	9000	9050	9100	9150
Training Expenses (Rs.)	62,90,562	1,74,87,764	2,01,10,929	2,31,27,570	2,65,96,707
Total (Rs. Cr.)	0.63	1.75	2.01	2.31	2.66
TA & DA Expense (Rs. Cr.)	0.16	0.45	0.52	0.59	0.68
Total Expense(Rs. Cr.)	0.84	2.25	2.59	2.97	3.42

75. The Commission in this regard observes that the capacity building of the employees is an important aspect in the development of an organisation. Keeping such aspect in mind the Commission will allow such expenses in the ARR after prudence check.

Staff Welfare Expense

76. OPTCL submitted that under staff welfare expenses, it has estimated to have incurred Rs.2.41 Cr. towards Uniform, Liveries, GIS, Sports, Recreations & Cultural Activity, Hospital Expenses etc. for FY 2019-20. Further, for each of the subsequent year staff welfare expense has been calculated and given in the following table.

Table-26
Expenditure towards Staff Welfare Expense for FY 2019-20 to FY 2023-24 (Rs. Cr.)

Particulars	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24
Uniform	1.47	1.72	1.69	1.91	1.98
Group Personal Accident Policy	0.15	0.17	0.19	0.22	0.26
Group Mediclaim	-	3.00	3.30	3.63	3.99
Office Stationeries	0.30	0.30	0.30	0.30	0.30
Woollen Jersey and Raincoat	0.10	0.09	0.11	0.10	0.11
Recreational Activities & Other Events	0.39	0.46	0.49	0.53	0.58
Total	2.41	5.74	6.08	6.69	7.22

77. It is seen from the above table that the expenses on staff welfare have increased substantially due to Group mediclaim. The OPTCL will be required to provide justifications with reference to the Government of Odisha rules in the ARR for approval of such allowance by the Commission.

Terminal Liabilities

78. Petitioner has stated that expenses due to terminal liabilities are a major cost component for OPTCL. Terminal liabilities includes Obligations for meeting interest and service costs towards pension, gratuity and leave liabilities under previous defined benefit plan and Employer's Contribution for Non-Pensioners & New Pension Scheme
79. Petitioner has stated that as per Accounting Standard 15 issued by MCA, employee benefit liabilities shall be assessed through actuarial valuation. Para 61 of AS-15(R) states that an enterprise should recognise the net total of the following amounts in the statement of Profit & Loss except to the extent that another Accounting Standard requires or permits their inclusion in the cost of an asset.
80. Petitioner has stated that accordingly, based on the report of independent actuary M/s Bhudev Chatterjee Actuary, Kolkata for FY 2019-20 and M/s Charan Gupta Consultants Pvt.

Ltd., Noida, U.P. for FY 2020-21, OPTCL has made provision towards terminal liabilities and recognised the same in Profit & Loss Account in each of the accounting period.

81. The Petitioner has considered Rs. 165.18 Cr. for FY 2019-20 and Rs. 195.31 Cr. for FY 2020-21 as per Actuary Valuation report. Further, the element wise escalation of 3.00% (as considered for estimation of basic pay) has been applied over FY 2020-21 for deriving terminal liabilities (Pension, Gratuity & Leave Encashment) for each subsequent year for rest of the control period. OPTCL may be allowed to revise the same at the time of filing of ARR and True-Up Petitions on availability of actuarial report for each year of the control period.
82. New **Pension Scheme (NPS)**: Impact of NPS under Govt. of India Rules applicable for new employees. Employees joined on or after 1st January 2005 are covered under the NPS, wherein employees are required to contribute 10% of monthly basic salary and dearness allowance (i.e. BP + DA) and a matching contribution is to be made by the employer. The Petitioner has considered Rs. 8.59 Cr. for FY 2019-20 and Rs. 9.77 Cr. for FY 2020-21 as expense towards provident fund as per Actuary Valuation report already submitted to the Commission. For the Business Plan purpose, an escalation of 3% over the provident fund of Rs.9.77Cr. for FY 2020-21 has been considered for each subsequent year for rest of the control period. Also, 10% of monthly basic salary and dearness allowance has been considered for the new employees.
83. The petitioner submitted to allow OPTCL to revise the same at the time of filing of ARR and True-Up Petitions on availability of actuarial report for each year of the control period.

Table-27
Terminal Benefit Liabilities (Rs. Cr.)

Particulars	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24
Pension Fund	141.36	180.08	185.48	191.05	196.78
Gratuity Fund	9.68	10.13	10.43	10.75	11.07
Leave Encashment	14.14	5.10	5.25	5.41	5.57
Provident Fund	8.59	9.77	12.82	16.01	18.61
Total	173.77	205.08	213.99	223.21	232.03

84. As regards the approval of terminal benefits, the commission has been allowing OPTCL the expenses under the pension head including NPS on assessment of the actual fund requirement for the year.
85. For FY 2021-22, in the ARR petition OPTCL proposed **Rs.201.16 Cr.** towards terminal liabilities (Pension, Gratuity & Leave Encashment). Besides OPTCL projected **Rs.13.19 Cr.** towards employer's matching contribution for employees who have joined under NPS and

Non-Pensioner Category. These projections were allowed by the Commission in the tariff order for FY 2021-22 after assessing the cash out flow due to terminal liabilities.

86. The Commission in the tariff order also observed that the Commission has allowed Rs. 2313.76 cr. (excluding NPS contributions) towards corpus fund of terminal liabilities in the ARR to OPTCL over the periods up to the FY 2020-21. The details of Terminal Liability allowed by the Commission are presented in the table below:

Table - 28

Expected Corpus Availability of OPTCL/(GRIDCO)	(Rs. in Cr.)
OB as on 01.04.1999	184.07
1999-00	11.68
2000-01	25.22
2001-02	27.74
2002-03	30.52
2003-04	33.57
2004-05	117.54
2005-06	40.62
2006-07	44.68
2007-08	55.38
2008-09	51.34
2009-10	76.94
2010-11	140.20
2011-12	176.36
2012-13	129.80
2013-14	117.18
2014-15	134.11
2015-16	135.37
2016-17	140.00
2017-18	139.58
2018-19	168.11
2019-20	165.12
2020-21	167.63
Total	2,312.76

87. Since sufficient fund is already available in the corpus fund, further contributions shall be allowed by the Commission on actual requirement of the fund from time to time on prudence check.
88. The Commission will allow the Employee Cost capitalisation on prudence check of the projection to be made by the OPTCL.

Repair and Maintenance Expense

89. OPTCL stated it has prepared an exhaustive and comprehensive R&M plan for the Business Plan period and has projected the expenditure on implementing the R&M plan. OPTCL has projected R&M expenses under the following heads.

- Master Maintenance Plan (MMP) of Operations & Maintenance,
- Telecom R&M expense plan,
- IT R&M expense plan,
- R&M Expense on other civil works like buildings etc.,
- R&M Expense on Vehicles; and
- R&M Expense on furniture and fittings

90. R&M expenditure proposed for various departments of OPTCL for the control period FY 2019-20 to FY 2023-23 are given in the following table:

Table-29
Summary of R&M Expense Projected for FY 2019-20 to FY 2023-24 (Rs. Cr.)

Particulars	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24
Civil Department	126.11	12.20	12.90	11.80	12.70
IT Department		5.07	8.96	12.04	13.91
Telecommunication Wing		3.58	3.62	3.62	3.62
Master Maintenance Plan		78.41	84.29	83.57	88.97
Watch & Ward		55.81	57.76	59.71	61.66
Total	*126.11	155.07	167.53	170.74	180.85

91. As regards the R&M cost, the OERC (Terms and Conditions for Determination of Transmission Tariff) Regulations at Regulations 8.15 and 8.16 provides the following

‘Repair and Expenses would be allowed at the rate of 2.5% of Gross Fixed Assets (GFA) only on assets owned by the transmission company, for each year of the control period.’

‘In case of STU (OPTCL) the Commission shall allow Repair and maintenance expenses basing on the past trend and requirement of the licensee in this regard after prudence check.’

92. The Commission has observed in the ARR approval that the R&M expenses if allowed at the rate of 2.5% of the GFA, it may not be sufficient for proper maintenance of the network. The Commission while assessing such expense in the ARR takes into account the actual expenditure incurred during the year and past trends of expenditure under the head R&M expenses. The Commission accordingly allows R&M expenses based on the prudence check and assessment in the ARR. The expenses under this head will accordingly be continued to be allowed based on the regulations during the control period.

Administrative and General Expense

93. OPTCL stated that the Regulation 8.14 of the OERC Transmission Tariff Regulations, 2014, provides that the Commission shall allow A&G expenses by giving an escalation factor equal to WPI over the amount approved by the Commission in the previous year. The A&G

Expenses include property related expenses, communication, professional charges, conveyance and travelling, SLDC charges, licensee fee and material related expenses. The number of establishments/ offices of OPTCL has increased over a period in commensuration with the increase in asset i.e. addition of grid sub-stations, transmission line and transformation capacity for better supervision in construction, operation and maintenance and for maintaining quality of supply. A comparative chart of asset addition and number of establishments is given under.

Table-30
Grid Sub-stations, Transmission Line Length and Capacity Addition

Year	No. of Grid Sub-stations	Capacity (MVA)	Transmission Line Length (Ckt. Km.)
FY 2012-13	101	11554	11386
FY 2018-19	148	19231	13995

Table-31
No. of OPTCL Establishments

Year	No. of Sub-divisions	No. of Divisions	No. of Circles	No. of Zones	No. of CGM	No. of Directors
FY 2012-13	190	38	11	0	5	4
FY 2018-19	278	63	16	5	10	6

94. For Calculation of A&G Cost, the base year cost as on 01.04.2005 determined by the Commission was Rs. 14.96 Crore. After 14 years of escalation it became Rs. 22.09 Crore i.e average increase of Rs.51 lakhs per year. If the time value of money is considered, by discounting @8% the approved amount Rs. 14.96 crore as at 1.4.2005 would be about Rs. 40.60 Crore in FY 2018-19. The Commission is requested to revise the norms for A&G expense and link it with the no. of establishments for revision of base price and allow escalation for addressing the inflation.
95. Considering the annual escalation factor of 2.76% of WPI (rate of inflation measured by WPI for the period up to Jan 2019- as considered in Tariff Order for FY 2019-20), A&G Expense for FY 2019-20 to FY 2023-24 has been projected. Further, the Licensee Fees, Inspection Fees, SLDC Charges are requested to be considered as per actual during the Truing-Up by Commission. For projection during the control period, same has been kept constant.

Table-32
Summary of A&G Expense Projected for FY 2019-20 to FY 2023-24 (Rs. Cr.)

Particulars	*FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24
A&G of previous year	22.09	22.70	23.33	23.97	24.63
Escalation as per WPI	*2.76%	2.76%	2.76%	2.76%	2.76%
A&G for the year	22.70	23.33	23.97	24.63	25.31
Add: Licensee Fees	1.90	1.90	1.90	1.90	1.90

Particulars	*FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24
Add: Inspection Fees	2.20	2.78	2.78	2.78	2.78
Add: SLDC Charges	0.75	0.75	0.75	0.75	0.75
Total A&G Expenses	27.55	28.76	29.40	30.06	30.74

96. The Commission in this regard observes that that as per the OERC Regulation, the Commission shall allow A&G expenses by giving an escalation factor equal to increase in the WPI over the amount approved by the Commission in the previous year. Therefore, the Commission in the ARR allows escalation rate of inflation measured by WPI for the applicable period over the approved amount of previous year. The Commission in the ARR has also directed OPTCL to keep the A&G cost under control and commensurate with business volume. During the control period the Commission will continue to allow the A&G expenses in the subsequent ARRs basing on these principles as above during the control period.

Expense Related to Auxiliary Energy Consumption

97. Petitioner stated that as per the Regulation 8.2 of OERC Regulations, 2014, Operation and Maintenance (O&M) expenses shall include expenses related to auxiliary energy consumption in the sub-station for air-conditioning, lighting, technical consumption, etc. In line with the same, every year OPTCL has been proposing certain amount under this head. However, the Commission had not allowed any amount separately under this head and directed in its earlier Transmission Tariff orders, to include such amount in the operation and maintenance expenses as per Regulation Clause 8.5. Therefore, OPTCL in this Business Plan, has not proposed any amount under this head separately.

Grid Coordination Committee Expense

98. Petitioner stated that as per the Chapter-11 (2)(1) of the Orissa Grid Code (OGC) Regulations 2006, OPTCL has formed GCC under OPTCL to deal all the matters specified in Chapter-11(2)(2). Under GCC expenses, OPTCL proposes Rs.0.50 Cr. towards Annual GCC Expenses for FY 2020-21 in line with the said provisions and an escalation of 5% has been considered for each subsequent year of the control period FY 2021-22 to FY 2023-24. The GCC expense as approved by the Commission in the Tariff Order for FY 2019-20 has been considered.

Table-33
GCC Expense Projected for FY 2019-20 to FY 2023-24 (Rs. Crore)

Particulars	FY 19-20	*FY 20-21	FY 21-22	FY 22-23	FY 23-24
GCC Expense	0.43	0.50	0.53	0.55	0.58

99. The Commission in this regard observes that it will continue to allow this expense as per the present practice.

Depreciation

100. OPTCL has projected depreciation for the period FY 2019-20 to FY 2023-24 considering the depreciation rates prescribed by OERC on the book value of the assets and additions thereto as per Regulation 8.32 to 8.38 of OERC (Terms and Conditions for Determination of Transmission Tariff) Regulations, 2014. The same rates have been considered for the computation of book profit/ loss. The additions in each year have been worked out based on the capital investment plan related to each of the asset class.
101. OPTCL has projected the Gross fixed asset as on 31.3.2019 is Rs. 6525.15 Crore as such, the depreciation for existing assets for FY 2018-19 as per the Annual Audited Accounts has been considered same for the control period FY 2019-20 to FY 2023-24. In addition to the same, depreciation for capitalization for each of the year of the control period has been calculated separately. OPTCL has further stated that the some of the projects are funded from Govt. grant under SCRIPS, RRCP, DRC, DRPS schemes for which depreciation has not been claimed. Further the amount capitalized from interest expense and employee expense has also been considered under capitalization for fixed asset creation. The capitalisation schedule excluding the projects funded from Govt. grants are provided below:

Table-34
Projected Capitalization (excluding projects funded from Govt. Grant)
for FY 2019-20 to FY 2023-24

						(Rs.Cr.)
Particulars	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	Total
Telecommunication	3.00	59.64	32.60	35.75	58.82	189.81
IT	0.00	65.99	17.50	2.50	17.00	102.99
Civil	17.15	64.11	10.11	18.82	17.00	127.19
Construction	333.14	747.83	1259.50	447.41	310.26	3098.15
O&M Capex	57.43	135.70	54.00	41.76	41.45	330.33
Sub-total	410.72	1073.26	1373.71	546.24	444.53	3848.47
Interest Capitalisation	21.54	54.21	60.44	118.11	189.80	444.09
Employee Cost Capitalisation	15.13	15.08	24.06	24.01	25.55	103.83
Total	447.39	1142.55	1458.21	688.36	659.88	4396.39

102. The closing gross book value of Fixed Assets as at the end of each year during the plan period and depreciation value forecasted for the each year is given in the following table

Table-35
Projected Depreciation for Existing and New Asset for FY 2019-20 to FY 2023-24

(Rs. Cr.)

Particulars	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24
Existing Asset	174.26	174.26	174.26	174.26	174.26
New Asset	11.42	52.03	118.44	173.26	207.68
Total	185.68	226.29	292.70	347.52	381.94

103. The Commission has gone into the petition of OPTCL in this regard and observes that the depreciation is allowed as per the OERC Transmission Regulation 2014 and rates prescribed therein. The Commission in its tariff orders allows depreciation on the historical costs of the assets without considering the effect of up valuation. The Govt. of Odisha in successive years has also communicated to keep in abeyance the effect of up-valuation of assets from the ARR calculation. In line with the same principle, the Commission considers the calculation of depreciation on the pre up-valued assets. The Commission arrives at the depreciation by considering the figures under the following heads.

Transmission Assets (Item Description)	Deemed Cost as on 01.04.----- (Audited)	Addition during FY ---- (Approved)	Cost as on 01.04.----- (Approved)	Up valuation effect	Pre-up valued value of assets as on 01.04----	OERC Depreciation Rate as per Regulations, 2014	Depreciation (Approved for the FY -----)
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104. The commission observes that as per the present provisions of the regulations and Government of Odisha notification on this regard, the depreciation during the control period will be calculated on the asset value appearing in the audited accounts, additions thereof and minus the difference of up-valuation. The Capitalization will be considered excluding projects funded from Govt. Grant.

Interest on Working Capital Loan

105. OPTCL stated that as per the Regulations 8.25 OERC Regulations, 2014, Working Capital shall include
- Receivables equivalent to one month of fixed cost;
 - Maintenance spares @15% of operation and maintenance expenses as specified in regulation 8.2 to regulation 8.15;
 - Operation and maintenance expenses (as specified in regulation 8.2 to regulation 8.5) for one month.
106. OPTCL stated that s per the Regulation 8.26 of OERC Regulations, 2014, the rate of interest for working capital shall be on normative basis and shall be equal to the SBI Base Rate plus

300 basis points as on 1st January of the preceding year for which tariff is determined provided that in case of STU (OPTCL) the Commission shall determine the quantum of working capital if needed depending on the cash flow position of the licensee and shall allow interest on the same.

107. OPTCL submitted that the Commission has not allowed interest on working capital stating OPTCL is revenue surplus i.e. the gap between revenue receipts and revenue payments. The working capital loan is required to meet the cost short-term financial needs of the company. It has been a settled practice to allow the interest on working capital as a part of ARR and is followed in other States as well as at the central level. Also, the required interest on working capital is not sufficient to be met from the book profit of the company and needs to be allowed. The working capital requirement and the interest to be paid thereupon has been calculated below.

Table-36
Interest on Working Capital for FY 2019-20 to FY 2023-24 (Rs. Cr.)

Particulars	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24
Receivables equivalent to one month of Fixed Cost	77.99	89.49	110.12	116.55	124.28
Maintenance Spares @ 15% of O&M expense for the year	95.45	104.99	115.80	116.20	123.34
O&M expense for one month	50.73	55.93	61.88	62.05	65.96
Total Working Capital	224.18	250.41	287.80	294.80	313.58
SBI base rate + 300 basis point as on 1 st January	12.05%	11.45%	11.45%	11.45%	11.45%
Interest on Working Capital	27.01	28.67	32.95	33.76	35.90

108. The Commission analysed the submissions of the OPTCL in this regard. The Commission while calculating the working capital requirement analyses the Cash flow statements (Revenue items) of previous year and current financial year. It is observed over the years that the total cash inflow has been more than the outflow having thus a net positive cash flow. The Commission have therefore concluded that there is no requirement of working Capital loan for OPTCL. During the control period in the ARR this would be further analysed towards approval of working capital if any.

Financing Plan

Existing Loans and Repayments

109. Petitioner stated that Interest on loan for FY 2019-20 has been projected based on the closing balance of FY 2018-19 and so on. Details of interest on loan capital and its repayment schedule is provided below:

Table-37
Actual Interest on Loan paid during FY 2018-19 (Rs. Cr.)

Name of Institution	Rate of Interest	Opening Balance-Principal	Loan received during the year	Principal repayment during the year	Closing Balance	Avg. Loan for the year	Interest to be paid
Loan from Financial Institutions							
REC	11.53%	232.02	-	25.45	206.56	219.29	25.29
PFC	10.99%	51.24	-	6.74	44.50	47.87	5.26
JICA	5.86%	20.00	45.00	-	65.00	42.50	2.49
Loan from Banks							
Union Bank	7.69%	1.25	-	-	1.25	1.25	0.10
Bank of India	9.15%	52.12	-	6.75	45.37	48.75	4.46
Grand Total	10.45%	356.63	45.00	38.95	362.68	359.66	37.60
Finance Charges							0.08
Interest & Finance Charges							37.68

110. Petitioner has further projected interest on Loan to be paid during subsequent years on the following manner;

FY 2019-20 – Rs. 47.76 crore

FY 2020-21 – Rs. 87.66 crore

FY 2021-22 – Rs. 135.73 crore

FY 2022-23 – Rs. 157.32 crore

FY 2022-23 – Rs. 157.72 crore

111. State Govt. has issued Rs.200 Cr. Non-Convertible Bonds carrying interest rate of 13% p.a. Accordingly, OPTCL has made provisions of Rs.26 Cr every year towards interest in the books of accounts. OPTCL has however not claimed interest of Rs.26 Cr. in the Business Plan for FY 2019-20 to FY 2023-24 as the commission has not considered the OPTCL claim towards interest on State Govt. Bond.

112. The Commission analysed the projection towards the interest on Loan to be paid. It is observed from the submission here that there would be substantial increase in the projection for the JICA loan which stands at Rs 460.10 crore in 2021-22. It is proposed to increase to Rs.925.63 crore in FY 2023-24. This would be required to be justified in the subsequent ARRs. The Commission will accordingly analyse each element of the loan taken in the ARR to allow the interest on loans. The interest on Government Loans will not be considered during the control period.

Loan for new Capital Expenditure

113. OPTCL has submitted that it has a scheme wise funding plan for all future Capital expenditure planned under this Business Plan. For some of the projects under SCRIPS, RRCP, DRC, DRPS schemes funding is through 100% State Govt. Grant and for rest of the projects funding is planned from new loans after considering the fund available from the existing loan portfolio.

Table-38
Projected Capital Expenditure for FY 2019-20 to FY 2023-24 (Rs. Cr.)

Particulars	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	Total
Telecommunication	11.88	76.81	43.21	39.00	8.82	179.72
IT	1.51	77.73	9.50	4.25	4.25	97.24
Civil	20.55	25.31	18.56	15.40	5.50	85.32
Construction	645.35	1008.60	1207.77	1261.84	1233.29	5356.84
O&M Capex	68.03	75.59	54.00	41.76	41.45	280.83
Total CAPEX	747.32	1264.04	1333.04	1362.24	1293.32	5999.95
Total CAPEX excluding Projects funded from Govt. Grant	609.71	944.44	1,042.89	1,106.20	1,113.32	4,816.55

114. OPTCL has projected that to undertake the CAPEX every year excluding Projects funded from Govt. Grant some part will be equity funded (for first three years only) and the rest will be sourced as loan. Interest rate on new long-term loans has been computed at a rate of 8.89% based on the weighted average rate of interest to be paid for existing loan during the control period. The term of loan has been taken as ten years with a moratorium period of two years.

Table-39
Projected Interest and Repayment of New Loan for FY 2019-20 to FY 2023-24 (Rs. Cr.)

Particulars	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24
Opening Balance	-	263.51	355.11	768.82	1,544.17
Loan to be Received	263.51	91.60	440.06	810.86	1,113.32
Principal Repayment	-	0	26.35	35.51	79.52
Closing Balance	263.51	355.11	768.82	1,544.17	2,577.97
Average Balance	131.75	309.31	561.97	1,156.50	2,061.07
Rate of Interest	8.89%	8.89%	8.89%	8.89%	8.89%
Interest to be paid	11.71	27.50	49.96	102.81	183.22
Financing Charges	0.02	0.06	0.11	0.22	0.39
Total for New loan	11.74	27.56	50.06	103.03	183.61
For Existing Loan	47.76	87.66	135.73	157.32	152.72
Total (Including existing and New loan)	59.50	115.22	185.80	260.34	336.33
Interest Capitalised	21.54	54.21	60.44	118.11	189.80
Interest and Finance Charges	37.97	61.01	125.36	142.23	146.54

115. The Commission has considered the submission of the petitioner regarding loan for the Capex requirement during the control period. It is observed that OPTCL has planned total

capex under the head 'construction' to the tune of Rs. 5999.95 Cr. during the control period. After deducting the Government funded capex balance capex of Rs. 4816.55 crore will be availed through Loans and partly by equity in first three years of the control period. Accordingly the Interest and finance charges will increase from Rs. 37.97 crore in FY 19-20 to Rs. 146.54 crore in FY 23-24. OPTCL will be required to justify such capex expenditure with cost and benefit analysis and seek commission's approval of the same. The interest will accordingly will be allowed in the ARR in the current control period.

Rebate to customers

116. As per the Regulation 8.49 of OERC Regulations, 2014, a rebate of 2% shall be allowed by the transmission licenses in case the payment is made within 2 working days of presentation of bills by the transmission licensee. Accordingly, OPTCL has projected 2% rebate assuming the customers shall pay the bills within 2 days to avail higher rebate. The Commission in this regard observes that Rebate in the ARR will be allowed as per the prevalent regulation.

Return on Equity

117. OPTCL stated that as per the Regulations 8.28 & 8.29 of OERC Transmission Tariff Regulations, 2014, STU (OPTCL) shall be allowed a Return on Equity Capital in rupee terms at the rate of 15.50% per annum (post tax), on the amount of equity capital base as determined by the Commission. This rate of return needs to be grossed up with the normal/applicable tax rate.
118. OPTCL stated that through infusion of additional capital by the state government, the paid-up equity capital of OPTCL has increased to Rs. 790.07 Cr. as on 31.03.2019 as per the Audited Account. Government of Odisha has committed to provide funds of Rs.250 Cr. as equity over the five-year period FY 2017-18 to FY 2021-22 i.e. Rs.50 Cr annually. As per the Annual Plan Budget of Dept. of Energy, Govt. of Odisha for the FY 2019-20, budget provision of Rs.55 Cr has been made under the scheme Share Capital Investment to OPTCL which is likely to be received shortly. Besides, GoO has already released Rs.14.70 Cr as equity capital under the Smart Grid Scheme. Thus, the total equity to be received during FY 2019-20 shall be Rs.69.70 Cr. and Rs.50 Cr. shall be received each year for FY 2020-21 and FY 2021-22. Regarding equity of Rs.60.07 Cr. inherited by OPTCL at the time of demerger of GRIDCO into GRIDCO and OPTCL, the Commission in the OPTCL tariff order for FY 2009-10 has disallowed Return on Equity on the above amount. Hence, this amount is not included in the present application for computation of RoE.

Table-40
Projected Return on Equity for FY 2019-20 to FY 2023-24 (Rs. Cr.)

Particulars	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24
Opening Equity Share Capital/ Equity Invested	730.00	799.70	849.70	899.70	899.70
Equity to be invested during the year	69.70	50.00	50.00	0.00	0.00
Closing Equity Share	799.70	849.70	899.70	899.70	899.70
Rate of Interest allowed	15.50%	15.50%	15.50%	15.50%	15.50%
Return on Equity	123.95	131.70	139.45	139.45	139.45

119. The Commission has analysed the projections on the RoE for the control period. The Commission allows ROE as per the prevalent Regulations on the Equity infusion for the purpose of capital expenditure on the basis of the evidence provided by the OPTCL regarding infusion of such equity by the State Government. This principle will continue for the allowance of RoE during the control period. No ROE will be allowed on the Equity created through financial restructuring of existing loans.

Income Tax

120. OPTCL stated that as per the Regulation 8.43 of OERC Regulations, 2014, Income tax of the Transmission Licensee shall be recovered from the beneficiaries. This will exclude income tax on other income streams (non-transmission business). Further, as per Regulation 8.44 of aforesaid Regulations, the actual assessment of income tax should consider benefits of tax holiday, and the credit for carry forward losses applicable as per the provisions of the Income Tax Act, 1961 shall be passed on to the consumers.
121. OPTCL submitted to allow the claim same as and when incurred in the ARR and True-Up Petitions of subsequent years. However, difference if any, as per the Regulation 8.43 and 8.44, shall be adjusted during the true up exercise based on audited accounts.
122. OPTCL in its petition has projected that the Income Tax Expenses of Rs. 7.93 crore in 2019-20 to go up Rs. 30.10 crore during FY 23-24. The Commission in this regard observes that the Income tax in the ARR will be allowed as per the actual during the control period.

Incentive for System Availability

123. OPTCL stated that the Regulation 6.4 of OERC Regulations, 2014 specifies the “Operational Norm” applicable for transmission system for recovery of full annual transmission charge by the Transmission Licensee. The Normative Annual Transmission System Availability Factor (NATAF) shall be 98.50% for AC system for recovery of full Annual Transmission Charges.
124. OPTCL stated that as per the Regulation 6.5 of OERC Regulations, 2014, OPTCL is entitled to get incentive if the transmission system availability factor (TAFY) for the year is greater

than the NATAF in per cent specified in Regulation 6.4. OPTCL in its submission has claimed an incentive of Rs.9.60 crore to be passed in the ARR of FY 2019-20 as the system availability of OPTCL Transmission Network for FY 2017-18 was 99.98%, which is more than Normative Annual Transmission System Availability Factor (NATAF) of 98.5%. The OPTCL system availability of 99.98% has been duly checked and certified by SLDC.

125. OPTCL stated that the Commission in the Tariff Order for FY 2019-20 & FY 2020-21 approved an amount of Rs.5.00 crore as an incentive in the ARR of OPTCL for achieving availability of more than 99.98%. In line with the same, it is projected that OPTCL shall achieve availability of 99.98% and accordingly incentive has been claimed at such availability for rest of the period.

Table-41
Projected Incentive towards System Availability for FY 2019-20 to FY 2023-24 (Rs. Cr.)

Particulars	Formula	19-20	20-21	21-22	22-23	23-24
ARR projected	A			935.91	1,073.82	1,321.47
TAFY	B			99.98	99.98	99.98
NATAF	C			98.50	98.50	98.50
Incentive on System Availability	$D=A*((B/C)-1)$	*5.00	#5.00	14.06	16.13	19.86

126. The commission in this regard observes that the Regulation 6.4 of OERC Regulations, 2014 specifies the “Operational Norm” applicable for transmission system for recovery of full annual transmission charge by the Transmission Licensee. The Normative Annual Transmission System Availability Factor (NATAF) shall be 98.50% for AC system for recovery of full Annual Transmission Charges. The incentives for system availability will accordingly be determined on the basis of the Regulation in the ARR during the control period.

Revenue from operations

127. Petitioner stated that the Commission has accorded in-principle approval of the Long-Term Demand Forecast (LTDF) for the period FY 2017-18 to FY 2026-27 vide Order dated 15.01.2019 in Case No. 47/2018. GRIDCO vide its letter dated 14.09.2020 has communicated realistic energy demand projection for the DISCOMS for FY 2021-22 to FY 2023-24.

Table-42
Demand Forecast for DISCOMS for FY 2019-20 to FY 2023-24 (MU)

Name of	19-20	20-21	21-22	22-23	23-24
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	Approved in LTDF Order	Approved in OPTCL Tariff Order dtd. 29.03.2019	Approved in LTDF Order	Approved in OPTCL Tariff Order dtd. 21.04.2020	GRIDCO letter dated 14.09.2020	GRIDCO letter dated 14.09.2020	GRIDCO letter dated 14.09.2020
CESU	9693	27840	10372	28090	28782	29555	30641
NESCO	6161		6342				
WESCO	7293		7357				
SOUTHCO	3873		4021				
Total	27020	27840	28092	28090	28782	29555	30641

128. The Petitioner envisages that 200MU energy will be lost in DISCOMs' 33kV & 11kV network for which OPTCL is not entitled to receive any transmission charge in line with the approach adopted by the Commission in the Tariff Order for FY 2020-21.
129. OPTCL stated that it earns revenue from the LTOA Customers in the following manner:
- By charging the rate applicable on DISCOMs and Railways for wheeling of energy.
 - By charging the rate applicable on LTOA customers like IMFA, NALCO & BEL towards wheeling and supply of Emergency/Back-up power.
130. OPTCL stated that the revenue to be earned by OPTCL from wheeling of energy at the existing transmission tariff of 25 paise per unit for FY 2019-20 & FY 2020-21 has been considered as approved by the Commission in the Tariff Orders. For rest of the years of the control period, it has been assumed that the Commission shall allow transmission charges to be recovered at par with the estimated ARR as Annual Fixed Cost (AFC) basis:

Table-43
Projected Energy wheeled in the Transmission Network for FY 2019-20 to FY 2023-24
(In MU)

Particulars	19-20	20-21	21-22	22-23	23-24
Demand from DISCOMS	27840	28090	28782	29555	30641
Less: Loss of Energy transmitted in 33 kV and 11 kV N/W	200	200	200	200	200
Energy available for DISCOM	27640	27890	28582	29355	30441
Wheeling to industries from CGPs	600	600	600	600	600
Sale to CGP by GRIDCO	30	60	60	60	60
Total energy	28270	28550	29242	30015	31101

*Approved by the Commission in the Tariff Order

Table-44
Projected revenue to be earned at existing Transmission Tariff for FY 2019-20 to FY 2023-24

Particulars	Units	19-20	20-21	21-22	22-23	23-24
Revenue to be earned	Rs. Cr.	*706.75	*713.75	1,321.47	1,398.66	1,491.35

*Approved in the Tariff Orders

131. Petitioner stated that it is to be noted that the transmission cost incurred by OPTCL does not have any variable component. Recovery of transmission charge as a function of energy wheeled in the transmission network of OPTCL overestimates / underestimates the revenue to be earned. Therefore, it shall be logical to allow recovery of transmission cost which is fixed in nature to be recovered as fixed charge as adopted for most of the STUs.
132. Petitioner in view of the same the submitted to allow recovery of transmission charges as fixed cost on monthly basis as per the allocated capacity or peak load (MW) to each of the customer. OPTCL has also prayed before the Commission for allowing recovery of transmission charge as fixed cost in its application dated 18.09.2020.
133. The Commission in this regard observes that the present OERC Transmission Regulation provides the methodology of allowing Revenue from operations. The Regulation does not envisage allowing recovery of transmission charge. The Commission will continue to allow revenue from operations on the basis of the present Regulations in this regard during the control period.

Revenue from other Income

134. Petitioner stated that the Commission in its proceedings for the Tariff Orders for FY 2019-20 and FY 2020-21 examined the other receipts earned by the OPTCL in the shape of 'Revenue from operations' and 'Other income'. In the said Orders the Commission out of the various heads under which OPTCL earns other receipts decided to exclude income from few heads like LTOA charges, income relating to SLDC charges, loans to employees, income tax refund, deferred income, disposal of property, plant, provision written back, employee trust provision withdrawn etc. while computation of miscellaneous income.
135. Petitioner stated that compared to earlier years, the earning from Supervision Charge has drastically reduced. The number of applicant industries is very less for which revenue from Supervision Charge for FY 2019-20 shall be very low. It is to be noted that the approved period for ODSSP projects have already expired and the entitlement to OPTCL has also exhausted. Therefore, it shall not be prudent to consider the supervision charges for future years. Accordingly, same has not been considered for projection of other income for the control period.
136. Petitioner further stated that the Regulation 4(1)(xi) of the OERC(Determination of Open Access Charges) Regulations, 2006 provides that 25% of the charges collected from the short-term customers shall be retained by the transmission licensee and the balance 75%

shall be adjusted towards reduction in the transmission charges payable by the long-term customers. The relevant extract from the Regulations is provided below:

“25% of the charges collected from the short-term customers shall be retained by the transmission licensee and the balance 75% shall be adjusted towards reduction in the transmission charges payable by the long-term customers.”

In line with the above Regulation, 25% of the short-term open access charge has been retained while calculating the allowable other income for FY 2016-17 to FY 2018-19.

137. Petitioner stated that with the advent of national economic slowdown due to global pandemic situation, the demand of the industries is less likely to grow at a faster rate. Therefore, STOA charge and other miscellaneous income for the control period have been projected considering an escalation of 2% over actual charges for FY 2018-19. Inter-state wheeling charge and Interest from bank deposits have been expected to remain almost at same level and considered to be constant for the entire control period. Interest on advance to suppliers and gain due to disposal of assets has been considered to grow at 5% every year over FY 2018-19. Detailed calculation towards other income for FY 2019-20 to FY 2023-24 is provided below:

Table-45
Projected Other Income for FY 2019-20 to FY 2023-24 (Rs. Cr.)

Particulars	19-20	20-21	21-22	22-23	23-24
Short-term Open Access Charges	47.94	48.90	49.88	50.87	51.89
Inter-state Wheeling Charges	9.45	9.45	9.45	9.45	9.45
Interest from advances to suppliers	0.32	0.33	0.35	0.36	0.38
Interest from Bank deposits	26.61	26.61	26.61	26.61	26.61
Net gain/(loss) on disposal of property, plant etc.	15.60	16.38	17.20	18.06	18.97
Other miscellaneous income	19.21	19.59	19.98	20.38	20.79
Total other Income	119.12	121.26	123.47	125.74	128.09
Short term Open Access Charges to be retained by OPTCL @25% as per Open Access Regulations	11.99	12.22	12.47	12.72	12.97
Total other Income	107.14	109.04	111.00	113.03	115.12

138. The Commission by OERC (Terms and Conditions of Intra-State Open Access) Regulations, 2020 has rationalised the LTOA and STOA charges paid by the Open Access customers in line with the CERC (Open Access in Interstate Transmission), Regulations. In view of such developments it is estimated that the receipts of STOA would substantially increase. The Commission expects that after the revision of STOA it would be four times of the average charges received during the year FY 2018-19 and 2019-20. Taking such aspect into account commission will determine STOA charges to be received during the year in addition to other miscellaneous receivables.

139. The Commission in this regard observes that the transmission charge is determined after prudently checking all the elements of expenses as per the laid principles which are described in foregoing paragraphs related to each element. Therefore the analysis of such elements will be carried out during each year during determination of Transmission tariff.
140. The Commission directs OPTCL to monitor the following measures during the subject Business Plan Period FY 2019-20 to 2023-24:
- The time line and mile stones approved in the Capex Plan need to be monitored on regular basis and no time or cost over-run should be permitted.
 - The financing of Capex for infrastructure addition in Intra-State Transmission System may be done at Debt: Equity ratio of 70:30 in line with OERC Regulations.
 - OPTCL needs to ensure avoidance of under loading of lines and substations to minimize system losses. Since we are approving the Business Plan now on the basis of demands projected years ahead of execution, OPTCL must ensure through system studies that no under loaded projects and economically unviable projects are taken up during the business plan period.
 - Proper system study should be conducted before proceeding to any network expansion for evacuation of power. The system study should be comprehensive and should clearly specify point of interconnection and additional links required for evacuation.
141. OPTCL should prepare a plan for increasing automation and introduction of Smart grids gradually for efficient operation of its intra state transmission system.
142. The application of OPTCL in Case No. 63/2020 is disposed of accordingly.

Sd/-

(G. Mahapatra)
Member

Sd/-

(S.K. Parhi)
Member

Sd/-

(U.N. Behera)
Chairperson

TRANSMISSION PROJECT COMPLETED

Sl. No	Name of Project with scope of work	OERC case No. & date of approval	Cost (Rs. in Crore)	Scheduled date of Completion	Actual Date of Completion	Time Overrun with Reason
PROJECT COMPLETED DURING 2016-17						
1	2x160MVA, 220/132kV S/S & 2x20MVA, 132/33kV S/S at Atri (Karadagadia) with LILO	1. 05/2016 (BP) 30.07.2016	Estimated - 76.39	09/2015	24.02.2016	Time- 05 Months
			Actual- 63.17			
2	2x20MVA, 132/33kV S/S at Bangiriposi with LILO	1. 113/2012 10.02.2014 2. 05/2016 (BP) 30.07.2016	Estimated - 15.91	01/2015	03.10.2016	Time- 20 months
			Actual- 12.74			
3	220kV Bidanasi-Cuttack DC line	1. 74/2008 27.08.2009 2. 05/2016 (BP) 30.07.2016	Estimated - 16.72	10/2010	29.11.2016	Time- 73 months
			Actual- 15.53			
4	2x40MVA, 220/33kV GIS S/S at Infocity-II ,Bhubaneswar with LILO	1. 05/2016 (BP) 30.07.2016	Estimated - 58.12	02/2016	23.12.2016	Time- 10 months
			Actual- 48.11			
5	2x20MVA, 220/33kV S/S with SAS at Malkangiri with line	1. 3/2013 21.03.2014 2. 05/2016 (BP) 30.07.2016	Estimated - 40.89	10/2016	25.03.2017	Time- 05 Months
			Actual- 27.38			
6	2x100MVA, 220/132kV S/S at Nuapada (Cuttack)	1. 22/2010 03.09.2010 (IP)	Estimated - 32.67	03/2014	27.03.2017	Time- 36 months
			Actual- 19.36			
7	2x40MVA, 132/33kV S/S at Khajuriakata (Hindol Road) with LILO	1. 43/2012 23.06.2012 (IP) 2. 05/2016 (BP) 30.07.2016	Estimated - 24.73	10/2014	28.03.2017	Time- 29 months
			Actual- 17.81			Reason-
8	2x20MVA, 132/33kV S/S at Bhograi with LILO	1. 113/2012 10.02.2014 2. 05/2016 (BP) 30.07.2016	Estimated - 33.86	02/2016	29.03.2017	Time- 13 months
			Actual- 26.4			Reason-
9	2x20 MVA, 132/33kV S/S at Olavar with line	1. 27/2011 25.06.2011 2. 05/2016 (BP) 30.07.2016	Estimated - 41.49	11/2015	30.03.2017	Time- 16 months
			Actual- 32.59			
10	2x160MVA, 220/132kV & 2x40MVA, 132/33kV GIS S/S with SAS at Chandaka-B	1. 05/2016 (BP) 30.07.2016	Estimated - 88.04	05/2016	31.03.2017	Time- 10 months
			Actual- 78.08			
PROJECT COMPLETED DURING 2017-18						
1	LILO of 132kV Meramundali-Arati Steel SC line at Nuapatna	1. 05/2016 (BP) 30.07.2016	Estimated - 6.03	10/2014	23.06.2017	Time- 33 months
			Actual- 15.91 (Both sl no.1 & 2)			
2	132kV Salipur-Kendrapara SC line	1. 43/2012 23.06.2012 2. 05/2016 (BP) 30.07.2016	Estimated - 15.28	10/2014	30.07.2017	Time- 33 months
			Actual- 15.91 (Both sl no.1 & 2)			

Sl. No	Name of Project with scope of work	OERC case No. & date of approval	Cost (Rs. in Crore)	Scheduled date of Completion	Actual Date of Completion	Time Overrun with Reason
3	2X20MVA,132/33kV S/S at Tusura with LILO	1. 05/2016 (BP) 30.07.2016	Estimated - 32.49	11/2017	26.07.2017	Time- Before 04 months
			Actual- 24.55			Reason- No delay
4	132kV Kuchei(PGCIL)-Jaleswar DC line	1. 8/2013 (IP) 04.06.2014 2. 05/2016 (BP) 30.07.2016	Estimated - 41.34	06/2015	30.07.2017	Time- 25 months
			Actual- 36.61			
5	2X20MVA,220/33kV S/S at Bonei with LILO	1. 74/2008 (IP) 27.08.2009 2. 05/2016 (BP) 30.07.2016	Estimated - 24.2	11/2011	12.04.2017	Time- 65 months
			Actual- 20.71			Reason- Original Contractor M/s. UB Engineering shortclosed & balance work were taken up through re-tendering.
6	LILO of 220kV Atri-Samangra D/C line at Pandiabil	1. 05/2016 (BP) 30.07.2016	Estimated - 3.15	05/2016	19.05.2017	Time- 12 months
			Actual- 2.18			
7	2X20MVA, 132/33kV S/S at Muniguda with LILO	1. 113/2012 10.02.2014 2. 05/2016 (BP) 30.07.2016	Estimated - 28.43	07/2014	29.11.2017	Time- 40 months
			Actual- 16.4			Reason- Delay due to Seviour ROW issue for connectivity to the Grid S/S.
8	2X20MVA, 132/33kV S/S at Tirtol with LILO	1. 05/2016 (BP) 30.07.2016	Estimated - 40.31	06/2017	05.01.2018	Time- 06 months
			Actual- 20.08			
9	2X20MVA, 132/33kV S/S at Podagada with LILO	1. 113/2012 10.02.2014 2. 05/2016 (BP) 30.07.2016	Estimated - 23.24	02/2015	09.02.2018	Time- 36 months
			Actual- 23.15			Reason- Severe ROW
10	2X20MVA, 132/33kV S/S at Dhenkikote (Ghatgaon) with line	1. 113/2012 (IP) 10.02.2014 2. 05/2016 (BP) 30.07.2016	Estimated - 34.81	11/2016	24.02.2018	Time- 15 months
			Actual- 23			
11	2X40MVA, 132/33kV S/S at Kantabanjhi with line	1. 3/2013 (IP) 21.03.2014 2. 05/2016 (BP) 30.07.2016	Estimated - 27.74	01/2015	28.02.2018	Time- 37 months
			Actual- 27.95			Reason- Severe ROW
12	2x100KVA, 220/132/33KV S/S at Bargarh(New) with LILO	1. 05/2016 (BP) 30.07.2016	Estimated - 45.56	08/2016	21.03.2018	Time- 19 months
			Actual- 40.77			Reason- Transformer Issue
PROJECT COMPLETED DURING 2018-19						
1	2X40MVA, 132/33kV S/S at Ghens with line	1. 60/2016 (IP) 18.10.2017	Estimated - 32.82	11/2017	13.04.2018	Time- 05 months
			Actual- 29.64			Reason- Severe ROW
2	LILO of 132kV Nimapara-Kesura line at Pratapsasan (1.7kms.)		Estimated - 1.33	05/2016	23.05.2018	Time- 24 months
			Actual- 1.24			
3	(a) 2x40MVA,132/33kV GIS with SAS at Khuntuni (Athagarh)	1. 05/2016 (BP) 30.07.2016	Estimated - 44.99	03/2017	31.05.2018	Time- 14 months
			Actual- 44.26			
	(b) LILO of 132kV Meramundali-Choudwar line at Khuntuni .		Estimated - 0.26	12/2017	31.05.2018	Time- 5 months
			Actual- 0.2			

Sl. No	Name of Project with scope of work	OERC case No. & date of approval	Cost (Rs. in Crore)	Scheduled date of Completion	Actual Date of Completion	Time Overrun with Reason	
4	2x315MVA, 400/220kV S/S at Lapanga	1. 3/2013 (IP) 21.03.2014 2. 05/2016 (BP) 30.07.2016	Estimated - 126.84	11/2016	10.8.2018	Time- 21 Months	
			Actual- 144.39			Reason- Reason-Change of design to D type dia configuration instead of originally designed I type configuration, Change of civil foundation design i.e. pile type foundation for some of the 400 kv equipments & column structures which were not in the original scope, delay in service by BHEL for ICT & reactors.	
5	(a) 2x20 MVA, 220/33kV S/S at Narasinghpur	1. 113/2012 (IP) 10.02.2014	Estimated - 36.18	09/2016	24.08.2018	Time- 23 Months	
	Actual- 33.09						
	(b) LILO of 220kV Meramundali-Bhanjanagar DC line at Narasinghpur		Estimated - 6.87	03/2017	24.08.2018	Time- 18 months	
			Actual- 4.1				
6	132kV Nuapatna-Banki SC line	1. 05/2016 (BP) 30.07.2016	Estimated - 17.5	11/2016	28.08.2018	Time- 21 Months	
			Actual- 16.01				
7	2x20 MVA, 132/33kV Grid S/S at Udala with LILO	1. 86/2009 (IP) 15.09.2009	Estimated - 34.63	03/2018	16.09.2018	Time- 06 months	
			Actual- 38.19				
8	2x20MVA, 132/33kV S/S at Chikiti with line	1. 2/2013 (IP) 12.03.2014 2. 05/2016 (BP) 30.07.2016	Estimated - 41.34	06/2017	19.09.2018	Time- 15 Months	
			Actual- 34.6				
9	LILO of 400kV Vedanta-Meramundali DC line at Lapanga	1. 3/2013 21.03.2014 2. 05/2016 (BP) 30.07.2016	Estimated - 32.36	06/2017	02.11.2018	Time- 17 Months	
			Actual- 41.63			Reason- Severe RoW problem at 5 nos of locations, delay in railway crossing approval	
10	400kV IB-Lapanga DC Line	1. 05/2016 (BP) 30.07.2016	Estimated - 26.55	09/2016	03.11.2018	Time- 26 months	
			Actual- 24.60			Reason- Severe RoW problem near village talabira	
13	(A) 2x40MVA, 220/33kV GIS at Keonjhar.	1. 86/2009 (IP) 15.09.2009 2. 05/2016 (BP) 30.07.2016	Estimated - 60.39	06/2017	31.12.2018	Time- 18 months	
	Actual- 43.17						
	(B) 220kV Koenjhar(PGCIL)-Keonjhar(OPTCL) DC line (7.40kms- 31 Locations)			Estimated - 7.1	09/2017	31.12.2018	Time- 15 months
				Actual- 9.37			
14	2X40MVA, 132/33kV GIS with SAS at Chandabali (Bhadrak)	1. 05/2016 (BP) 30.07.2016	Estimated - 52.65	12/2017	20.02.2019	Time- 14 months	
			Actual- 42.57				
15	132kV Olavara-Chandbali DC Line (13.2kms- 49 Locations)	1. 05/2016 (BP) 30.07.2016	Estimated - 8.6	03/2017	20.02.2019	Time- 23 months	
			Actual- 5.1				
17	3rd 315MVA, 400/220kV Auto Transformer with	1. 8/2013 (IP) 04.06.2014 2. 05/2016 (BP)	Estimated - 28.83	11/2015	28.02.2019	Time- 39 months	
			Actual-				

Sl. No	Name of Project with scope of work	OERC case No. & date of approval	Cost (Rs. in Crore)	Scheduled date of Completion	Actual Date of Completion	Time Overrun with Reason
	400kV & 220kV transformer bays at Mendhasal S/S	30.07.2016	17.53			
PROJECT COMPLETED DURING 2019-20						
1	2x20MVA, 220/33kV Grid S/S at Kasipur in Rayagada dist with line	1. 2/2013 (IP) 12.03.2014 2. 05/2016 (BP) 30.07.2016	Estimated - 28.97 Actual- 26.01	08/2016	30.06.2019	Time- 34 months Reason-Allotted Land was not suitable,huge filling & retaining wall required at the river side
3	2x100MVA +2x40MVA, 220/132/33kV S/S at Aska with line	1. 2/2013 (IP) 12.03.2014 2. 05/2016 (BP) 30.07.2016	Estimated - 88.39 Actual- 78.85	06/2017	02.06.2019	Time- 24months Reason- Land & Forest issue,Resurvey done to minimise forest
4	2X100MVA & 2X20MVA , 220/132/33kV s/s at Jaipatana with line	1. 2/2013 (IP) 12.03.2014 2. 05/2016 (BP) 30.07.2016	Estimated - 88.00 Actual- 67.71	02/2018	12.07.2019	Time- 17 months Reason- RoW as land is very much fertile and also Working days is limited due to double/tripple crops
5	2x40MVA, 132/33kV GIS at Unit-VIII, Bhubaneswar with line	1. 05/2016 (BP) 30.07.2016	Estimated - 40.73 Actual - 32.85	11/2017	01.04.2019	Time- 17 months Reason- Land handed over by CESU delayed
6	2x20MVA,132/33kV S/S at Betanoti with line.	1. 2/2013 (IP) 12.03.2014 2. 05/2016 (BP) 30.07.2016	Estimated - 23.19 Actual- 26.90	12/2016	19.04.2019	Time- 27months Reason- Controversy between Lead Partner & JV and work finished by JV after intervention of OPTCL
7	2x20MVA, 132/33kV S/S at Agarpada with line	1. 60/2016 (IP) 18.10.2017	Estimated - 27.85 Actual- 26.26	08/2016	30.08.2019	Time- 36 month Reason- Severe RoW at Loc.14/2
8	2x20MVA, 132/33kV S/S at Potangi	1. 113/2012 (IP) 10.02.2014 2. 05/2016 (BP) 30.07.2016	Estimated - 29.15 Actual- 38.48	02/2016	15.09.2019	Time- 42 months Reason- RoW at Loc.37,High court Court case continued for around 2 yr
9	2x40MVA, 132/33kV GIS S/S at Mancheswar-B and 132kV DC line from 220/132/33kV Chandaka S/S and 2nos.132kV fdr. bay extn. at Chandaka-B S/S	1. 113/2012 (IP) 10.02.2014 2. 05/2016 (BP) 30.07.2016	Estimated - 41.53 Actual- 33.02	12/2017	28.02.2020	Time- 26 months Reason- Land arrangement delayed between existing system of CESU & OPTC
10	220kV DC line from Jayanagar(OPTCL) to Jayanagar (PGCIL)	1. 05/2016 (BP) 30.07.2016	Estimated - 22.32 Actual- 15.95	01/2015	17.01.2020	Time- 30 months Reason- Severe RoW at most of the PGCIL locations
11	132kV Bhadrak-Anandapur SC line with bay extn. at both ends	1. 05/2016 (BP) 30.07.2016	Estimated - 21.37 Actual- 23.31	08/2016	03.07.2019	Time- 35 months Reason- (severe RoW at both ends
12	132kV Kesinga-Junagarh SC line on DC tower from 132/33kV Junagarh S/S to Kesinga S/S with 132kV fdr. bay extn. at both ends.	1. 05/2016 (BP) 30.07.2016	Estimated - 19.65 Actual- 23.30	05/2018	03.12.2019	Time- 19 months Reason- Severe RoW at Kesinga dead end

Sl. No	Name of Project with scope of work	OERC case No. & date of approval	Cost (Rs. in Crore)	Scheduled date of Completion	Actual Date of Completion	Time Overrun with Reason
13	132 kV Baner-Jaypatna D/C Line		Estimated - 11.45	02/2020	10.01.2020	Time- Before 1 months
			Actual- 9.15			Reason- NA
14	Mancheswar-B to Chandaka-B , 132 kV Line (UG Cabling) and (also 132KV UG Cabling from Mancheswar-A to Mancheswar-B to be charged after the completion of Bay-extension)		Estimated - 54.17	12/2019	26.02.2020	Time- 2 months
			Actual- 54.17			Reason- Cable damaged by M/s Honeywell, vendor for Smart City, laying optic fibre
PROJECT COMPLETED DURING 2020-21						
1	2x160MVA+2X40M VA, 220/132/33kV S/S at Godachhak and line	1. 05/2016 (BP) 30.07.2016 2. 2/2013 (IP) 12.03.2014	Estimated - 56.34	03/2017	29.05.2020	Time- 38 months
			Actual- 55.70			Reason- RoW issue
2	132/33kV S/S at Satasankha with line	1. 05/2016 (BP) 30.07.2016 2. 3/2013 (IP) 21.03.2014	Estimated - 38.94	06/2017	25.06.2020	Time-36 months
			Actual- 37.49			Reason- RoW issue
3	1X20 MVA, 220/33kV power transformer at LAXMIPUR		Estimated - 5.93	12/2014	27.07.2020	Time- 67 months
			Actual- 04.30			Reason-
4	132/33kV S/S at Brajabiharipur (CDA) with line	1. 05/2016 (BP) 30.07.2016 2. 113/2012 (IP) 10.02.2014	Estimated - 37.25	06/2017	31.10.2020	Time- 40 months
			Actual- 30.41			Reason- Land handed over on 18.05.2017 (Delay for 2 years)
5	2x20MVA,132/33kV S/S at Maneswar with line	1. 05/2016 (BP) 30.07.2016 2. 08/2013 (IP) 04.06.2014	Estimated - 26.79	03/2018	03.02.2021	Time- 36 months
			Actual- 27.15			Reason- (1) Due to detection of COVID-19 positive cases near project site area. (2) The transmission line is passing through double crop paddy field area hence it has been delayed.
6	132KV SC line on DC tower from 220/132/33kV Grid S/S JAYANAGAR to Grid S/S TENTULIKHUNTI with bay extention at both end.	1. 05/2016 (BP) 30.07.2016	Estimated - 21.79	12/2018	12.02.2021	Time- 26 months
			Actual- 27.16			Reason- '1. part of this line strung through some towers of Jaipatna-Dabugaon line. 2. Forest Issue 3. Approval for Rly crossing 4. COVID-19 pandemic
7	132kV LILO line from 132kV Barpali-Bargarh line to 220/132/33kV Grid S/S Bargarh (New)		Estimated - 3.633	05/2017	10.03.2021	Time- 46 months
			Actual- 2.59			Reason- RoW (Private Tree cutting)
8	220/33kV Govindpalli S/s with line	1. 18/2017 (TP) 09.04.2019	Estimated - 74.40	01/2020	17.11.2020	Time-
			Actual- 76.98			Reason- Line held up due to Forest
9	132/33kV Pratapsasan S/s with line	1. 05/2016 (BP) 30.07.2016 2. 08/2013 (IP) 04.06.2014	Estimated - 102.26	11/2017	30.10.2020	Time-
			Actual- 88.62			Reason-
10	2x20MVA,132/33kV G.Udavgiri S/S with	1. 60/2016 (IP) 18.10.2017	Estimated - 40.57	12/2018	28.03.2021	Time- 27 months

Sl. No	Name of Project with scope of work	OERC case No. & date of approval	Cost (Rs. in Crore)	Scheduled date of Completion	Actual Date of Completion	Time Overrun with Reason
	associated 132kV LILO		Actual- 36.66			Reason- Court Case

Annexure-II

Capex Requirement

(Rs. Cr.)

Sl. No.	Name of the Project with Sub-Station Capacity	Line Connectivity	Estimated Cost (Rs.)	Project cost (Rs.)	Expenditure up to 31.03.19	Projected Capital expenditure for FY 2019-20	2020-21	2021-22	2022-23	2023-24
(A) APPROVED PROJECTS										
1	2X315MVA, 400KV S/S at Lapanga with associated line. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016 2. 3/2013 (IP), 21.03.2014	LILO of both ckts. of 220kV D/C Budhipadar-Katapalli line at Lapanga & 132kV LILO lines	188.00	188.00	139.56	2.68	45.76			
2	2x100MVA +2x40MVA, 220/132/33kV S/S at Aska with associated line. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016 2. 2/2013 (IP), 12.03.2014	1. Aska D/C line 2. LILO of 132kV Aska- Bhanjanagar line at 220kV Aska S/S 3. LILO of 132kV Aska- Chatrapur line at 220kV Aska S/S	84.97	84.97	78.34	6.48	0.15			
3	2X100MVA & 2X20MVA , 220/132/33kV s/s at Jaipatana with associated line. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016 2. 2/2013 (IP), 12.03.2014	1.LILO of one ckt. of 220kV Indravati-Therubali D/C line at Jaypatna 2. LILO of 132 kV Jayapatna - Junagarh S/C line at Thumula Rampur	99.41	99.41	76.55	9.45	13.06			
4	2x40MVA, 132/33kV GIS at Unit-VIII , Bhubaneswar with associated line. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016	1. 132kV Chandaka B - Unit-VIII GIS S/C line (through Cable)	33.16	33.16	30.64	3.43	6.04			
5	2x20MVA, 132/33kV S/S at Betanoti with associated line. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016 2. 2/2013 (IP), 12.03.2014	1. LILO of 132kV Balasore - Baripada S/C line at Betanoti	26.90	26.90	12.61	2.83	11.46			
6	2x20MVA, 132/33kV S/S at Agarpada with associated line. OERC case No & Date of approval:- 1. 60/2016 (IP), 18.10.2017	1. 132 KV DC line from proposed 132kV DC line from 132kV Bhadrak to Anandapur (12.7 kms.)	26.26	26.26	15.33	0.86	10.07			
7	2x20MVA, 132/33kV S/S at Potangi OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016 2. 113/2012 (IP), 10.02.2014	1. 132kV Sunabeda-Pottangi S/C line	38.48	38.48	19.02	0.35	19.12			
8	2x40MVA, 132/33kV GIS S/S at Mancheswar-B with associated line. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016	1. 132kV DC line from 220/132/33kV Chandaka S/S	31.73	31.73	34.30	4.38	5.18			

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9	2x20MVA, 220/33kV Grid S/S at Kasipur, Rayagada with associated line. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016 2. 2/2013 (IP), 12.03.2014	1. LILO of one ckt. of 220kV Indravati-Therubali D/C line at Kasipur	32.01	32.01	30.37	1.40	-			
10	2x500MVA, 400/220kV GIS at Meramundali-B Voltage level- (400/220kV)OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016	1. Diversion of 400 kV Duburi-Meramundali DC line from Loc No 20 to Meramundali B GIS.2. Diversion by cabling of 220 kV Meramundali DC Line from Loc 06 to Meramundali B.3. Interconnection of 220 kV Kaniha-Meramundali DC line from Loc No 06 to Loc No 05 of 220 kV Duburi-Meramundali DC Line.4. Diversion by 220 kV Meramundali-TTPS DC Line from Loc 04 to Loc 02 of 220 kV Meramundali – Kaniha DC Line.5. Diversion by 220 kV Meramundali – NALCO DC Line from Loc 05 to Loc 03 of 220 kV Meramundali-TTPS DC Line.6. 220 kV DC line outgoing from Meramundali B to Loc No 03 of Meramundali – NALCO DC line.	332.00	159.31	91.18	13.72	38.53	15.87		
11	220/132/33kV Grid S/S, Dhamara with associated line. Voltage level- (220/132/33kV) OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016 2. 78/2010 (IP), 05.08.2010	1. LILO of one ckt. of 220kV Duburi-Balasore D/C line at Dhamara 2. One ckt. of 132kV Dhamra-Chandbali D/C line	89.78	86.77	7.76	13.76	40.00	25.25		
12	2x160MVA+2X40MVA, 220/132/33kV S/S at Godachhak with associated line. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016 2. 2/2013 (IP), 12.03.2014	1. 220kV LILO Meramundali-Duburi. 2. 132kV LILO TTPS - Duburi lines.	56.34	56.27	43.65	8.47	4.15			
13	2X160 MVA + 2x40MVA, 220/132/33kV S/S at Pratapsasan along with with associated line. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016 2. 08/2013 (IP), 04.06.2014	1. 220kV DC line from Nuapada to Pratapsasan S/S 2. 132kV DC line from Pratapsasan S/S to Phulnakhara S/S	72.60	93.10	78.29	23.97	30.00	6.50		

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14	(A) 2x160 MVA, 220/132 KV S/S at Kesinga alongwith associated bay extension at Bolangir along with Balance work of 220kV Bolangir-Kesinga OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016 2. 27/2011 (IP), 25.06.2011	1. 220 KV DC line from Bolangir to Kesinga.	99.75	82.82	77.23	7.12	1.00			
15	2x160 MVA + 2 x 40 MVA, 220/132/33 KV S/S at Kuanmunda (Mandiakudar) with with associated line. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016 2. 22/2010 (IP), 03.09.2010	1. LILO arrangement from Ckt-I of existing 220 KV Budhipadar - Tarkera D/C line (LILO Loc.-283, Mandiakudar)	90.52	82.04	30.97	23.33	20.00	7.74		
16	2X160MVA, 220/132kV and 2X20MVA, 220/33kV Grid S/S, Turumunga with associated line.OERC case No & Date of approval:- 1. 18/2017 (TP), 09.04.2019 2. 05/2016 (BP), 30.07.2016	1. 220kV Keonjhar (PGCIL)-Turumunga D/C line2. LILO of 132kV Karanja-Polaspanga S/C line	119.30	103.12	31.09	57.66	10.00	4.00	0.37	
17	2x20MVA, 132/33kV S/S and with associated line. OERC case No & Date of approval:- '1. 05/2016 (BP), 30.07.2016 2. 3/2013 (IP), 21.03.2014	1. 132kV LILO of 132kV Mohana-Digapahandi SC line	46.91	45.90	43.01	0.12	2.77			
18	2x20MVA, 132/33kV S/S at Satasankha with associated line. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016 2. 3/2013 (IP), 21.03.2014	1. 132kV DC line from proposed 220/132kV S/S at Samangara (Puri)	38.94	37.39	32.08	5.28	0.02			
19	2X20MVA, 132/33kV S/S at Brajabihariapur (CDA) Cuttack with associated line. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016 2. 11/2012 (IP), 10.02.2014	1. 132kV LILO from 132kV Bidanasi-Chandaka line.	37.25	44.27	24.33	9.51	10.43			
20	2X20MVA 132/33kV S/S Rajnagar with associated line. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016	132kV DC line from Patamundai to Rajnagar.	48.16	47.50	6.97	13.88	16.15	10.50		
21	2X20MVA, 132/33kV S/S, Chandipur with associated line. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016	1. LILO of 132kV Balasore-Soro line.	46.84	46.00	0.09	17.38	12.86	9.65	6.02	
22	2x20MVA, 132/33KV S/S at Boriguma , Koraput with associated line. OERC case No & Date of approval:- '1. 05/2016 (BP), 30.07.2016 2. 2/2013 (IP), 12.03.2014	1. 132KV LILO line from 132KV S/C Jayanagar-Tentulikhunti.	33.68	38.90	19.43	0.68	15.00	3.79		

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23	2x20MVA, 132/33kV S/S at Maneswar with associated line. OERC case No & Date of approval:- '1. 05/2016 (BP), 30.07.2016 2. 08/2013 (IP), 04.06.2014	1. LILO of 132kV Sambalpur-Rairakhol SC line.	26.79	33.78	12.13	8.98	12.67			
24	2X20 MVA, 132/33 KV Grid S/s at Kudaloi, Lakhanpur alongwith Construction of (JICA). OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016	1. 132 KV D/C line from Brajrajnagar to Lakhanpur.	36.97	46.37	17.88	4.64	8.80	5.05		
25	2X40 MVA, 132/33kV Gas (SF6) Insulated Sub-Station with SAS at Hirakud, Sambalpur. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016	1. LILO of 132kV Sambalpur-Burla S/C line at Hirakud	48.40	39.51	1.70	13.70	10.00	5.00	9.11	
26	2x20MVA, 132/33KV Sub – Station at BIRMAHARAJPUR, Sonepur district with associated line. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016	1. 132KV SC line on DC tower from 132/33KV Grid S/S Sonepur.	41.52	43.44	19.96	2.84	8.00	12.64		
27	2X20MVA, 132/33kV Thuapalli with associated line. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016	1. LILO of 132kV Jayapatna-Junagarh S/C line	35.10	45.97	6.33	17.86	10.00	10.00	1.78	
28	Construction of 132/33kV S/S Bhatli with associated line. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016	1. 132KV DC line from 220/132/33KV S/S Bargarh(New).	45.30	49.33	2.67	6.51	10.00	10.00	20.14	
29	2x20 MVA, 220/33kV S/S at Dasapalla and associated LILO line (JICA). OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016	1. 220kV Nayagarh-Dasapalla S/C line	64.08	59.34	8.60	16.08	11.47	23.19		
30	2x20MVA, 220/33kV S/S at Baliguda with associated line. OERC case No & Date of approval:- '1. 05/2016 (BP), 30.07.2016 2. 113/2012 (IP), 10.02.2014	1. 220kV Kesinga-Baliguda DC line	98.96	102.68	87.92	9.07	5.00	0.68		
31	220/33kV S/S, Telkoi with associated line. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016	1. 220 KV LILO line from the existing one circuit of 220KV TTPS-JODA line (14.618kms.)	45.78	47.72	-	14.54	20.76	12.42		
32	2x20MVA, 220/33kV S/S at Kalimela, Malkangiri with associated line. OERC case No & Date of approval:- 1. 60/2016 (IP), 18.10.2017	1. 220kV SC line on D/C tower from Malkangiri S/s to proposed Kalimela S/s and 01 no.	56.66	52.90	46.62	2.16	4.12			

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33	2X20MVA, 220/33kV S/S at Aunlabahal, Lephipada with associated line. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016	1. 220kV LILO line from Loc. No. 85 and Loc. No. 86 of existing 220kV Budhipadar-Basundhara line.(JICA)	42.15	44.12	15.89	12.80	10.00	5.43		
34	2X20MVA, 220/33kV S/S at Sunamunda, Deogarh alongwith associated line.(JICA) OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016	1. 220kV LILO line from Loc. No. 331 of existing 220kV Rengali-Tarkera line	44.33	47.45	21.38	13.19	10.00	2.88		
35	2x160MVA, 220/132kV & 1x20MVA, 220/33kV S/S at Kiakata with associated line. OERC case No & Date of approval:- 1. 60/2016 (IP), 18.10.2017	1. 220 KV D/C line from Katapali 220/132 kV Grid S/S (124.64 kms.) 2. 132 kV D/C line from 132 kV grid S/S at Boudh (20kms.).	156.11	160.34	26.30	35.04	50.00	49.00		
36	2X40MVA, 132/33kV S/S, Atuda, Bahugram with associated line.(JICA) OERC case No & Date of approval:- 1. 60/2016 (IP), 18.10.2017	1. LILO line from existing 132kV OCLMania-Salipur line (4 kms.)	36.61	34.34	0.01	7.11	13.46	10.50	3.26	
37	2x20MVA, 132/33kV G.Udaygiri S/S with associated line. OERC case No & Date of approval:- 1. 60/2016 (IP), 18.10.2017	1. 132kV LILO from 132kV Bhanjanagar-Phulbani SC line to proposed S/S	40.57	44.37	5.49	10.18	28.70			
38	2X20MVA 132/33kV S/S at Gondia with associated line. OERC case No & Date of approval:- 1. 60/2016 (IP) 18.10.2017	1.132 KV LILO line from existing 132 KV TTPS Duburi line (25.30 kms.)	42.71	42.75	5.80	13.73	17.10	6.11		
39	2X160 + 2X40 MVA, 220/132/33 kV GIS S/s at Kuakhia with associated line. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016	1. LILO of one circuit of 220kV Duburi-Pradeep D/C line. 2. LILO of one circuit of 132kV Jajpur-Kendrapada D/C line.	115.00	116.13	0.58	1.31	-	23.00	40.25	40.25
40	400/220/33kV Ramakrishnapur(Bhadrak) out door GIS (JICA).OERC case No & Date of approval:- 1. 18/2017 (TP), 09.04.2019	1. 400kV D/C line from Duburi 400/220kV S/S to Bhadrak 400/220kV S/S.2. LILO of both the circuits of 220kV D/C line from Duburi 400/220kV S/S to Balasore 220/132kV S/S at Bhadrak 400/220kV S/S.3. 220kV D/C line from Bhadrak 400/220kV S/S to Bhadrak 220/132kV S/S	184.00	184.35	-	-	-	36.80	64.40	64.40

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41	2X500 MVA, 400/220 kV GIS S/s at Paradeep & associated line. OERC case No & Date of approval:- 1. 18/2017 (TP), 09.04.2019	1. 400kV D/C Line from SIJU Earsama to New Duburi. 2. 220kV D/C Line from Earsama to 220kV Paradeep(old). 3. 220kV D/C Line from Earsama to 220kV Pratapsasan	637.45	640.45	-	-	-	120.00	200.00	254.00
42	2X160MVA, 220/132kV & 2X63MVA, 132/33kV 220/132/33kV GIS S/s at Balianta (Benupur) , BBSR with associated line.(SCRIPS) OERC case No & Date of approval:- 1. 18/2017 (TP), 09.04.2019	1. 220kV LILO O/H LILO line using monopole D/C tower & 132kV O/H transmission line using monopole.	139.76	139.76	7.32	4.17	55.88	41.92	30.47	
43	220/132/33kV S/S with SAS at Bamra and associated with associated line. OERC case No & Date of approval:- 1. 18/2017 (TP), 09.04.2019	1. 220KV LILO line from Loc No-125 and loc No-126 of existing 220kV Budhipadar-Tarkera line (CKT-II) 2. 132kV LILO from Loc No-291 of existing 132kV Budhipadar-Tarkera line.	129.89	91.41	3.76	11.25	20.00	35.00	21.40	
44	2X160 MVA & 2x20 MVA, 220/132/33kV S/S at Gunupur with associated line. (JICA) OERC case No & Date of approval:- 1. 18/2017 (TP), 09.04.2019	1. 220KV LILO line from existing 220KV Therubali-Narendrapur Line (Approx. Line length-13.385Kms.) 2. 132KV LILO line from Existing 132 KV Akhusing-Paralakhemundi line to Gunupur. (Approx. Line length-2.826Kms.).	88.00	112.79	-	39.56	10.00	10.00	20.00	33.23
45	2X63MVA, 132/33kV GIS S/S at Satyanagar , BBSR (SCRIPS) OERC case No & Date of approval:- 1. 18/2017 (TP), 09.04.2019	1. 132kV UG cable line from Unit-8 to Satyanagar 2. 132kV UG cable line from Satyanagar to Badagada.	105.02	85.33	4.48	14.23	29.00	21.75	15.86	
46	2X63MVA, 132/33kV GIS S/S at Badagada , BBSR (SCRIPS) OERC case No & Date of approval:- 1. 18/2017 (TP), 09.04.2019	1. 132kV UG cable line from Badagada to Kesura	105.02	85.33	4.48	14.23	29.00	21.75	15.86	
47	2X63MVA, 220/33kV GIS S/S at Godisahi (SCRIPS) OERC case No & Date of approval:- 1. 18/2017 (TP), 09.04.2019	1. LILO of one circuit of 220kV D/C line from Mendhasal to Bidanasi at Godisahi.	68.39	96.21	2.51	-	19.24	14.43	11.93	
48	2X63MVA, 220/33kV GIS S/S at Kantabada, Gothapatna (SCRIPS) OERC case No & Date of approval:- 1. 18/2017 (TP), 09.04.2019	1. LILO of one circuit of 220kV D/C line from Mendhasal to Chandaka at Gothapatna.	68.92		2.51	-	19.24	14.43	11.93	

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49	2X500 MVA,400/220 kV GIS S/s at Narendrapur & associated line. OERC case No & Date of approval:- 1. 18/2017 (TP), 09.04.2019	1. 400kV D/C line from Pandiabil 400/220kV S/S to Narendrapur 400/220kV S/S. 2. New 220kV D/C line from Narendrapur 400/220kV S/S to Aska 220/132kV S/S.	500.00	500.00	-	-	-	100.00	170.00	180.00
50	2 X160 MVA, 220/132kV Dhenkanal-B out door GIS (JICA) OERC case No & Date of approval:- 1. 18/2017 (TP), 09.04.2019	1. 220kV D/C line to 400/220kV Khuntuni. 2. LILO of one circuit of Meramundali-B to Duburi 220kV D/C line at Dhenkanal (New) GIS.	150.00	150.18	0.18	-	-	30.00	52.50	52.50
51	2x20MVA, 220/33KV AIS S/S at Govindpali , Malkangiri with associated line. (JICA) OERC case No & Date of approval:- 1. 18/2017 (TP), 09.04.2019	1. LILO of one circuit of Balimela to Malkangiri 220kV D/C line at Govindpalli.	74.40	79.42	52.39	20.45	5.00	1.59		
	SUB TOTAL		4,900.88	4,660.08	1,279.69	530.37	729.19	706.87	695.28	624.38
(B) NEW PROJECTS										
1	2X40MVA,132/33kV GIS S/S at Hinjili	1. 132kV LILO line from 132kV Berhampur -Aska SC line	45.22	28.72	0.01	2.90	25.81			
2	2X63MVA, 132/33kV GIS S/S at Nayapalli , BBSR (SCRIPS)		88.11	88.11	-	0.23	40.00	47.88		
3	2X20 MVA,132kV S/S at Lamtaput with SAS and associated line.	1.132KV LILO Line from 132KV Machhakund Power House - RTSS Line (0.65 km.)	30.06	26.34	-	0.66	13.57	12.11		
4	2x20 MVA, 132/33kV S/S with SAS at Nabarangpur with associated line.	1.132kV LILO line from Jaynagar-Tentulikhunti CKT-II to 132/33kV Nabarangpur.	39.17	34.37	1.91	9.79	21.48	1.19		
5	2x500 MVA,400/220KV S/S Khuntuni (Dalabhadra) & associated line	1. LILO of 400kV D/C line from Meramundali to Duburi at Khuntuni. 2. LILO of 400kV D/C line from Meramundali to Mendhasal at Khuntuni. 3. 220kV D/C line to Dhenkanal 220/132/33kV substation. 4. 220kV D/C line to Bidanasi 220/132/33kV substation.	500.00	502.55		0.25	-	100.00	170.00	180.00
6	2X40MVA, 220/33kV S/S, Palei, Balichandrapur with associated line.	1. 220 KV LILO line from the existing Loc. No. 221-A & 221-B of 220 KV New Duburi-Paradeep Ckt.-I (Approx. Line length-1.5 KMs.)	47.28	40.46	-	2.10	10.00	28.36		

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7	2X500 MVA,400/220/33 kV solar pooling S/s at Nildungri		80.00	80.00			-	15.00	30.00	35.00
8	2X160MVA, 220/132KV S/S at Nuapada with line		177.96	178.21				35.59	62.29	62.29
9	2X20 MVA, 132/33kV AIS S/S at Athamallick with LILO		39.00	39.53			-	-	10.00	19.00
10	2X40 MVA, 132/33kV solar pooling S/s at Manmunda		14.00	14.00			-	3.00	5.00	6.00
11	2X20 MVA, 132/33kV at Brundabahal with SAS and associated line	1.132kV LILO line (1 Circuit) from the existing 132kV Jaipatna-Junagarh D/C Line (32.48 kms.)	53.07	53.19			10.00	30.00	10.00	3.19
12	2X20MVA, 132/33kV S/S at Tarbha with associated line.	1. 132KV LILO line from 132KV Bolangir-Sonepur Ckt-I line(Line Length 6kms. Approx)	50.00	50.50			-	20.00	20.00	10.50
13	2X20MVA, 220/33kV S/S at M. Rampur.		63.18	63.41			-	-	12.64	37.91
14	2X40 MVA, 220/33 kV S/S , Chitalo		75.00	75.59		0.06	-	15.00	20.00	33.00
15	One more transformer bay with one 20MVA, 220/33kV power transformer at 220/33kV Laxmipur S/S		5.93	6.22	4.71	0.11	1.40			
16	Installation of 3rd ICT with 400kV & 220kV bay extension at New Duburi		13.62	21.02	11.42	3.78	5.82			
	SUB TOTAL		1,321.60	1,302.22	18.05	19.88	128.08	308.13	339.93	386.89
(C) APPROVED LINES										
1	220kV DC line from Jayanagar(OPTCL) to Jayanagar(PGCIL) OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016 2. 43/2012 (IP), 23.06.2012		15.95	15.95	15.39	1.06	0.01			
2	132kV Bhadrak-Anandapur SC line with bay extn. at both ends OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016		23.31	23.31	18.22	0.29	4.80			
3	132kV Kesinga-Junagarh SC line on DC tower OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016		25.31	25.31	22.67	0.63	2.01			
4	132 kV Mancheswar-B to Chandaka-B, (UG Cabling) and 132kV from Mancheswar-A to Mancheswar-B (UG Cabling) OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016		54.17	54.17	47.07	3.70	3.41			

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5	132kV Jayanagar-Sunabeda line (Existing S/C Tower) (39.24kms.) OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016		24.97	25.32	20.26	-0.02	5.09			
6	132kV Jayanagar-Tentulikhunti SC line on DC tower OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016		21.79	27.16	18.24	3.01	5.91			
7	132kV Lapanga-Brajrajnagar D/C line with diversion of 220 kV IB-Budhipdara DC line. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016		12.15	12.44	4.81	0.93	4.60	2.10		
8	132kV Padampur- Nuapada SC line on DC tower with Bay extension at both end.OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016		36.93	25.82	20.39	4.41	1.03			
9	132kV Boudh-Phulbani DC line with associated bay extension work at both ends. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016		39.36	45.08	33.18	5.15	6.74			
10	132kV Digapahandi-Aska DC line OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016		26.32	25.00	5.93	15.38	3.69			
11	220kV DC line from 400/220kV S/S Pandiabil (Benapanjari) of PGCIL to 220/132/33kV S/S Pratapasasan OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016		29.15	28.00	15.58	1.53	10.89			
12	400kV & 220kV LILO lines to proposed 400/220kV GIS Ramakrishnapur , 220kV LILO line to proposed 220/132/33kV out door GIS Kuakhia & 220kV LILO lines to 220/132kV out door GIS Dhenkanal-B (JICA) OERC case No & Date of approval:- 1. 18/2017 (TP), 09.04.2019		234.39	234.39				46.88	82.03	82.03
13	132KV Podagada-Potangi line along with bay extension at both end. OERC case No & Date of approval:- 1. 05/2016 (BP), 30.07.2016		25.12	23.20	6.32	10.35	6.53			
	SUB-TOTAL		568.92	565.15	228.06	46.42	54.71	48.98	82.03	82.03
(D) NEW LINES										
1	132kV LILO line from 132kV Barpali-Bargarh line to 220/132/33KV Grid S/S Bargarh (New)		3.63	0.96	0.65	0.96	-			
2	132kV Kuchei to Bangiriposi S/C line		16.46	16.10	0.69	7.57	7.84			

Sl. No.	Name of the Project with Sub-Station Capacity	Line Connectivity	Estimated Cost (Rs.)	Project cost (Rs.)	Expenditure up to 31.03.19	Projected Capital expenditure for FY 2019-20	2020-21	2021-22	2022-23	2023-24
3	132kV Parlakhemundi-R.Udayagiri DC line.		41.82	39.08	10.21	4.86	10.00	14.01		
4	132kV Chandbali to Balimunda, Dhamara. D/C line.		19.40	18.20	0.06	12.55	5.59			
5	132kV Jayapatna -Junagarh D/C line		28.62	28.62	-	-	10.00	18.62		
6	220KV LILO line from Bolangir-Kesinga line to PGCIL, Bolangir.		1.71		0.43					
7	400KV DC linefrom 400/220KV Berhampur to 400KV S/s of PGCIL at Jeypore with LILO at Theruvali with Bay Extn.		400.00	400.00				80.00	140.00	140.00
8	LILO from 220kV Joda-TTPS to 220/33kV GIS at Keonjhar		29.97	29.97			9.00	18.00	2.97	
9	220kV LILO line from Theruvalli-Narendrapur DC line to Aska along with 2nos 220kV feeder bay extension at Aska.		36.61	39.08	0.50	11.82	16.62	10.15		
10	Diversion of 400kV & 220kV lines with 220kV LILO arrangement for connectivity with 400/220kV GIS at Meramundali-B.		41.53	36.03	-	2.45	33.58			
11	132 kV Baner-Jaypatna D/C Line		9.15	9.15	6.29	1.17	1.69			
12	Contruction of 132kV line 2nd Circuit from Bhadrak to Anandpur		7.76	7.77		0.84	2.30	3.00	1.63	
	SUB-TOTAL		636.66	624.96	18.83	42.22	96.62	143.78	144.60	140.00
	TOTAL		7,428.06	7,152.41	1,544.63	638.89	1,008.60	1,207.76	1,261.84	1,233.30
1	Miscellaneous work					6.46				
	GRAND TOTAL		7,428.06	7,152.41	1,544.63	645.35	1,008.60	1,207.76	1,261.84	1,233.30
Total projected capital expenditure for FY 2019-20 to FY 2023-24										5,356.85