



Telangana State Electricity Regulatory Commission
5thFloor, Singareni Bhavan, Red Hills, Lakdi-ka-pul,
Hyderabad 500004.

ORDER
ON
AGGREGATE REVENUE REQUIREMENT AND
TRANSMISSION TARIFF FOR 4TH CONTROL PERIOD
(FY 2019-20 TO FY 2023-24)

FOR

TRANSMISSION CORPORATION OF TELANGANA LIMITED
(TSTransco)

20.03.2020

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LIST OF ABBREVIATIONS

A&G	Administrative and General
APERC	Andhra Pradesh Electricity Regulatory Commission
APGPCL	Andhra Pradesh Gas Power Corporation Limited
AP Transco	Transmission Corporation of Andhra Pradesh Limited
ARR	Aggregate Revenue Requirement
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CGS	Central Generating Station
DISCOM	Distribution Company
EA	Electricity Act
EBC	Energy Billing Centre
EHT	Extra High Tension
EMS	Energy Management System
FPT	Filing for Proposed Tariff
FY	Financial Year
G.O.Ms	Government Order (Manuscript)
GE	General Electric
GW	Gigawatt
IPP	Independent Power Producer
ISTS	Inter State Transmission System
KKNPP	Kudankulam Nuclear Power Plant
KTPP	Kakatiya Thermal Power Plant
KTPS	Kothagudem Thermal Power Station
kV	kilo Volt
LI	Lift Irrigation
MAPS	Madras Atomic Power Station
MNRE	Ministry of New and Renewable Energy
MoP	Ministry of Power
MSW	Municipal Solid Waste
MU	Million Units
MW	Mega-Watt
MYT	Multi Year Tariff
NCE	Non-Conventional Energy
NLC	Neyveli Lignite Corporation Limited
NLDC	National Load Despatch Centre
NPCIL	Nuclear Power Corporation of India Limited
NSLCPH	Nagarjuna Sagar Left Canal Power House
NSPH	Nagarjuna Sagar Power House
NTECL	NTPC Tamil Nadu Energy Company Ltd
NTPC	National Thermal Power Corporation Limited
O&M	Operation and Maintenance
O.P.	Original Petition
OFC	Optical Fibre Communication

p.a	Per Annum
PGCIL	Power Grid Corporation of India Limited
PLCC	Power Line Carrier Communication
PM	Per Month
PSA	Power Supply Agreement
PTC	Power Trading Corporation
R&M	Repairs & Maintenance
RE	Renewable Energy
REMC	Renewable Energy Management Centre
Rs.	Rupees
SCADA	Supervisory Control and Data Acquisition
SLDC	State Load Dispatch Centre
SR	Southern Region
SS	Sub-station
STU	State Transmission Utility
TPS	Thermal Power Station
TSERC	Telangana State Electricity Regulatory Commission
TSTransco	Transmission Corporation of Telangana Limited
WPI	Wholesale Price Index

**TELANGANA STATE ELECTRICITY REGULATORY COMMISSION
HYDERABAD**

Present

Sri T. Sriranga Rao, Chairman
Sri M. D. Manohar Raju, Member (Technical)
Sri Bandaru Krishnaiah, Member (Finance)

Dated: 20.03.2020

O. P. No. 3 of 2019

TRANSMISSION CORPORATION OF TELANGANA LIMITED

... Applicant

The Transmission Corporation of Telangana Limited (TSTransco) filed Petition under Section 26(5) of the Andhra Pradesh Electricity Reform Act, 1998, Sections 61 to 64 of the Electricity Act, 2003 and relevant Guidelines and Regulations, before the Telangana State Electricity Regulatory Commission (TSERC or the Commission) on 30.11.2019 for approval of Aggregate Revenue Requirement (ARR), Filing for Proposed Tariff (FPT) for Transmission Business for the 4th MYT Control Period from FY 2019-20 to FY 2023-24. The Petition was admitted by the Commission and assigned O. P. No. 3 of 2019.

The Commission, in exercise of its powers under the Electricity Act, 2003 and the Andhra Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff for Transmission of Electricity) Regulation No. 5 of 2005 adopted by TSERC vide its Regulation No. 1 of 2014, and after considering Petitioner's submissions, suggestions and objections of the other stakeholders, responses of Petitioner, to issues that are raised during the Public Hearing, and all other relevant material, passed the following:

ORDER
CHAPTER 1
INTRODUCTION

1.1 BACKGROUND

1.1.1 Telangana State Electricity Regulatory Commission (herein referred to as TSERC or Commission) was constituted by the Government of Telangana State (GoTS) in terms of the provisions of Schedule XII (C) (3) of the A.P. Reorganisation Act of 2014, read with Section 82 of the Electricity Act, 2003 (Act, 2003) vide G.O.Ms.No.3, (Energy) (Budget) Department Dt:26.07.2014.

1.1.2 This Commission having been established u/s 82(1) of the Act, 2003 is required to exercise the powers and functions vested in it in terms of Section 86 and Section 62(1) of the Act, 2003 to determine the tariff for (1) supply of electricity by a generating company to a distribution licensee; (2) transmission of electricity; (3) wheeling of electricity; and (4) retail sale of electricity as the case may be within the state of Telangana.

1.1.3 The Commission issued Regulation, viz., Regulation No. 1 of 2014, on 10.12.2014 being Adoption of Previously Subsisting Regulations, Decisions, Directions or Orders, Licenses and Practice of Directions. Clause 2 of this regulation specifies as follows:

"All regulations, decisions, directions or orders, all the licences and practice directions issued by the erstwhile Andhra Pradesh Electricity Regulatory Commission (Regulatory Commission for States of Andhra Pradesh and Telangana) as in existence as on the date of the constitution of the Telangana State Electricity Regulatory Commission and in force, shall mutatis-mutandis apply in relation to the stakeholders in electricity in the State of Telangana including the Commission and shall continue to have effect until duly altered, repealed or amended, any of Regulation by the Commission with effect from the date of notification as per Notification issued by the Government of Telangana in G.O.Ms.No.3 Energy(Budget) Department, dt.26-07-2014 constituting the Commission."

1.1.4 In accordance with the above Regulation, all the Regulations framed by the erstwhile Andhra Pradesh Electricity Regulatory Commission (APERC) will continue to apply for the state of Telangana, till further modification. Accordingly, the Regulation No. 5 of 2005 as in existence as on the date of constitution of TSERC and in force, shall mutatis-mutandis apply in relation to determination of ARR and Transmission Tariff for TSTransco.

- 1.1.5 Consequent upon formation of the Telangana State, the Government of erstwhile Andhra Pradesh vide G. O. Ms. No. 25 dated 29.05.2014 had established TSTransco. The erstwhile APERC had issued the license No. 1 of 2014 to TSTransco w.e.f. 23.06.2014.
- 1.1.6 Vide its Order dated 09.05.2014 in O. P. No. 62 of 2013, the erstwhile APERC had approved the ARR and Transmission Tariff for the Transmission Licensee of United Andhra Pradesh for 3rd Control Period from FY 2014-15 to FY 2018-19. Vide its Order dated 01.05.2017 in O. P. No. 24 of 2016, the Commission had approved the ARR and Transmission Tariff for TSTransco for FY 2017-18 and FY 2018-19. Vide the stated Order, the Commission had also approved the provisional true-up of FY 2014-15 and FY 2015-16.
- 1.1.7 In accordance with Clause 6.1 of the Regulation No. 5 of 2005, the Transmission Licensee is required to file an application for approval of Aggregate Revenue Requirement (ARR) for each year of the Control Period, not less than 120 days before the commencement of the Control Period. Regulation No. 5 of 2005 defines Control Period as a multi-year period fixed by the Commission from time to time, usually 5 years, for which the principles for determination of ARR will be fixed. Accordingly, the 4th Control Period is from FY 2019-20 to FY 2023-24. The Petition for approval of ARR for 4th Control Period from FY 2019-20 to FY 2023-24 was to be filed by 30.11.2018.
- 1.1.8 The Petitioner, vide its letters dated 25.09.2018, 30.11.2018, 31.12.2018, 20.03.2019, 29.06.2019 and 30.09.2019 sought extension of time for filing of Petition for the 4th Control Period from 30.11.2018, lastly upto 30.11.2019. The Commission vide its letters dated 11.12.2018 and 10.01.2019 communicated to the Petitioner that the same shall be considered along with the Petition to be filed for the 4th Control Period. The instant Petition was filed on 30.11.2019.
- 1.1.9 The Petitioner had expressed the following difficulties in preparation of Petition for the 4th Control Period in seeking extension of time for filing of Petition for the 4th Control Period are as follows:
- i. Non-finalisation of Investment Plan.
 - ii. Finalisation of Annual accounts causing changes in proposals for the 4th Control Period.

- iii. Non-receipt of information of Lift Irrigation Schemes from Irrigation Department.
 - iv. Enforcement of Model Code of Conduct from 10.03.2019 upto 23.05.2019 for the Lok Sabha elections 2019 by the Election Commission of India.
- 1.1.10 The Commission reviewed the representations/letters submitted by Licensee for extension of time and resolved to condone the delay in filing the Petition for true-up for 3rd Control Period and determination of ARR and Transmission Tariff for 4th Control Period i.e., for FY 2019-20 to FY 2023-24.
- 1.1.11 TSTransco filed the instant Petition for approval of true-up for 3rd MYT Control Period from FY 2014-15 to FY 2018-19 and for approval of ARR and Transmission Tariff for 4th MYT Control Period from FY 2019-20 to FY 2023-24 with the following prayers:
- “a) to take the accompanying ARR, FPT & MYT Petition of TSTransco on record;*
 - b) to grant suitable opportunity to TSTransco within a reasonable time frame to file additional material information if required;*
 - c) to grant the waivers prayed for with respect to such filing requirements as TSTRANSCO is unable to comply with at this stage, as more specifically detailed and for the reasons set out in the present ARR, FPT & MYT filing;*
 - d) to grant the exemptions sought at para 15 above, in the Tariff Order*
 - e) to treat this filing as complete in view of substantial compliance as also the specific requests for waivers with justification placed on record;*
 - f) to consider and approve TSTransco’s ARR, FPT & MYT including all requested regulatory treatments in the filing;*
 - g) to pass such order, as the Hon’ble Commission may deem fit and proper in the facts and circumstances of the case.”*

1.2 ADMISSION OF PETITION AND REGULATORY PROCESS

- 1.2.1 The Petition for approval of ARR and FPT for 4th MYT Control Period submitted by the Petitioner was scrutinised and found to be generally in order as required under the TSERC (Conduct of Business) Regulations, 2015 (Regulation No. 2 of 2015). The Commission admitted the filings by condoning the delay in filing the Petition and the same were taken on record by assigning the Original Petition (O.P.) number 3 of 2019.
- 1.2.2 Upon scrutiny of the filings of the Petitioner, the Commission identified certain data gaps and directed to furnish additional information. As directed by the Commission, the Petitioner furnished the additional information and placed the same on its website.
- 1.2.3 The Petitioner, as directed by the Commission, published for information of all stakeholders a notice in two (2) English newspapers in English, two (2) Telugu

Newspapers in Telugu and one (1) Urdu Newspaper in Urdu on 11.12.2019. The notice was to inform the general public that the Petitioner has filed the ARR and FPT in respect of Transmission Business for the 4th MYT Control Period before the Commission.

1.2.4 Overview of stakeholders' consultation process:

1.2.4.1 The filings have been made available by the Petitioner along with supporting material to the public at large including all stakeholders. The filings and supporting material were also hosted on the website of the Commission as well as the Petitioner.

1.2.4.2 It was also notified in the public notice (Annexure-1) that, objections / suggestions on the filings may be filed with the Petitioner by 10.01.2020 with a copy marked to the Commission. In response to the public notice, three (3) number of objections / suggestions were received (Annexure - 2) by the Commission in writing within the stipulated date and no further objections/suggestions were received during Public Hearing. Further, on the request of the stakeholders during the Public Hearing, the Commission had granted additional time of 10 days for those stakeholders for submission of objections / suggestions and directed the Petitioner to reply to the same. One stakeholder has submitted additional objections / suggestions during the extended period. The Commission has considered those additional submissions also. The list of stakeholders who attended the public hearing on 07.02.2020 is enclosed at Annexure-3.

1.2.4.3 The Petitioner was directed to give its response in writing to all the written objections received by 24.01.2020 by sending the same to the respective objector with a copy to the Commission before the scheduled date of public hearing. The replies were also posted on the website of the Commission.

1.2.4.4 The State Advisory Committee (SAC) meeting was conducted on 29.01.2020 to elicit views of the members on the filings of the Petitioner. The views of the members were duly considered while determining the ARR and Transmission Tariff.

1.2.4.5 The Commission has conducted the public hearing at the Commission's Court Hall on 07.02.2020. During the hearing, the Petitioner made a brief presentation on the filings and then the Commission heard the objectors desiring to be heard in person. At the hearing, apart from the registered objectors, the persons / organizations who

had turned up at the venue directly were also heard and their objections / suggestions were also considered. At the end, as directed by the Commission, the Petitioner responded on the issues raised by the objectors during the hearing.

1.3 DATA GAPS AND PETITIONER’S RESPONSES

- 1.3.1 During scrutiny, the filings of the Petitioner as well as based on objections raised by the objectors’ certain information was found to be deficient in certain aspects and therefore, additional information was sought. Subsequently, the Petitioner submitted the additional information sought by the Commission. The Commission has considered the original filings and the additional information submitted by the Petitioner.

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CHAPTER 2

SUMMARY OF FILINGS

2.1 SUMMARY OF TRUE-UP FOR 3RD CONTROL PERIOD

2.1.1 The summary of true-up for 3rd Control Period claimed by the Petitioner is as shown in the Table below:

Table 2–1: Summary of true-up claimed by the Petitioner for 3rd Control Period

(Rs. Crore)

Particulars	FY 2014-15		FY 2015-16		FY 2016-17	
	Tariff Order	Claimed	Tariff Order	Claimed	Tariff Order	Claimed
Operation & Maintenance expenses	225.09	232.84	294.48	316.07	334.57	376.23
Return on Capital Employed	339.97	219.16	556.10	351.57	699.39	521.40
Depreciation	250.62	208.42	370.00	285.09	495.01	431.86
Taxes on Income	23.62	18.21	38.63	31.71	48.59	47.18
Other expenses	0.00	11.07	0.00	0.75	0.00	3.88
Other adjustments pertaining to previous Control Periods	-27.62	0.00	0.00	0.00	0.00	0.00
Aggregate Revenue Requirement	811.68	689.69	1259.22	985.20	1577.56	1380.54
Less: Non-Tariff Income	57.67	46.83	72.90	79.52	76.49	113.04
Net Aggregate Revenue Requirement	754.00	642.87	1186.32	905.67	1501.07	1267.50
Revenue from Transmission Charges	754.00	815.36	1186.32	1345.95	1501.07	1642.42
Revenue Gap/(Surplus)	0.00	-172.50	0.00	-440.28	0.00	-374.92
Particulars	FY 2017-18		FY 2018-19		Total	
	Tariff Order	Claimed	Tariff Order	Claimed	Tariff Order	Claimed
Operation & Maintenance expenses	484.05	431.82	567.23	603.58	1905.42	1960.53
Return on Capital Employed	685.23	619.72	712.98	731.16	2993.67	2443.01
Depreciation	510.92	584.45	529.67	738.85	2156.23	2248.66
Taxes on Income	46.69	61.06	48.58	75.53	206.11	233.70
Other expenses	0.00	16.23	0.00	8.48	0.00	40.41
Other adjustments pertaining to previous Control Periods	0.00	0.00	0.00	0.00	-27.62	0.00
Aggregate Revenue Requirement	1726.89	1713.28	1858.46	2157.61	7233.81	6926.32
Less: Non-Tariff Income	121.00	119.28	133.00	287.77	461.06	646.44
Net Aggregate Revenue Requirement	1605.89	1594.00	1725.46	1869.84	6772.74	6279.87
Revenue from Transmission Charges	1605.89	1722.90	1725.46	1755.00	6772.74	7281.63
Revenue Gap/(Surplus)	0.00	-128.90	0.00	114.84	0.00	-1001.75
Less: Revenue Gap/(Surplus) approved on provisional true-up for FY 2014-15 and FY 2015-16						-634.60
Net Revenue Gap/(Surplus) for the Control Period						-367.15

2.1.2 The Petitioner has proposed for adjustment of the net revenue surplus of Rs. 367.15 Crore in the Aggregate Revenue Requirement for FY 2019-20. The Petitioner also submitted that the difference, if any, based on audited accounts for FY 2018-19 will

be claimed/passed on to the consumers.

2.2 CAPITAL INVESTMENT PLAN FOR 4TH CONTROL PERIOD

2.2.1 The Petitioner submitted that the capital investment plan for 4th Control Period has been prepared based on Resource Plan submitted to the Commission by making comprehensive analysis of transmission network existing the State and load conditions/ growth in the ensuing five years at 765 kV/400 kV/ 220 kV and 132 kV voltages. The summary of Capital Investment Plan for 4th Control Period proposed by the Petitioner is as shown in the Table below:

Table 2–2: Summary of Capital Investment Plan proposed by the Petitioner for 4th Control Period

(Rs. Crore)

Particulars	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
400 kV Schemes	1201.50	1334.60	1015.00	390.42	218.00
220 kV Schemes	681.37	766.13	701.97	612.61	600.80
Renovation & Modernization Improvement Schemes	53.11	56.00	59.70	63.29	67.90
Lift Irrigation Schemes	1010.19	1285.22	976.57	300.00	200.84
Telecom Schemes	85.35	115.34	1.15	0.67	0.05
Total Base Capital Investment	3031.52	3557.29	2754.39	1366.99	1087.59
Add: Interest During Construction	369.27	277.94	220.27	141.69	133.34
Add: Expenses Capitalized	120.88	132.97	146.26	160.89	176.98
Total Capital Investment during the year	3521.67	3968.20	3120.92	1669.57	1397.91
Asset Capitalisation during the year	2826.26	1968.29	6102.86	770.38	5376.12

2.3 ARR FOR 4TH CONTROL PERIOD

2.3.1 The summary of ARR claimed for 4th Control Period is as shown in the Table below:

Table 2–3: ARR claimed for 4th Control Period

(Rs. Crore)

Particulars	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
Operation & Maintenance expenses	791.53	937.69	1048.04	1141.66	1245.06
Return on Capital Employed	1030.09	1107.90	1396.23	1602.35	1692.67
Depreciation	899.66	1032.35	1277.14	1482.28	1666.36
Taxes on Income	84.28	90.65	114.24	131.10	138.49
Other adjustments pertaining to previous Control Periods	-367.15	0.00	0.00	0.00	0.00
Aggregate Revenue Requirement	2438.42	3168.59	3835.65	4357.40	4742.59
Less: Non-Tariff Income	426.34	340.41	489.67	383.01	467.81
Net Aggregate Revenue Requirement	2012.08	2828.18	3345.98	3974.39	4274.78

2.4 TRANSMISSION TARIFF FOR 4TH CONTROL PERIOD

2.4.1 The summary of ARR and Transmission Tariff for 4th Control Period claimed by the Petitioner is as shown in the Table below:

Table 2–4: ARR and Transmission Tariff claimed by the Petitioner for 4th Control Period

Financial Year	Aggregate Revenue Requirement	Transmission Contracted Capacity	Transmission Tariff
	Rs. Crore	MW	Rs./kW/month
2019-20	2012.08	15235.49	110.05
2020-21	2828.18	17563.93	134.19
2021-22	3345.98	17569.01	158.71
2022-23	3974.39	19587.43	169.09
2023-24	4274.78	21113.59	168.72

2.5 TRANSMISSION SYSTEM AVAILABILITY FOR 4TH CONTROL PERIOD

2.5.1 The Petitioner has proposed the Transmission System Availability of 99.9% for each year of the 4th Control Period.

2.6 TRANSMISSION LOSS TRAJECTORY FOR 4TH CONTROL PERIOD

2.6.1 The Transmission Loss trajectory for 4th Control Period proposed by the Petitioner is as shown in the Table below:

Table 2–5: Transmission Loss trajectory proposed by the Petitioner for 4th Control Period

Financial Year	Proposed
2019-20	3.25% ± 0.2%
2020-21	3.24% ± 0.2%
2021-22	3.23% ± 0.2%
2022-23	3.22% ± 0.2%
2023-24	3.21% ± 0.2%

ADDITIONAL PRAYERS REGARDING TRANSMISSION TARIFFS FOR 4TH CONTROL PERIOD

2.7 EXEMPTION FROM PAYMENT OF TRANSMISSION CHARGES

2.7.1 Vide the Tariff Order dated 01.05.2017, the Commission exempted the wind, solar and mini-hydel generators from payment of Transmission Charges. However, the Government Policy provided for exemption only to solar power plants commissioned during the policy period of 5 years with exemption period of up to 10 years from the date of commissioning and that to only for captive use within the State. Further, no guidelines have been issued on time limits, type of transactions etc., and there has been no mention of remedy for the amount of loss due to this waiver like reimbursement from the Government etc. There has also been no restriction imposed in the Tariff Order on non-applicability of exemption for inter-State transactions.

2.7.2 The Petitioner requested the Commission to limit the exemption as per the Government Solar Policy only to captive solar developers who commission their plants within the operative period i.e. five years from the date of Policy (up to 31.05.2020) and exemption of up to 10 years from the date of commissioning of the plant with a proper reimbursement mechanism from the Government.

2.8 EXEMPTION OF LEVY OF TRANSMISSION & SLDC CHARGES ON DISCOMs FOR SHORT-TERM POWER PURCHASES

2.8.1 As per the existing billing methodology, transmission charges are being levied on

DISCOMs for the approved contracted capacities given in Transmission Tariff Order. However due to the under generation in thermal power projects and hydel projects due to coal shortage and low inflows to reservoirs etc., there used to be shortage of power. To cope up this shortage of power, DISCOMs purchase power under short-term sources which are not mentioned in Transmission Tariff Order. If TSTransco levies transmission charges on these purchases also, DISCOMs will have to pay transmission charges for their long-term capacities and also for short-term purchases made from intra-State and Inter-State sources. This will result in double billing on DISCOMs and the revenue received by TSTransco will become more than the revenue required. To avoid this excess revenue from DISCOMs, the Commission may exempt the DISCOMs from payment of transmission charges on short-term purchases made from both intra-State and Inter-State sources as long as their peak load is within their approved contracted capacity given in Transmission Tariff Order.

2.9 DETERMINATION OF TRANSMISSION CHARGES IN MW/HR FOR INTER-STATE SHORT-TERM OPEN ACCESS TRANSACTIONS

- 2.9.1 The units of Transmission Tariff is in Rs./kW/month. As short-term Open Access transactions especially Inter-State and Indian Energy Exchange (IEX) transactions take place only for some days or hours the Transmission Tariff may also be determined in the units of MW/Hr. Currently, TSTransco is converting the approved Transmission Tariff in Rs./kW/month into MW/Hr by using the below formula

$$\text{TR (in MW/Hr)} = \text{TR (in kW/month)} * 1000 / (30 * 24)$$

- 2.9.2 The Petitioner requested the Commission to determine the Transmission Charges both in Rs./kW/month and in Rs./MW/Hr for the 4th Control Period.

2.10 ADDITIONAL POINTS FOR INCLUSION IN NOTES ON APPLICABILITY OF TRANSMISSION CHARGES

- 2.10.1 The Petitioner requested the Commission to include the following in Notes on Applicability of Transmission Charges:

“If the wheeling involves transmission of electricity through transmission system of a Transmission Licensee, the consumer or the supplier as the case may be, shall pay the applicable transmission charges and transmission losses in kind also. Transmission system is considered to be involved in the wheeling of electricity in the following cases:

- *Entry/Exit point is connected to the EHT System.*
- *The entry and exit points are connected to the network of more than one DISCOM.”*

2.10.2 The submissions of the Petitioner and the Commission’s analysis are discussed on detail in Chapter 4 and Chapter 5 of the Order.

Contd...

CHAPTER 3

ISSUES RAISED BY GENERAL PUBLIC, RESPONSES OF PETITIONER, COMMISSION'S VIEWS

3.1 OBJECTIONS / SUGGESTIONS / COMMENTS MADE ON FILINGS

- 3.1.1 Three stakeholders have filed objections/ suggestions/ comments on the Petition for ARR and Transmission Tariff for 4th Control Period. The Petitioner has filed replies on the objections/ suggestions/ comments received from the stakeholders. For the sake of clarity, the objections/ suggestions/ comments raised by the stakeholders and responses of the Petitioner have been consolidated and summarised issue-wise.
- 3.1.2 The Commission has concluded all the objections/suggestions/comments of the stakeholders made in writing as well as during the course of Public Hearing and the responses to them by the Petitioner. In the subsequent Chapters of this Order, the Commission has taken into consideration, the objections/ suggestions/ comments of the stakeholders and replies of the Petitioner while determining the true-up for 3rd Control Period and ARR and Transmission Tariff for the 4th Control Period.

3.2 TRUE-UP OF 3RD CONTROL PERIOD

Stakeholders' submissions

- 3.2.1 The Petitioner has claimed the total surplus of Rs. 1001.75 Crore for the 3rd Control Period. It indicates that projections being made by the Petitioner and approved by the Commission are inflated, leading to collection of excess amounts from the consumers in advance and underlines the need for realistic projections for expenditure and determination of ARR and tariffs based thereon. The Petitioner has claimed the net surplus of Rs. 367.15 Crore after adjusting the surplus of Rs. 634.60 Crore already passed on to the consumers on account of provisional true-up for FY 2014-15 and FY 2015-16. The main reason for surplus for the 3rd Control Period has been submitted as increase in revenue from Open Access. The surplus during the 3rd Control Period is not on account of efficiency improvement, but due to collection of inflated Transmission Charges. The stakeholder sought the clarification whether it has charged and collected Transmission Charges from the DISCOMs for non-utilization of contracted capacity, on the one hand, and from others for utilization of such capacity not utilized by the DISCOMs.

- 3.2.2 The Petitioner's submissions are to be analysed in light of the Commission's Order dated 01.05.2017 and the allowable expenditure and surplus may be determined.

Petitioner's replies

- 3.2.3 The Petitioner has claimed the total surplus of Rs. 1001.75 Crore for the 3rd Control Period. The Petitioner has claimed the net surplus of Rs. 367.15 Crore after adjusting the surplus of Rs. 634.60 Crore already passed on to the consumers on account of Mid-Term Review for FY 2014-15 and FY 2015-16. This net surplus of Rs. 367.15 Crore has been proposed to be passed on to the consumers in FY 2019-20.
- 3.2.4 TSTransco collects the transmission tariff as approved by the Commission for the Contracted Capacity for the respective user. Since the tariff is fixed, any increase in revenue from the approved revenue is due to increase in usage of capacity, but not collection of higher tariffs. The increase in revenue from FY 2014-15 to FY 2018-19 was to the tune of Rs. 505.98 Crore which was mainly due to the increase in revenue from Open Access consumers. The position of Open Access capacity and corresponding revenue approved by the Commission and actuals for FY 2014-15 to FY 2018-19 is as shown in the Table below:

Table 3–1: Open Access and corresponding revenue for FY 2014-15 to FY 2018-19

Financial Year	Approved		Actuals		Variance	
	Capacity (MW/per Month)	Revenue (Rs. Crore)	Capacity (MW/per Month) (*)	Revenue (Rs. Crore)	Capacity (MW/per Month)	Revenue (Rs. Crore)
(i)	(ii)	(iii)	(iv)	(v)	(vi)=(iv)-(ii)	(vii)=(v)-(iii)
2014-15	226.34	14.78	1159.40	75.70	933.06	60.92
2015-16	253.28	23.30	1988.18	182.90	1734.90	159.60
2016-17	283.46	31.08	1582.92	173.54	1299.46	142.46
2017-18	1.00	0.07	969.71	65.53	968.71	65.46
2018-19	1.00	0.09	337.62	29.63	336.62	29.54
Total	765.08	69.32	6037.83	527.30	5272.75	457.98

*12 months average

- 3.2.5 From the above, it could be seen that there is an increase in revenue from Open Access customers due to increase in the usage of 5273 MW for last 5 years than the approved Tariff Order quantum.

Commission's Views

- 3.2.6 Regulation No. 5 of 2005 stipulates the mechanism for pass through of gains and losses on account of variations in controllable and uncontrollable items of Aggregate Revenue Requirement. The Petitioner has submitted its claims towards the true-up of 3rd Control Period. The Commission, on prudence check of the claims of the Petitioner has approved the true-up of 3rd Control Period in accordance with the Regulation No. 5 of 2005. The Petitioner's submissions and the Commission's analysis on true-up for 3rd Control Period are detailed in Chapter 4 of the Order.

3.3 CAPITAL INVESTMENTS FOR 3RD CONTROL PERIOD

Stakeholders' submissions

- 3.3.1 The Petitioner has not submitted the details of transmission capacities added during the last 3 years.
- 3.3.2 Any interest during construction for delays in respect of completion of projects/schemes should not be allowed, unless the Commission's approval for extension in the completion schedule has been obtained in advance. The mechanism of awarding orders or contracts for execution of works and projects and purchases of materials by the Petitioner is to be monitored to ensure that real and transparent competitive bidding is scrupulously followed, expenditure incurred is prudent and time schedules are adhered to. The particulars of such delays, if any, project/scheme-wise, and cost escalation, including interest during construction, during periods of such delays is to be examined in order to determine permissible expenditure during the last three years. The stakeholder sought the details regarding the same.
- 3.3.3 The Petitioner has submitted that there is no cost escalation for the completed projects/schemes, as all the works were executed as per the purchase order rates and that no revision of rates were issued for executing the works as per the terms and conditions of purchase order. However, the moot point here is that whether the cost of projects/schemes have increased compared to the approved cost by the Commission for the 3rd Control Period.

Petitioner's replies

- 3.3.4 The projects are generally delayed due to Right of Way (RoW) problems, land acquisition and court cases. The details of delayed projects for the 3rd Control Period have been submitted. There has been no cost escalation for the completed

projects/schemes as all the works executed as per the Purchase Order rates. No revision of rates have been issued for executing the works as per the terms and conditions of purchase orders.

- 3.3.5 400 kV Sub-stations and Lines which were approved by the Commission for FY 2016-17 to FY 2018-19 have been commissioned during the last three years. The transmission capacities were added as approved by the Commission during the last 3 years of the 3rd Control Period i.e., from FY 2016-17 to FY 2018-19.
- 3.3.6 The 400 kV Jangaon S/s and connected 400 kV lines were planned to be commissioned during FY 2018-19, but they were delayed due to frequent hampering of works at Jangaon S/s by encroachers and local public and severe RoW issues in erection of Towers and stringing of lines. However, after resolving the land issue at Jangaon S/s and RoW issues in erection of Towers and stringing of lines, 400/220 kV Jangaon S/s and 400 kV Jangaon-Tippapur QMDC line were commissioned on 14.05.2019, 400 kV Jangaon-Julurupadu QMDC line was commissioned on 26.06.2019.
- 3.3.7 Further, the Lines and Sub-stations of Palamuru-Rangareddy Lift Irrigation Scheme were planned to be commissioned during FY 2018-19, but could not be taken up by TSTransco due to delay in payments from Irrigation & CAD Department and these works will be taken up in co-ordination with Irrigation & CAD Department.

Commission's Views

- 3.3.8 The Commission directed the Petitioner to submit the year wise and project wise actual capitalisation from FY 2014-15 to FY 2018-19. The Petitioner's submissions and the Commission's analysis on the same has been detailed in Chapter 4 of the Order.

3.4 RESOURCE PLAN FOR 4TH CONTROL PERIOD

Stakeholders' submissions

- 3.4.1 The Petitioner has submitted that the Resource Plan comprising the transmission load forecast and capital investment plan for the 4th and 5th Control Periods has been submitted to the Commission. The status of the submission of Resource Plan by the DISCOMs is not available. The analysis of the Resource Plan is important in view of the following:

- i. If the transmission capacity is expanded considering the estimated generation capacity as contracted capacity, it may lead to creation of excess capacity and under-utilization of capacity. Plant Load Factor or Capacity Utilisation Factor (in the case of non-conventional energy) of respective power plants should be the basis for expansion of transmission and distribution capacities, with some reserve margin.
- ii. Although the Petitioner has submitted that the growth in demand for electricity in the State during the 4th Control Period requires expansion of transmission system in the State, demand growth projections during the same period have not been submitted.
- iii. Backing down of conventional generation, especially for purchasing non-conventional energy, would lead to under-utilization of transmission and distribution capacities.
- iv. Slump in demand or slower demand growth compared to load forecast also would lead to under-utilization of transmission and distribution capacities. This applies to coincident peak demand in MW also. With slowdown of economy in the country and Telangana, the demand for power has come down considerably during the last four months compared to the corresponding period of 2018. With no signs of economy picking up, similar position may continue during the next financial year also.
- v. With availability of surplus power, both off-peak and peak, emerging in the country, if the DISCOMs cannot sell surplus power in the market at remunerative prices, to that extent, transmission capacity gets under-utilized.
- vi. Energy conservation measures, if implemented effectively, also would lead to under-utilization of transmission and distribution capacities.
- vii. Power evacuation schemes for the projects whose timely completion is uncertain would naturally lead to stranded assets and unwarranted financial burdens. Such evacuation schemes need to be undertaken and completed in time in such a way that it can be put to use from performance acceptance tests of those projects.
- viii. The proposed capital investment plan for the 4th Control Period may be approved after analysis of the justification submitted by the DISCOMs regarding the need for procuring power from the proposed projects, without

entering into Power Purchase Agreements (PPAs).

- ix. The proposed capital investment plan may be approved based on realistic long-term load forecast and by conducting Public Hearings on the Resource Plan.
- 3.4.2 The Petitioner's proposals regarding the new GIS S/s may be allowed after prudence check as the cost of GIS S/s is more than conventional S/s.
- 3.4.3 The Petitioner, in its Petition has submitted the projected peak demand for FY 2019-20 as 15240 MW whereas the actual peak demand recorded was 11703 MW and 11182 MW on 30.08.2019 and 27.12.2019 respectively. The peak demand is expected to reach 13000 MW by the end of FY 2019-20. In light of the same, the projections of peak demand as submitted in the Petition are higher than the actual peak demand that is expected to be recorded.
- 3.4.4 The Petitioner has proposed the total capital investment of Rs. 13936 Crore during the 4th Control Period from FY 2019-20 to FY 2023-24 with 70% of this investment proposed to be incurred during FY 2019-20 to FY 2021-22. With the Debt Equity ratio of 75:25, the required debt and equity contribution to achieve the planned capital investment upto FY 2021-22 works out to Rs. 7958 Crore Rs. 2653 Crore respectively. By implementation of these projects by other developers through TBCB route, the equity contribution of TSTransco may be utilised for emergent projects in a timely manner and also the debt burden on the State would be reduced.
- 3.4.5 The stakeholder sought clarification on the means of finance of the proposed capital investment for the 4th Control Period.

Petitioner's replies

- 3.4.6 The Resource Plan submitted by TSTransco is based on the long-term load forecasts of the DISCOMs for the 4th and 5th Control Periods.
- 3.4.7 Transmission lines are constructed to evacuate the power from generating stations and are completed to match the commissioning schedule of generating stations. Further, some of the lines are required for providing start-up power for generating units and hence they are to be constructed before commissioning of such generating units. These lines are used for providing start-up power for generating units initially and will be used for evacuation of power after commissioning of such generating units.
- 3.4.8 Based on the long-term load forecast with the upcoming lift irrigation projects, the

following steps were taken by the power utilities:

- i. The Telangana State Power Generation Corporation Limited (TSGENCO) is setting up the following thermal generating stations: (a) KTPS VII (800 MW), (b) Bhadradi TPS (1080 MW) and (c) Yadadi TPS (4000 MW).
- ii. PPAs have been entered into by the DISCOMs with TSGENCO in respect of KTPS VII and Bhadradi TPS on 19.03.2018 and 17.09.2019 respectively and submitted to the Commission.
- iii. DISCOMs have also decided to enter into PPA with TSGENCO in respect of Yadadi TPS and the same is under process.
- iv. DISCOMs have entered into long-term PPA with Chhattisgarh State Power Distribution Company Limited (CSPDCL) for supply of 1000 MW and the said PPA was approved by the Commission.
- v. DISCOMs have entered into a PPA with National Thermal Power Corporation (NTPC) in respect of Telangana STPP Phase I and the PPA was submitted to for in-principle consent of the Commission.

3.4.9 Peak demand is a function of Contracted Capacity, Coincident load, Agriculture load, Seasonal changes, LIS loads etc. Variation of $\pm 5\%$ is expected in the forecast in each parameter. So, the cumulative effect on the overall peak demand can vary according to the dynamics of these parameters. The demand pattern of Telangana state varies from off-peak to peak in a day from 1500–3000 MW depending on seasonal loads particularly Agriculture. There are two farming crop seasons in the State i.e., Kharif and Rabi. Further, during Rabi Season, Summer demand also gets added to agricultural demand.

3.4.10 The objective of transmission planning is to develop transmission expansion plan based on the load forecast and generation supply scenario. The transmission investment plan was prepared based on load flow studies and short circuit studies considering the peak demand. The transmission load forecast/investment requirement depends on the following aspects:

- i. Generation Capacity additions within the State requires transmission evacuation of power.
- ii. Growth in demand at different load centres of the State during the 4th Control Period requires expansion of transmission system in the State.

3.4.11 GIS S/s and underground cabling have been proposed only at places where there are

constraints on land availability for conventional S/s.

- 3.4.12 TSTransco has projected contracted capacity of 15240 MW for FY 2019-20 for which the DISCOMs have entered into agreements with the Power Generators. The contracted capacity is planned to meet the peak demand of the State considering the demand and generation variations, RPPO obligation, uncertainty in power generation from hydel sources and unwarranted sudden outages of any units of the power plants and periodical maintenance of power plants to keep ready to meet the demand so as to maintain reliability, grid discipline of the system, sudden high rise in power demand in summer season etc. The Lift irrigation schemes with huge demand of power are expected to be operational in the coming years. Mission Bhagiratha schemes and other dedicated industrial loads are also being planned.
- 3.4.13 The means of finance for the proposed capital investment has been considered in accordance with the norms. The Debt Equity ratio considered as 75:25 is for computing the Return on Capital Employed on Regulated Rate Base.

Commission's Views

- 3.4.14 Regulation No. 5 of 2005 stipulates the Transmission Licensee to file a Resource Plan on 1st April of the year preceding the first year of the Control Period. The Resource Plan shall inter alia, contain the Load Forecast and a Transmission Plan (Capital Investment Plan) consistent with the requirements of the Guidelines on Load Forecast and Resource Plan as approved by the Commission. Further, the Resource Plan (Transmission Plan) as approved by the Commission shall be adopted by the Transmission Licensee in the MYT filings for the Control Period.
- 3.4.15 The Resource Plans for the 4th Control Period from FY 2019-20 to FY 2023-24 and the 5th Control Period from FY 2024-25 to FY 2028-29 was to be filed on 01.04.2018. The Petitioner has filed the Resource Plan for 4th and 5th Control Periods on 14.09.2018. Further, the Petitioner in seeking extension of time for filing of MYT Petition for the 4th Control Period cited the reasons of non-finalisation of Capital Investment Plan, finalisation of annual accounts and non-receipt of information of Lift Irrigation Schemes from Irrigation Department. Further, in additional information and replies to stakeholders submitted, the Petitioner submitted that the revised Resource Plan is being prepared.
- 3.4.16 In the absence of complete information regarding the Resource Plan, the Commission

could not take up the approval of Resource Plan separately. The Commission is of the considered view that as the filing of MYT Petition has already been delayed, no further delay on determination of MYT for the 4th Control Period is desirable for want of approval of Resource Plan. The Petitioner has submitted the Capital Investment Plan for the 4th Control Period in the instant Petition. On prudence check of the same, the Commission has approved the Capital Investment Plan for the 4th Control Period in this Order as detailed in Chapter 5 of the Order.

3.5 TRANSMISSION LOSS TRAJECTORY FOR 4TH CONTROL PERIOD

Stakeholders' submissions

- 3.5.1 The Petitioner has proposed the transmission loss of $3.25\% \pm 0.20\%$ for FY 2019-20 with annual reduction of 0.01% during the remaining years of the 4th Control Period. The actual transmission loss achieved for FY 2018-19 was 2.85%. The Petitioner is required to submit the justification for proposing the transmission loss of 3.25% for FY 2019-20 as against the actual transmission loss of 2.85% for FY 2018-19 despite the capital investments to the tune of Rs. 3226.15 Crore and Rs. 3031.52 Crore in FY 2018-19 and FY 2019-20 respectively and substantial Operation & Maintenance (O&M) expenses. In light of the actual transmission loss of 2.85% achieved for FY 2018-19, there is scope for reducing the transmission loss below the projections for the 4th Control Period.
- 3.5.2 The Petitioner has submitted that the transmission loss for 4th Control Period has been projected considering the actual transmission loss of 3.37% for FY 2016-17 (Base Year) and based on the Resource Plan. The transmission loss has to be projected considering the actual loss level achieved for the last year of the 3rd Control Period, which is lowest, not as per the data of estimated values given by the DISCOMs. The Petitioner has submitted that continuing good practices and also with adoption of new technology, the actual losses will be maintained below the projected losses. The Petitioner to incorporate realistic targets for reduction of transmission losses for the 4th Control Period in the revised Resource Plan to be submitted to the Commission. The Commission may approve realistic transmission loss trajectory for the 4th Control Period. The Commission may approve the transmission loss of 2.85% for the 4th Control Period.

Petitioner's replies

- 3.5.3 The transmission loss for 4th Control Period has been projected considering the actual transmission loss of 3.37% for FY 2016-17 (Base Year) and based on the Resource Plan. The projections in Resource Plan have been made as per the prevailing practice i.e., based on estimations given by the DISCOMs. In practice the actual losses are less than the projected losses. The actual losses have been on lower side inspite of network being expanded to cater the loads of 24 hrs agriculture supply and industrial loads. This could be possible due to the following measures taken by TSTransco:
- i. The new Sub-stations have been constructed in such a way that the long idle transmission lines were effectively loaded thereby increasing the load factor of transmission lines.
 - ii. Many EHT transmission lines have been made LILO to the nearest available substations for effecting the transmission of power at higher voltages.
 - iii. The scheduling of power was effectively managed by SLDC thereby reducing the length for which the power is transmitted.
 - iv. SLDC of TSTransco has been awarded for the best Grid Management by CEA.
- 3.5.4 With all the above practices adopted by TSTransco the transmission losses were maintained below the projected values. Continuing good practices as mentioned above and also with adoption of new technology the losses would be maintained below the projected values of losses. The revised Resource Plan is also being prepared by TSTransco as per the Commission's directions.
- 3.5.5 The actual losses being at significantly lower levels, aggressive reduction from hereon may not be possible. The achievable transmission loss may be in the range of 2.85%-2.50%.

Commission's Views

- 3.5.6 The Commission has taken note of the submissions of the Petitioner and the stakeholders regarding the transmission loss trajectory for the 4th Control Period. The actual transmission loss achieved during the 3rd Control Period have been lower than the targets approved. The Commission has approved the transmission loss trajectory for the 4th Control Period as detailed in Chapter 5 of the Order.

3.6 CONTRACTED CAPACITY FOR 4TH CONTROL PERIOD

Stakeholders' submissions

- 3.6.1 Vide its Order dated 01.05.2017, the Commission had approved the contracted capacity of 16196.59 MW as against 16160.57 MW claimed by the Petitioner for FY 2018-19. As against the same, the Petitioner has claimed the contracted capacity of 15235 MW for FY 2019-20 which shows a reduction from the approved figure for FY 2018-19 whereas the Petitioner has proposed a capital investment of Rs. 3521.67 Crore for FY 2019-20. The Petitioner has not submitted the justification for the reduction in contracted capacity for FY 2019-20 from the approved figure for FY 2018-19. The Petitioner has proposed the generation capacity increase by 1360 MW, 2699.01 MW and 1600 MW in FY 2020-21, FY 2021-22 and FY 2022-23 respectively.
- 3.6.2 The stakeholder sought the clarification whether the share of Telangana State in the natural gas based Independent Power Plants (IPPs) (GVK extension, GMR Vemagiri, Konaseema and Gauthami with a total installed capacity of 1499 MW) to the tune of 807.31 MW has been considered in capacity projections. On availability of natural gas to these projects, the DISCOMs would get additional 5657.62 MU as their share from these projects at the PLF of 80%. The stakeholder sought the clarification if the transmission capacity created for evacuating this power is being utilized for evacuating power drawn from other sources or lying idle.
- 3.6.3 The Petitioner has submitted that the contracted capacity as submitted by them is to be considered for the 4th Control Period. The Petitioner has also submitted that the long-term load forecasts for the 4th and 5th Control Periods submitted by the DISCOMs are the basis for the Resource Plan submitted by it. As submitted by the Petitioner, generation is being backed down to maintain load generation balance, particularly during off-peak hours and solar generation period, with demand varying from minimum of 4685 MW and maximum of 11703 MW during FY 2019-20. Further, it was submitted that the solar power is integrated aggressively into the system to meet the Renewable Power Purchase Obligation (RPPO) and that the total installed capacity of solar power has reached 3650 MW in FY 2019-20. It was also submitted that the solar power has to be absorbed as it is treated as must-run and backing down of conventional generators is inevitable during off-peak hours and maximum solar generation period. The stakeholder submitted that need of the aggressive addition of solar power generation is required to meet RPPO is to be examined. The stakeholder sought the details of (i) percentage of Non-Conventional as well as solar power in the

total sales of the DISCOMs during the 3rd Control Period and current financial year;
(ii) the excess of solar and wind power purchased in excess of that required for complying with RPPO.

3.6.4 The Petitioner has proposed the conventional generation capacity addition of 7600.33 MW during the period from FY 2018-19 to FY 2023-24. If new generation capacity is added for meeting the peak demand, due to fluctuations in demand curve daily or seasonally, undoubtedly, availability of some surplus power cannot be avoided. But backing down conventional energy or thermal power plants in order to purchase must-run solar and even wind power during off-peak period and maximum solar generation has several implications as follows:

- i. it shows imbalances in power mix;
- ii. entering into long-term PPAs with solar and wind power generators to purchase unwarranted and high cost power leads to imposition of dual burdens on the consumers in the form of paying higher costs to solar and wind power units and backing down relatively cheaper power of thermal units;
- iii. backing down thermal units during off-peak periods in order to purchase solar and wind power is imprudent and makes it clear that PPAs with solar and wind power units are being entered into indiscriminately;
- iv. if additional power is being purchased in the market to meet peak deficit, despite having substantial surplus power, it is on account of the fact that solar and wind power units cannot meet peak demand generally;
- v. in such a situation, instead of entering into long-term PPAs with solar and wind power generators, it would be prudent and beneficial to purchase additional power in the market through power exchanges or on short-term basis through competitive biddings to meet peak deficit, daily and seasonal and such practices are not being followed scrupulously;
- vi. availability of surplus power on account of purchasing solar and wind power and backing down thermal power leads to under-utilization of capacities of transmission and distribution networks;
- vii. since generation of solar and wind power is mostly uncertain, as admitted by TSTransco, under-generation of, or wide fluctuations in, generation of solar and wind power may force the DISCOMs to purchase additional power in the market, with attendant additional financial burdens;

- viii. such wide fluctuations in generation of solar and wind power may lead to problems of grid safety and maintenance of grid frequency at required level.
- 3.6.5 The stakeholder sought the following details regarding the backing down of generation:
- i. availability of surplus power during the 3rd Control Period;
 - ii. quantum of surplus power backed down during the 3rd Control Period and the current financial year;
 - iii. surplus power backed down in order to purchase solar and wind power;
 - iv. fixed charges paid for the backed down generation;
 - v. quantum of non-conventional energy, including solar and wind, proposed to be added during the 4th Control Period;
 - vi. fixed charges to be paid for backing down and surplus power likely to be available during the 4th Control Period.
- 3.6.6 The Petitioner has not included capacities of non-conventional energy (NCE) to be added during the 4th Control Period. Until demand growth and addition of required generating capacities during the 4th Control Period are projected and determined in a realistic way, excess addition of the same will have cascading effect in increasing unwarranted and avoidable expenditure, both for works to be taken up and power to be purchased or backed down, leading to imposition of unjustified and avoidable burdens on electricity consumers.
- 3.6.7 The variable nature of NCE has implications on system adequacy and on the utilization of available power plants which whom the DISCOMs have PPAs. In order to ensure supply of power in tune with demand, even when generation of NCE is lower than the norms as per the terms and conditions of the respective PPAs, required balance between demand and supply needs to be maintained. If the DISCOMs cannot purchase additional power in the market, when NCE generation is lesser, for reasons like non-availability, lack of funds, or exorbitant prices for power in the market, it will lead to imposition of power cuts. Depending on the category of consumers to whom power cuts are imposed, it may lead to reduction of Gross Domestic Product.
- 3.6.8 For evacuating power from NCE plants to supply it to load centres, transmission network needs to be created. The CUF of NCE, plants especially solar and wind, being limited ranging from 25 to 30%, the transmission capacity created for NCE

plants remain idle when they do not generate and supply power. However, charges for transmission network have to be paid for the capacities not utilized.

Petitioner's replies

3.6.9 The reasons for variation in contracted capacity approved by the Commission for FY 2018-19 and projected for FY 2019-20 are as follows:

- i. The share of the DISCOMs in generation capacity of Vijayawada TPS (I to IV) and Rayalaseema TPP (I to III) totalling to 1385 MW is not considered due to cancellation of scheduling of power between Telangana and Andhra Pradesh w.e.f. 11.06.2017. The power generated from the power plants located in both the States is being scheduled 100% to the respective State only.
- ii. The generation capacity of natural gas based IPPs (Konaseema, GVK, Vemagiri and Gouthami) is not considered due to non-availability of natural gas.
- iii. The additional power generation from KTPS (V&VI), KTPP-I and RTS-B is due to 100% scheduling of power to the respective States only.
- iv. Power availability from Medium-term Power Sale Agreement (PSA) with Power Trading Corporation (PTC) has been considered.
- v. Additions or reductions to power generation sources of Central Generating Stations, Open Access, Hydel and NCE sources have been considered.

3.6.10 The gas based IPPs are defunct projects and there has been no gas supply for the same since March 2013 and hence no power generation. Further several litigations are pending before various legal forums. Therefore, there would be no possibility of availing power from these gas power projects in the near future. The transmission capacity created to the extent of the gas projects capacity share is being utilized in the pool for availing capacities of other projects such as Solar, Wind, Short term power procurement etc. In light of the same, TSTransco has taken into consideration the upcoming Thermal Generation Capacities and also other anticipated peak loads, such as Lift Irrigation Loads as per the demand projections given by Irrigation Department, GoTS and further extension of 24X7 power supply to agricultural sector, while taking up steps for additional transmission capacity and accordingly sought the approval of the Commission for the capital expenditure.

3.6.11 The generation and transmission capacity is planned to meet the peak demand. The demand pattern in the State is not uniform throughout the day or throughout the year.

Generation is being backed down to maintain load generation balance particularly during off-peak hours and solar generation period. The demand particulars for FY 2018-19 and FY 2019-20 (upto December 2019) are as shown in the Table below:

Table 3–2: Demand particulars for FY 2018-19 and FY 2019-20 (upto December 2019)

Year	Maximum demand (MW)	Minimum demand (MW)	Maximum energy (MU)	Minimum energy (MU)
FY 2018-19	10818	2950	233.44	122.80
FY 2019-20	11703	4685	241.67	136.84

3.6.12 The demand varied from 2950 MW to 10818 MW in FY 2018-19 and from 4685 MW to 11703 MW in FY 2019-20. Also, energy varied from 122.80 MU to 233.44 MU in FY 2018-19 and from 136.84 MU to 241.67 MU in FY 2019-20. The Demand pattern of Telangana State varies from off-peak to peak in a day from 1500–3000 MW depending on seasonal loads, particularly agriculture. In the State there are two farming crop seasons i.e., Kharif and Rabi. Further, during Rabi Season, Summer demand also gets added to agricultural demand.

3.6.13 After the formation of Telangana State, as per the Renewable Energy (RE) policy, solar generation is integrated aggressively into the system to meet Renewable Power Purchase Obligation (RPPO). The total solar generation capacity installed upto FY 2018-19 was 3489 MW and 3650 MW upto FY 2019-20. This generation is available in the day time in a ramp up/ramp down pattern with variation on hour to hour and day to day basis, which is mostly uncertain. So far, there is no forecasting and scheduling mechanism established in the State. The generation from solar has to be absorbed and it has to be treated as must run. The balancing has to be carried out only by varying conventional thermal generation by way of backing down/recall and hydel if available.

3.6.14 Under these circumstances, to handle off-peak to peak demand variations to the tune of 1500-3000 MW and 3000 MW availability variation due to solar in the day time, backing down of conventional generators is inevitable during off-peak and maximum solar generation period. In addition to this, the Lift Irrigation loads are seasonal and vary depending on various parameters. From the above it can be concluded that,

utilization of power system network varies depending upon demand pattern of various consumers and it cannot be construed as underutilization. Therefore, the Transmission Charges are to be recovered on yearly basis for the total system built.

Commission's Views

- 3.6.15 In accordance with Clause 20.2 of the Regulation No. 5 of 2005, every Transmission User (including the Distribution Licensees) have to execute an agreement in terms of the Open Access Regulation duly mentioning, inter alia, contracted capacity with the Licensee. The Contracted Capacity approved by the Commission for 4th Control Period has been discussed in detail in Chapter 5 of the Order.

3.7 RATE OF INTEREST IN LONG-TERM LOAN FOR 4TH CONTROL PERIOD

Stakeholders' submissions

- 3.7.1 The Petitioner has proposed the interest rate of 11% on long-term loans. The Petitioner has not submitted the actual rates of interest on long-term loans during the 3rd Control Period. In the absence of information on actual interest rates and in view of reduction of interest rates by banks and financial institutions, interest rate of 11% is on the higher side. The interest rate may be approved realistically in tune with market trends. The Petitioner may explore the possibility of swapping loans to get benefit of relatively lower interest rates.

Petitioner's replies

- 3.7.2 The interest rate of 11% was proposed based on the prevailing lending rates in the financial debt market. As suggested by the stakeholder, every effort is being made to minimize the interest rates and negotiations with financial institutions are being undertaken from time to time to reduce the interest rates according to the debt market conditions. Further, the high cost term loans (if any) are being liquidated from time to time based on the internal cash flows of the company, to reduce the interest cost burden. The copies of sanction letter for the term loans sanctioned by M/s Rural Electrification Corporation (REC) Limited and M/s Power Finance Corporation (PFC) Limited from FY 2014-15 to FY 2018-19 have been submitted. Further, every effort will be taken to negotiate the interest rates with the Financial Institutions to avail the term loans at lower rate of interest.

Commission's Views

3.7.3 The Commission has approved the interest rate for the 4th Control Period in accordance with Regulation No. 5 of 2005 as detailed in Chapter 5 of the Order.

3.8 O&M EXPENSES

Stakeholders' submissions

- 3.8.1 Wage revision is always being cited as the reason for the increase in employee expenses. As per the tripartite agreement entered into at the time of unbundling, equitable wage revision was to be applied to TRANSCO, DISCOMs and GENCO. The arbitrary wage revisions were disallowed in the past years.
- 3.8.2 The stakeholder sought the details of increase in actual O&M expenses in comparison to the growth of contracted capacity during the 3rd Control Period. The stakeholder also sought the percentage of employee cost out of the total O&M expenses during each year of the 3rd Control Period from FY 2014-15 to FY 2018-19.
- 3.8.3 The Petitioner has submitted the reason for increase in O&M expenses for the 3rd Control Period as the impact of wage revision w.e.f. 01.04.2018. However, the actual O&M expenses for the period prior to FY 2014-15, FY 2015-16 and FY 2016-17 are also higher than the approved O&M expenses for which the Petitioner has not submitted the reason.

Petitioner's replies

- 3.8.4 The position of actual O&M expenses and share of employee cost in the total O&M expenses for FY 2014-15 to FY 2018-19 is as shown in the Table below:

Table 3-3: Total O&M expenses for FY 2014-15 to FY 2018-19

(Rs. Crore)

Particulars	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	Total
Total O&M expenses	298.01	392.45	491.83	502.66	713.48	2398.43
Employee cost	206.28	253.80	315.17	337.57	511.37	1624.20
Employee cost as % of total O&M expenses	69%	65%	64%	67%	72%	68%

- 3.8.5 The wage revision was affected twice during the 3rd Control Period i.e., from 01.04.2014 and 01.04.2018.

Commission's Views

- 3.8.6 The Commission has taken note of submissions of the stakeholder and Petitioner's reply in this regard.

3.9 DEPRECIATION

Stakeholders' submissions

- 3.9.1 The Petitioner has submitted that depreciation has been calculated for each year on the fixed assets capitalized up to the previous year considering the rates notified by the Ministry of Power, GoI. The depreciation has been claimed to increase from Rs. 899.66 crore in FY 2019-20 to Rs. 1666.36 crore in FY 2023-24. Higher rates of depreciation lead to frontloading of tariff and permitting recovery of depreciation charges over the useful lifespan of the assets would ensure a fairer recovery of the same by the Petitioner, though over a longer period of time. The stakeholder requested the Commission to allow least possible depreciation rates, or at least, the lowest depreciation rates as per the Regulations and norms of Central Electricity Regulatory Commission (CERC) or Ministry of Power, GoI, whichever are lower.

Petitioner's replies

- 3.9.2 The depreciation amount claimed through tariff is being utilised for repayment of term loans. The Financial Institutions are sanctioning term loans with repayment period of 10 to 12 years only. As such, there is a cash outflow of 7% to 8% of outstanding term loans every year. Allowing lower rates of depreciation will have an impact on the working capital/cashflows of the licensee. The Petitioner has claimed depreciation on all the fixed assets from the date of put to use on Straight line method with depreciation rates notified by the Ministry of Power, Govt. of India. The Petitioner requested the Commission to consider the same in determining the tariff for 4th Control Period.

Commission's Views

- 3.9.3 Regulation No. 5 of 2005 stipulates that the depreciation shall be calculated on the amount of Original Cost of Fixed Assets included in the Regulated Rate Base at the

beginning of each year of the Control Period, generally based on the methodology, rates and other terms as decided by CERC from time to time. The Commission has approved the depreciation for the 4th Control Period considering the rates of depreciation as specified by CERC in its Tariff Regulations, 2019 as detailed in Chapter 5 of the Order.

3.10 TAXES ON INCOME

Stakeholders' submissions

- 3.10.1 The Petitioner claimed income tax considering the normative Equity component as 25% of the Regulated Rate Base (RRB) and the rate of Return on Equity (RoE) as 14%. The stakeholder requested the Commission to allow income tax only corresponding to the Return on actual Equity infused by the Petitioner and not normative Equity. As the Petitioner is allowed RoE @ 14%, the income tax on the same may be borne by the Petitioner. The stakeholder requested the Commission to not allow income tax as pass through to be collected from consumer as part of Transmission Charges.

Petitioner's replies

- 3.10.2 As regards Return on Equity and Taxes, Regulation No. 5 of 2005 stipulates as under:
“Return on Equity and shall be determined at the beginning of the Control Period after considering CERC norms, Transmission Licensee's proposals, previous years' D/E mix, risks associated with distribution & supply business, market conditions and other relevant factors”
- “Taxes on Income, if any, on the income stream of the licensed business of the Transmission Licensee shall be treated as an expense and shall be recoverable through ARR.”*
- 3.10.3 In the MYT Order for the 3rd Control Period, the Commission had considered Return on Equity at the rate of 14% on 25% of Regulated Rate Base. Accordingly, the Petitioner has claimed Return on Equity at the rate of 14% on 25% of Regulated Rate Base as per the methodology specified by the Commission. The corresponding income tax on the proposed Return on Equity was considered as expense in the ARR as per the Regulation 5 of 2005. Further, the income tax component was estimated with the existing Minimum Alternate Tax (MAT) rate, since the Company is paying Minimum Alternate Tax during last 4 years. The Tariff Regulations of CERC also stipulates that, in case Transmission Licensee is paying MAT, the tax component is to be considered

with MAT rate only.

Commission's Views

- 3.10.4 Regulation No. 5 of 2005 stipulates that the taxes on income, if any, on the income stream of the licensed business of the Transmission Licensee shall be treated as an expense and shall be recoverable through ARR. Accordingly, taxes on income is allowable to be treated as an expense in ARR subject to the provisions of the Regulation No. 5 of 2005. The Commission has approved the income tax for the 3rd Control Period and 4th Control Period in accordance with the provisions of the Regulation No. 5 of 2005 as detailed in Chapter 4 and Chapter 5 of the Order respectively.

3.11 ARR FOR 4TH CONTROL PERIOD

Stakeholders' submissions

- 3.11.1 The Contracted Capacity during the 4th Control Period is projected to increase from 15235 MW in FY 2019-20 to 21114 MW in FY 2023-24 i.e., increase by 38.59%. During the same period, the ARR is projected to increase from Rs. 2012.08 Crore to Rs. 4274.77 Crore i.e., increase by 112.46%. Therefore, the increase in ARR is three times more than the increase in Contracted Capacity. In view of the peak demand projections for the 4th Control Period being on higher side and the revenue surplus situation during the 3rd Control Period, the ARR for the 4th Control Period is to be allowed such that the surplus situation does not arise for 4th Control Period.

Petitioner's replies

- 3.11.2 Transmission business includes Power Evacuation, System Improvement and Operation & Maintenance of all EHT lines and Substations at 400 kV, 220 kV and 132 kV level. The functions of TSTransco covers Construction, Operation & Maintenance of all EHT lines and Substations. Some of the construction activity may also be for extending power evacuation facilities and Transmission System Improvement/System strengthening.
- 3.11.3 The main elements of ARR of TSTransco are O&M expenses, Depreciation, Return on Capital Employed and Taxes. While determining the Transmission Tariff, the Contracted Capacity is also considered.

$$\text{Transmission Tariff (Monthly)} = \text{Net ARR}/12 * \text{Contracted Capacity}$$

- 3.11.4 Network addition is proposed to be increased in line with the increase in the contracted capacity by 38.59% by the end of 4th Control Period. The assumption that the cost of network will be increased linearly as per the increase in the contracted capacity is not true. The cost of network addition depends on the inflation of the electric equipment in the Control Period, technology adopted i.e., addition of GIS S/s and underground cables whose cost varies from 2.5 to 3 times over conventional technology, increasing land cost, RoW costs, employee costs etc. Further, during the 4th Control Period, the cost of addition of fixed assets on cumulative basis is expected to increase from 17652.09 Crore to 31869.75 Crore i.e., 80% increase in fixed assets cost wise, due to which the depreciation increases by 103%, cost of servicing debt by 64% and O&M expenses by 56%. All these reasons are reflected in the increase in the ARR from FY 2019-20 to FY 2023-24.
- 3.11.5 The ARR projections for the 4th Control Period will vary from year to year depending on the Capital Investments, O&M expenses, Depreciation, Taxes on Income and Return on Capital Employed. Capital Investments of transmission schemes are being taken up for evacuation of power from the power projects, system improvement i.e., to meet the additional load demand and for improvement of voltage profile, voltage control and reduction of losses. Whereas, the increase in Contracted Capacity year on year is due to the load forecast prepared as per the Resource Plan.
- 3.11.6 Hence, all expenses may not be correlated with the increase in the generation capacity. For example, certain expenditure needs to be incurred for Transmission System Improvement, strengthening of lines and sub-stations, Renovation, Modernisation & Improvement of existing network etc., which may not result to increase in the generation capacity.

Commission's Views

- 3.11.7 The ARR of the Transmission Licensee for each year of the Control Period shall contain the following elements: (i) O&M expenses, (ii) Return on Capital Employed, (iii) Depreciation, (iv) Taxes on income, (v) Corrections for “uncontrollable” and “controllable” items and (vi) any other relevant expenditure. The variation in ARR year-on-year during the Control Period depends on the variation in components of ARR which are linked to approved operational expenditure and capital expenditure for the respective years. The ARR for the 4th Control Period has been approved by the

Commission in accordance with Regulation No. 5 of 2005 as detailed in Chapter 5 of the Order.

3.12 TRANSMISSION CHARGES FOR 4TH CONTROL PERIOD

Stakeholders' submissions

3.12.1 Regarding exemption of Transmission Charges for solar, wind and mini-hydel power generators, the Petitioner has pointed out certain contradictions between the Tariff Order and the Solar Policy of the State Government. The Petitioner has requested the Commission to limit the exemption of Transmission Charges as per the Government Policy to only captive solar developers who commission their plants within the operative period, i.e., five years from the date of policy (up to 31.05.2020) and exemption upto 10 years from the date of commissioning of the plant with a proper reimbursement mechanism from the Government. This request of the Petitioner is fully justified. If the Government allows exemption of Transmission Charges for any power plant/plants, that burden should not be imposed on the DISCOMs and their electricity consumers rather it should be borne by the Government. Extending such exemption to other generators of wind, mini hydel and solar for third party sale also, by the Commission, is not prudent for the following reasons, among others:

- i. If transmission capacity includes total peak capacity, including open access capacity and captive use capacity, Transmission Charges will be decided on that basis only. The capacity that is being, and will be, used by the solar, wind and mini hydel power units for captive use/third party sale within the State gets exempted from paying transmission and wheeling charges and it leads to under-recovery of Transmission Charges.
- ii. If the capacity that is used for captive use/third party sale of solar, wind and mini hydel power is excluded from the total peak transmission capacity, then the average tariff for transmission and wheeling charges per unit would increase and the entire burden will be imposed on the consumers of the DISCOMs as a part and parcel of retail tariffs as decided by the Commission. The DISCOMs can collect transmission and wheeling charges from their consumers only to the extent of supply of power to their consumers. They cannot collect the same from the developers of solar and wind power projects for captive use or third-party sale. In other words, neither the developers, nor their consumers, would pay the transmission charges for captive use or third-party sale of solar and wind

- power.
- iii. Captive use of solar and wind power or its sale to third parties under Open Access means that the developers use it for their own requirements or sell the same to the consumers of their choice at their own tariffs, as the case may be, without any regulation of tariffs. TSTransco, the DISCOMs or their consumers are not related to such transactions and supply and consumption of such solar and wind power.
 - iv. Consumers, whether of commercial or industrial categories, opt for purchase of power under Open Access, only if the tariffs are lower than the tariffs applicable as per the Tariff Orders of the Commission. Developers of wind and solar power projects are generating and selling power to the consumers of their choice under Open Access and earning substantial profits and the consumers purchasing power from them also must be getting that power at tariffs lower than the tariffs determined by the Commission for different categories of consumers. It is not prudent to impose the burden of Transmission Charges of such Open Access transactions on TSTransco or the DISCOMs or their electricity consumers.
 - v. If solar and wind power is used for captive use, the costs of transmission of that power should be borne by those users only.
 - vi. Freedom of choice is given to the developers of solar and wind power projects to sell to consumers of their choice at the tariffs decided by themselves under Open Access. Though the consumers also are given such a freedom of choice to purchase power from any developer/supplier under Open Access, subsidised consumers of the DISCOMs who constitute the majority, cannot opt for such a choice, as that would increase the burden of tariffs. The policy approaches of the Government and regulatory obligations of the Commission are already heavily loaded in favour of the developers of NCE units, especially solar and wind power units, at the cost of electricity consumers of the DISCOMs. Imposing the burden of transmission and wheeling charges for captive use or third-party sale under open access of solar and wind power on TSTransco or the DISCOMs or their electricity consumers is a penalising act for no fault of theirs.
 - vii. Captive use or sale of solar and wind power, or other power, to third parties by the developers concerned under Open Access results in loss of business to the DISCOMs. To that extent the DISCOMs are being deprived of profit and cross

subsidy. Users of captive power or power purchased under Open Access are better off. Neither the developers of wind and solar power projects, nor their consumers who get power under Open Access, have any obligation of cross-subsidizing, if the guidelines of the Government of India to eliminate cross subsidy is implemented, whereas the DISCOMs have the social responsibility of serving the cross-subsidized consumers. As such, with loss of revenue to the DISCOMs, their revenue gap, as well as the need for tariff hike or increased subsidy from the Government, would arise. Imposing the burden of Transmission Charges which should be borne by the users of captive power or by the developers or their consumers who avail themselves of solar and wind power under Open Access on TSTransco or the DISCOMs or their electricity consumers translates to the latter subsidising or cross-subsidising the private developers of solar and wind power projects and their consumers who avail themselves of the power under Open Access and users of captive power.

- viii. Even if the solar and wind power projects whose power is being sold under Open Access by their developers are old units over the years they must have recovered major share of their capital cost. By continuing to sell their power under Open Access at tariffs which are much higher than they would have been due to depreciation of their units and recovery of capital cost, they continue to get windfall profits and do not deserve exemption of Transmission Charges further.
- ix. The tariffs being discovered through competitive bidding for solar and wind power are as low as less than Rs. 2.50/kWh. Such developers reap windfall profits by selling their power under Open Access. With tariffs for wind and solar power falling drastically through competitive bidding, the tendency to sell solar and wind power under Open Access gets intensified, and, as and when a viable and economical system of battery storage for power is developed and put to use, sale of solar and wind power under Open Access will increase by leaps and bounds.

3.12.2 The stakeholder requested the Commission to make it clear that whatever exemption of Transmission Charges that is given to solar power developers as per the policy of the State Government, to that extent Transmission Charges should be reimbursed by the State Government to TSTransco or else TSTransco should collect applicable

Transmission Charges from those developers.

- 3.12.3 As per the existing billing methodology, Transmission Charges are being levied on the DISCOMs for the approved contracted capacities given in Transmission Tariff Order. However, due to under-generation in thermal power projects and hydel projects due to coal shortage and low inflows to reservoirs, etc., there used to be shortage of power. To cope up this shortage of power, DISCOMs resort to short-term power purchases from sources which are not mentioned in Transmission Tariff Order. If TSTransco levies Transmission Charges on these purchases also, DISCOMs will have to pay Transmission Charges for their long-term capacities and also for short-term purchases made from intra-State and Inter-State sources. This will become double billing on DISCOMs and the revenue received by TSTransco will become more than the revenue required. Therefore, TSTransco has requested the Commission to exempt the DISCOMs from payment of Transmission Charges on short-term purchases made from both intra-State and Inter-State sources as long as their peak load is within their approved Contracted Capacity given in Transmission Tariff Order. It is a fair proposal to avoid undue burden ultimately on the consumers of power. The Commission may approve this proposal of TSTransco.
- 3.12.4 TSTransco has submitted that, as short-term open access transactions, especially Inter-State and IEX transactions, take place only for some days or hours, it is better to determine rate of Transmission Charges in the units of MW/Hr. At present, the Transmission Charges are approved in kW/month units and TSTransco is converting the rate in kW/month into rate for MW/Hr by using the formula given by it. TSTransco's request to determine Transmission Charges both in kW/month and MW/Hr units in the Transmission Tariff Order may be considered by the Commission.

Petitioner's replies

- 3.12.5 The Commission may take a view based on the submissions in this regard. The new Solar Policy is being discussed at GoTS level and the stated issues regarding the exemption of Transmission Charges will be put forward before GoTS

Commission's Views

- 3.12.6 The Commission has taken note of the stakeholders' submissions in this regard. The Commission's decision in this regard is detailed in Chapter 5 of the Order.

3.13 ANNUAL PERFORMANCE REVIEW

Stakeholders' submissions

- 3.13.1 Para 8.1 of Tariff Policy states that implementation of MYT framework “would minimize risks for utilities and consumers, promote efficiency and appropriate reduction of system losses and attract investments and would also bring greater predictability to consumer tariffs on the whole by restricting tariff adjustments to known indicators on power purchase prices and inflation indices. The framework should be applied for both public and private utilities”. In the case of TSTransco, experience has confirmed that the claimed objectives of MYT are belied. Irrespective of claims of efficiency improvement, MYT has led to collection of excess tariffs by TSTransco from the DISCOMs. The stakeholder requested the Commission to review implementation of the MYT Order annually by holding Public Hearings and take further necessary action periodically, including revision of tariffs annually, if necessary.

Petitioner's replies

- 3.13.2 TSTransco was initially required to file for approval of ARR annually but to enable with alertness in future expansion plans, MYT regime was stipulated by the Electricity Act, 2003. In accordance with Regulation No. 5 of 2005, the Transmission Licensee had to make all the filings, for a Control Period, generally of 5 years, the first control period being for 3 years. Accordingly, the MYT Petitions for the 1st Control Period from FY 2006-07 to FY 2009-10, 2nd Control Period from FY 2009-10 to FY 2013-14 and 3rd Control Period from FY 2014-15 to FY 2018-19 were filed. Subsequent to the formation of Telangana State, the Commission had approved the Transmission Charges for FY 2017-18 and FY 2018-19 vide its Order dated 30.11.2016. The MYT Petition for 4th Control Period has been filed for FY 2019-20 to FY 2023-24.

Commission's Views

- 3.13.3 Clause 10.7 of the Regulation No. 5 of 2005 stipulates that for the purpose of sharing of gains and losses with the users, only aggregate gains or losses for the Control Period as a whole will be considered. Clause 14.3 of the Regulation No. 5 of 2005 stipulates that the Commission may provide corrections to the ARR of the Transmission Licensee for subsequent years of the Control Period to the extent of deviation of investments approved as part of the Capital Investment Plan. Further, Clause 22 of the

Regulation No. 5 of 2005 stipulates that the Commission may undertake periodic reviews of Transmission Licensee's performance during the Control Period, to address any practical issues, concerns or unexpected outcomes that may arise, and in general to assess the efficacy of MYT principles.

- 3.13.4 The Commission, vide its Order dated 01.05.2017, carried out Mid Term Review of 3rd Control Period and had undertaken provisional true-up of FY 2014-15 and FY 2015-16. The Commission is of the considered view that periodical review of the actual performance of the Petitioner during the Control Period is important in balancing the interest of the Petitioner as well as the consumers. Therefore, the Commission directs the Petitioner to file the Performance Review (true-up) for each year of the 4th Control Period before 30th June of the following year. As a first step, the Petitioner shall file the Annual Performance Review for FY 2019-20 by 30.06.2020. Any variations in expenses as claimed in Annual Performance Review and actuals as per the audited values for the respective year may be claimed in the true-up of the entire Control Period and the Commission shall take an appropriate view based on the Petitioner's submissions.

3.14 OTHERS

Stakeholders' submissions

- 3.14.1 The State of Telangana has achieved 100% electrification under SAUBHAGYA scheme and 5.15 lakh unconnected households have been provided with access to electricity. Considering the factors like new consumer addition to the grid, projected growth in demand, and affordable renewable power being installed across the country, the Commission need to ensure that reliable transmission systems are put in place in a time and cost-effective manner.
- 3.14.2 The competitively discovered tariffs have been lower than the cost-plus tariffs in the Inter-State and intra-State transmission projects awarded by the Central Government as well as by the States such as Uttar Pradesh, Madhya Pradesh and Maharashtra, among others. Because of widespread participation, the competitive tariff of these projects has witnessed an average tariff reduction of ~40% vis-à-vis cost-plus tariffs, achieving a maximum reduction of ~57%. The per unit power transmission cost that has been achieved through implementation of the Phase-1 of GEC corridors under Tariff Based Competitive Bidding (TBCB) route is ~25 paise lower when compared

to CEA's estimate of 67 paise per unit translating into huge savings over the lifecycle of these projects. Therefore, the State Governments/ Regulators/ DISCOMs need to support competitive bidding for transmission projects through TBCB so that the resulting gains of competition benefit the State by ensuring energy delivery to the end consumers in affordable and efficient manner.

- 3.14.3 The Electricity Act, 2003 seeks to encourage competition in the power sector with appropriate regulatory intervention. Competition is expected to yield efficiency gains and result in improved quality of supply to consumers at competitive rates. Clause 5.3 of the Tariff Policy, 2016 envisages that the development of all intra-State transmission projects, costing above a threshold limit under TBCB. In this context, some of the State Electricity Regulatory Commissions have taken steps on specifying the threshold limit for development of intra-State transmission projects under TBCB. In light of the same, the Commission may specify a threshold limit above which all new projects and augmentation schemes for transmission shall be developed under TBCB route, as envisaged in the Electricity Act, 2003 and Tariff Policy, 2016. The stakeholder requested the Commission to include the following para in this Order:

“All new Intra-State Transmission projects, costing above a threshold limit value to be notified separately, shall be developed through Tariff Based Competitive Bidding (TBCB), as per provisions of the Electricity Act and the Tariff Policy. The Commission is in the process of notifying of the threshold limit and after the notification the projects costing above the threshold limit shall be implemented through TBCB process.”

- 3.14.4 Many of the transmission projects taken up under TBCB were awarded to PGCIL and it shows that even the government companies can compete with private players in project execution.
- 3.14.5 The farmers from whom land is being acquired for erection of substations, high voltage transmission towers and high voltage transmission lines are not being compensated adequately as per the existing rules and regulations. The stakeholder requested the Commission to take steps for ensuring adequate compensation to the farmers.
- 3.14.6 The Commission has directed the Petitioner to submit additional information and due diligence is required to be carried out on the Petitioner's submissions in this regard and appropriate decision is to be taken by the Commission.
- 3.14.7 There was no adequate time to analyse the Petitioner's submissions which was uploaded on the Commission's website and as a result the objections/ comments/

suggestions are submitted only on a few points.

Petitioner's replies

- 3.14.8 Lapses have been observed in the inter-State transmission project recently executed in the State of Telangana. TSTransco is above par in comparison to PGCIL on technical as well as financial performance.
- 3.14.9 TSTransco has been paying compensation to the farmers towards damaged crops to the farmers during erection of High Voltage Transmission Towers in their agricultural land. The payments towards crop compensation are made as per the assessment made by Revenue/Horticulture departments against damaged crops as per the procedures in vogue.
- 3.14.10 With respect to HMDA/GHMC areas of Ranga Reddy District, compensation amounts covering all the damages to the affected farmers in laying of 400 kV transmission lines and towers is being paid as per the proceedings of Collector and District Magistrate, Ranga Reddy District dated 08.08.2014.
- 3.14.11 Ministry of Power vide letter dated 15.10.2015 had issued certain guidelines for payment of compensation towards damages in regard to Right of Way for transmission lines and requested State Governments to take suitable decision regarding adoption of guidelines. In this regard, TSTransco requested GoTS for issuing guidelines on the compensation in a rational way. The guidelines from GoTS are still awaited.

Commission's Views

- 3.14.12 The Commission has taken note of the submissions of the stakeholder regarding the execution of transmission projects through TBCB. The Commission shall give due consideration to the same at appropriate time.
- 3.14.13 The Commission directs the Petitioner to actively pursue with GoTS for issue of guidelines for payment of compensation towards damages in regard to Right of Way.
- 3.14.14 On the request of some of the stakeholders during the Public Hearing, the Commission had granted additional time of 10 days for submission of objections / suggestions and directed the Petitioner to reply to the same. One stakeholder has submitted additional objections / suggestions during the extended time. The Commission has considered those additional submissions also.

CHAPTER 4

ANALYSIS AND CONCLUSIONS ON TRUE-UP OF 3RD CONTROL PERIOD

4.1 REGULATORY PROVISIONS

- 4.1.1 The ARR of Transmission Licensee (excluding SLDC) for each year of the Control Period shall contain the following items:
- i. Operation and Maintenance (O&M) expenses;
 - ii. Return on Capital Employed (RoCE);
 - iii. Depreciation;
 - iv. Taxes on Income;
 - v. Corrections for “uncontrollable” items and “controllable” items; and
 - vi. Any other relevant expenditure.
- 4.1.2 Clause 5 of the Regulation No. 5 of 2005 stipulates that till such time as there is complete segregation of accounts between SLDC activity and Transmission activity, the Transmission Licensee shall apportion its costs on the basis of an Allocation Statement.
- 4.1.3 TSTransco has claimed the true-up of 3rd Control Period from FY 2014-15 to FY 2018-19 in accordance with Regulation No. 5 of 2005. TSTransco has also submitted its audited accounts for FY 2014-15 to FY 2017-18 and provisional accounts for FY 2018-19 along with the Allocation Statement segregating its actual expenses and revenue between Transmission business and SLDC activity for FY 2014-15 to FY 2018-19.

4.2 BASIS FOR APPROVED EXPENSES FOR FY 2014-15, FY 2015-16 AND FY 2016-17

Petitioner's submission

- 4.2.1 Vide its Order dated 09.05.2014 in O. P. No. 62 of 2013, the erstwhile APERC had approved the ARR and Transmission Tariff for the Transmission Licensee of United Andhra Pradesh for 3rd Control Period from FY 2014-15 to FY 2018-19. Vide its Order dated 01.05.2017 in O. P. No. 24 of 2016, the Commission had approved the ARR and Transmission Tariff for TSTransco for FY 2017-18 and FY 2018-19. Vide the stated Order, the Commission had also approved the provisional true-up of FY 2014-15 and FY 2015-16.

- 4.2.2 Consequent to bifurcation of Andhra Pradesh State, a separate Transmission Utility in the name of TSTransco for the State of Telangana has been incorporated and commenced its activities w.e.f. 02.06.2014 i.e., from the formation day of state of Telangana. In the absence of separate Tariff Order for TSTransco for the period from FY 2014-15 to FY 2016-17, the expenses approved vide the Order dated 09.05.2014 has been considered as the base and 53.89% (as notified by Govt. of AP vide G. O. Ms. No. 20, Dt. 08.05.2014) of the approved expenses for the respective years have been considered for TSTransco.

Commission's View

- 4.2.3 The Commission finds it prudent to consider the methodology proposed by the Petitioner as regards the approved expenses for FY 2014-15, FY 2015-16 and FY 2016-17 are concerned which serves the purpose of comparison with the actual expenses.

Table 4-1: Approved ARR for FY 2014-15, FY 2015-16 and FY 2016-17

(Rs. Crore)

Particulars	As approved in the MYT Order dtd. 09.05.2014			Approved as considered for TSTransco		
	FY 2014-15	FY 2015-16	FY 2016-17	FY 2014-15*	FY 2015-16	FY 2016-17
Operation & Maintenance expenses	503.15	546.45	620.83	225.09	294.48	334.57
Return on Capital Employed	759.54	1031.92	1297.82	339.97	556.10	699.39
Depreciation	560.22	686.59	918.56	250.62	370.00	495.01
Taxes on Income	52.79	71.69	90.16	23.62	38.63	48.59
Other adjustments pertaining to previous Control Periods	-61.73	0.00	0.00	-27.62	0.00	0.00
Less: Non-Tariff Income	128.92	135.28	141.93	57.67	72.90	76.49
Aggregate Revenue Requirement	1685.46	2201.37	2785.44	754.00	1186.32	1501.07

**proportionate expenses for the period from 02.06.2014 to 31.03.2015*

- 4.2.4 The separate audited accounts for TSTransco have been submitted from FY 2014-15 onwards and the actual expenses are made available for prudence check.

4.3 O&M EXPENSES FOR 3RD CONTROL PERIOD

Petitioner's submission

- 4.3.1 The O&M expenses comprises of (i) employee cost, (ii) Administrative & Generation

(A&G) expenses and (iii) Repairs & Maintenance (R&M) expenses. The O&M expenses of the Licensee are driven by the length of the lines in ckt. km. and number of substations bays. The Petitioner has claimed the net O&M expenses of Rs. 232.84 Crore, Rs. 316.07 Crore, Rs. 376.23 Crore, Rs. 431.82 Crore and Rs. 603.58 Crore for FY 2014-15, FY 2015-16, FY 2016-17, FY 2017-18 and FY 2018-19 respectively.

4.3.2 The actual net O&M expenses for the 3rd Control Period are more than approved net O&M expenses due to wage revision with effect from 01.04.2018, which was not factored in the ARR for 3rd Control Period submitted by the Licensee and also the Commission's Tariff Order. Pending final allocation of employees between AP Transco and TSTransco, actuarial valuation towards employee terminal benefits could not be taken up. However, Pension & Gratuity Contribution has been provided provisionally.

4.3.3 The Petitioner also submitted that the following are the main contributors for increase in O&M expenses:

- i. Revision of pay scales to regular employees from 01.04.2014 and 01.04.2018.
- ii. Revision of remuneration paid to out sourced personnel.
- iii. Increase in hire vehicle charges.
- iv. Increase in License fee.
- v. Increase in property tax.
- vi. Increase in number of lines and sub-stations etc.

Commission's View

4.3.4 In accordance with Regulation No. 5 of 2005, the normative O&M expenses for the 3rd Control Period were computed considering the norms of O&M expenses i.e., based on (i) per ckt. km. and (ii) per substation bay. The normative O&M expenses computed and the actual O&M expenses claimed for true-up is as shown in the Table below:

Table 4-2: Normative O&M expenses and O&M expenses claimed for true-up
(Rs. Crore)

Financial Year	Normative	Claimed
2014-15	234.47	232.84
2015-16	328.70	316.07
2016-17	361.75	376.23
2017-18	492.13	431.82
2018-19	574.60	603.58
Total	1991.65	1960.53

- 4.3.5 As against the normative O&M expenses of Rs. 1991.65 Crore, the O&M expenses claimed for true-up is Rs. 1960.53 Crore. Clause 10.4 of the Regulation No. 5 of 2005 stipulates O&M expenses as controllable item of ARR. As the actual total O&M expenses are lower than the normative O&M expenses and the Petitioner has claimed the actual O&M expenses, the Commission deems it fit to approve the actual O&M expenses as claimed by the Petitioner in true-up of 3rd Control Period.
- 4.3.6 The O&M expenses claimed for true-up and approved on true-up is as shown in the Table below:

Table 4-3: O&M expenses for 3rd Control Period
(Rs. Crore)

Financial Year	Approved in Tariff Order	Claimed	Approved
2014-15	225.09	232.84	232.84
2015-16	294.48	316.07	316.07
2016-17	334.57	376.23	376.23
2017-18	484.05	431.82	431.82
2018-19	567.23	603.58	603.58
Total	1905.42	1960.53	1960.53

4.4 CAPITALISATION FOR 3RD CONTROL PERIOD

Petitioner's submission

- 4.4.1 The Petitioner has claimed the capitalisation of Rs. 689.48 Crore, Rs. 1947.38 Crore, Rs. 1789.21 Crore, Rs. 1982.20 Crore and Rs. 3589.79 Crore for FY 2014-15, FY 2015-16, FY 2016-17, FY 2017-18 and FY 2018-19 respectively as per the audited accounts.

Commission's View

- 4.4.2 The Commission directed the Petitioner to submit the year wise and project wise actual capitalisation from FY 2014-15 to FY 2018-19 with the following details:
- Approved Cost
 - Start Date (Schedule and Actual)
 - Completion Date (Schedule and Actual)
 - Capitalisation along with means of finance
 - Reasons for cost overrun and time overrun, if any
 - Physical Completion Certificate
 - Financial Completion Certificate
 - Electrical Inspector Certificate

- 4.4.3 On perusal of information furnished by the Petitioner, the Commission deems it fit to withhold 5% of the capitalisation claimed by the Petitioner for each year of the 3rd Control Period in the current proceedings. The Commission directs the Petitioner to submit the complete details sought regarding the capitalisation for the 3rd Control Period, in the Petition to be filed for Annual Performance Review for FY 2019-20. The Commission shall take an appropriate view on allowing the withheld amount of capitalisation for the 3rd Control Period, based on the information submitted by the Petitioner. The capitalisation claimed by the Petitioner and approved by the Commission for 3rd Control Period is as shown in the Table below:

Table 4-4: Capitalisation for 3rd Control Period

(Rs. Crore)

Financial Year	Claimed	Approved
2014-15	689.48	655.01
2015-16	1947.38	1850.01
2016-17	1789.21	1699.75
2017-18	1982.20	1883.09
2018-19	3589.79	3410.30
Total	9998.06	9498.16

4.5 REGULATED RATE BASE FOR 3RD CONTROL PERIOD

Petitioner's submission

- 4.5.1 The Petitioner has claimed the Regulated Rate Base (RRB) of Rs. 2301.71 Crore, Rs. 3339.28 Crore, Rs. 4968.80 Crore, Rs. 6429.99 Crore and Rs. 7856.80 Crore for FY 2014-15, FY 2015-16, FY 2016-17, FY 2017-18 and FY 2018-19 respectively.

Commission's View

- 4.5.2 The Commission considered the RRB for 3rd Control Period in accordance with the provisions of the Regulation No. 5 of 2005:
- The opening GFA for FY 2014-15 as per the audited accounts has been considered as the opening cost of fixed assets for FY 2014-15.
 - The opening accumulated depreciation for FY 2014-15 as per the audited accounts has been considered.
 - The opening consumer contribution for FY 2014-15 as per the audited accounts has been considered.
 - The approved capitalisation during each year has been considered as

investments capitalised during the respective year.

- The actual consumer contributions received during each year has been considered as per the audited accounts for the respective year.
- The approved depreciation during each year has been considered as the depreciation addition during the respective year.
- The closing GFA for each year of the Control Period has been considered as the opening GFA for the subsequent year of the Control Period.
- The closing accumulated depreciation for each year of the Control Period has been considered as the opening accumulated depreciation for the subsequent year of the Control Period.
- The closing balance of consumer contribution for each year of the Control Period has been considered as the opening balance for the subsequent year of the Control Period.
- The working capital for each year has been considered as equivalent to 45 days of approved net O&M expenses for the respective year.

4.5.3 The RRB claimed by the Petitioner and considered by the Commission is as shown in the Table below:

Table 4-5: RRB for 3rd Control Period

(Rs. Crore)

Financial Year	Claimed	Approved
2014-15	2301.71	2275.20
2015-16	3339.28	3248.43
2016-17	4968.80	4784.42
2017-18	6429.99	6167.64
2018-19	7856.80	7467.86

4.6 WEIGHTED AVERAGE COST OF CAPITAL (WACC) FOR 3RD CONTROL PERIOD

Petitioner's submission

4.6.1 The Petitioner has claimed Weighted Average Cost of Capital of 11.43%, 10.53%, 10.49%, 9.64% and 9.31% for FY 2014-15, FY 2015-16, FY 2016-17, FY 2017-18 and FY 2018-19 respectively.

Commission's View

4.6.2 The Commission has approved RoCE for the 3rd Control Period in accordance with the provisions of the Regulation No. 5 of 2005:

- The Debt Equity ratio has been considered as 75:25, the same as approved in the MYT Order and as claimed by the Petitioner for true-up.
- The actual cost of debt has been derived from the computations of RoCE submitted by the Petitioner and the same has been considered as the cost of debt for true-up purposes.
- The cost of equity has been considered as 14%, the same as approved in the MYT Order and as claimed by the Petitioner for true-up.

4.6.3 The WACC claimed by the Petitioner and approved by the Commission for 3rd Control Period is as shown in the Table below:

Table 4–6: WACC for 3rd Control Period

Financial Year	Claimed	Approved
2014-15	11.43%	11.43%
2015-16	10.53%	10.53%
2016-17	10.49%	10.49%
2017-18	9.64%	9.64%
2018-19	9.31%	9.31%

4.7 RETURN ON CAPITAL EMPLOYED (RoCE)

Petitioner's submission

4.7.1 The Petitioner has claimed Return on Capital Employed (RoCE) of Rs. 219.16 Crore, Rs. 351.57 Crore, Rs. 521.40 Crore, Rs. 619.72 Crore, and Rs. 731.16 Crore for FY 2014-15, FY 2015-16, FY 2016-17, FY 2017-18 and FY 2018-19 respectively.

Commission's View

4.7.2 The Commission has approved RoCE for 3rd Control Period considering the approved RRB and WACC for each year. The RoCE claimed by the Petitioner and approved by the Commission for 3rd Control Period is as shown in the Table below:

Table 4–7: RoCE for 3rd Control Period

(Rs. Crore)

Financial Year	Approved in Tariff Order	Claimed	Approved
2014-15	339.97	219.16	215.80
2015-16	556.10	351.57	342.01

Financial Year	Approved in Tariff Order	Claimed	Approved
2016-17	699.39	521.40	502.05
2017-18	685.23	619.72	594.43
2018-19	712.98	731.16	694.96
Total	2993.67	2443.01	2349.26

4.8 DEPRECIATION FOR 3RD CONTROL PERIOD

Petitioner's submission

- 4.8.1 Depreciation is a claim towards replacement of cost of fixed assets. Depreciation has been calculated for every year on all the fixed assets capitalised upto previous year considering the rates notified by Ministry of Power, GoI.
- 4.8.2 The Petitioner has claimed the depreciation of Rs. 208.42 Crore, Rs. 285.09 Crore, Rs. 431.86 Crore, Rs. 584.45 Crore and Rs. 738.85 Crore for FY 2014-15, FY 2015-16, FY 2016-17, FY 2017-18 and FY 2018-19 respectively.
- 4.8.3 The claimed depreciation for 3rd Control Period is higher than approved depreciation on account of higher capitalisation of fixed assets than that approved by the Commission.

Commission's View

- 4.8.4 As per the audited accounts of the Petitioner, the depreciation has been calculated on straight line method with the rates notified by Ministry of Power, GoI. Further, the depreciation has been charged upto 90% of the cost of assets.
- 4.8.5 As the depreciation rates notified by Ministry of Power, GoI had been considered in tariff determination for the 3rd Control Period, the Commission deems it fit to consider the same in the approval of true-up. Accordingly, the Commission has computed the depreciation on the opening value of fixed assets during each year of the 3rd Control Period considering the rates notified by Ministry of Power, GoI. The depreciation claimed by the Petitioner and approved by the Commission on true-up of 3rd Control Period is as shown in the Table below:

Table 4–8: Depreciation for 3rd Control Period
(Rs. Crore)

Financial Year	Approved in Tariff Order	Claimed	Approved
2014-15	250.62	208.42	207.59
2015-16	370.00	285.09	283.28
2016-17	495.01	431.86	424.24
2017-18	510.92	584.45	570.46
2018-19	529.67	738.85	718.75
Total	2156.23	2248.66	2204.32

4.9 TAXES ON INCOME FOR 3RD CONTROL PERIOD

Petitioner's submission

- 4.9.1 Tax on income has been calculated at current rate of MAT on the RoE computed considering 25% of RRB as equity component and cost of equity of 14%.
- 4.9.2 The Petitioner has claimed the tax on income of Rs. 18.21 Crore, Rs. 31.71 Crore, Rs. 47.18 Crore, Rs. 61.06 Crore, and Rs. 75.53 Crore for FY 2014-15, FY 2015-16, FY 2016-17, FY 2017-18 and FY 2018-19 respectively.
- 4.9.3 The Petitioner submitted the details of taxable income, actual tax paid and actual tax assessed by the Income Tax Department for each year of the 3rd Control Period as shown in the Table below:

Table 4–9: Taxable income, actual tax paid and actual tax assessed as submitted by the Petitioner

(Rs. Crore)

Financial Year	Taxable Income		Total Tax paid to Income Tax Department	Actual Tax assessed by Income Tax Department
	With Normal Rate	With MAT Rate		
2014-15	14.48	69.58	50.95	71.94
2015-16	18.29	139.55	62.09	65.32
2016-17	27.18	331.51	72.91	107.79
2017-18	(227.33)	102.46	39.69	54.06
2018-19	Under finalisation		70.09	Assessment not completed

- 4.9.4 The Petitioner also submitted the copies of Assessment Orders for FY 2014-15 (AY 2015-16) to FY 2017-18 (AY 2018-19).
- 4.9.5 The Petitioner in its replies to stakeholder comments submitted that it is paying

income tax at MAT rates.

Commission's View

- 4.9.6 In accordance with the provisions of the Regulation No. 5 of 2005, the tax on income allowable in ARR shall be limited to tax on RoE component. The tax on RoE component (equity component as 25% of RRB and cost of equity of 14%) computed considering MAT Rate applicable for each year of the 3rd Control Period is as shown in the Table below:

Table 4–10: Tax on RoE component computed by the Commission for the 3rd Control Period

(Rs. Crore)

Financial Year	Tax on RoE component
2014-15	18.00
2015-16	30.85
2016-17	45.43
2017-18	58.57
2018-19	71.79
Total	224.64

- 4.9.7 In accordance with the provisions of Regulation No. 5 of 2005, the Commission has considered the lower of actual income tax assessed and the tax on RoE component for FY 2014-15 to FY 2017-18. For FY 2018-19, the Commission has considered the lower of actual income tax paid and tax on RoE component. The tax on income claimed by the Petitioner and approved by the Commission on true-up of 3rd Control Period is as shown in the Table below:

Table 4–11: Tax on income for 3rd Control Period

(Rs. Crore)

Financial Year	Approved in Tariff Order	Claimed	Approved
2014-15	23.62	18.21	18.00
2015-16	38.63	31.71	30.85
2016-17	48.59	47.18	45.43
2017-18	46.69	61.06	54.06
2018-19	48.58	75.53	70.09
Total	206.11	233.70	218.43

4.10 OTHER EXPENSES FOR 3RD CONTROL PERIOD

Petitioner's submission

- 4.10.1 The Petitioner has claimed the other expenses of Rs. 11.07 Crore, Rs. 0.75 Crore, Rs. 3.88 Crore, Rs. 16.23 Crore and Rs. 8.48 Crore for FY 2014-15, FY 2015-16, FY 2016-17, FY 2017-18 and FY 2018-19 respectively.

Commission's View

- 4.10.2 The other expenses claimed by the Petitioner are towards other debits as per the audited accounts for the respective year. Such other debits are towards (i) material cost variance, miscellaneous losses and write-offs and (iii) loss on sale of scrap. The Commission has approved the other expenses as claimed by the Petitioner.

**Table 4–12: Other expenses for 3rd Control Period
(Rs. Crore)**

Financial Year	Approved Tariff Order	Claimed	Approved
2014-15	0.00	11.07	11.07
2015-16	0.00	0.75	0.75
2016-17	0.00	3.88	3.88
2017-18	0.00	16.23	16.23
2018-19	0.00	8.48	8.48
Total	0.00	40.41	40.41

4.11 NON-TARIFF INCOME FOR 3RD CONTROL PERIOD

Petitioner's submission

- 4.11.1 The Petitioner has claimed the Non-tariff income of Rs. 46.83 Crore, Rs. 79.52 Crore, Rs. 113.04 Crore, Rs. 119.28 Crore and Rs. 287.77 Crore for FY 2014-15, FY 2015-16, FY 2016-17, FY 2017-18 and FY 2018-19 respectively.

Commission's View

- 4.11.2 The Commission has considered the non-tariff income claimed by the Petitioner, the same being as per the audited accounts.

**Table 4–13: Non-tariff income for 3rd Control Period
(Rs. Crore)**

Financial Year	Approved Tariff Order	Claimed	Approved
2014-15	57.67	46.83	46.83
2015-16	72.90	79.52	79.52
2016-17	76.49	113.04	113.04
2017-18	121.00	119.28	119.28
2018-19	133.00	287.77	287.77
Total	461.06	646.44	646.44

4.12 ARR FOR 3RD CONTROL PERIOD***Commission's View***

4.12.1 Based on the above the ARR claimed by the Petitioner and approved by the Commission for the 3rd Control Period is as shown in the Table below:

Table 4–14: ARR for 3rd Control Period**(Rs. Crore)**

Particulars	FY 2014-15			FY 2015-16			FY 2016-17		
	Approved in Tariff Order	Claimed	Approved	Approved in Tariff Order	Claimed	Approved	Approved in Tariff Order	Claimed	Approved
Operation & Maintenance expenses	225.09	232.84	232.84	294.48	316.07	316.07	334.57	376.23	376.23
Return on Capital Employed	339.97	219.16	215.80	556.10	351.57	342.01	699.39	521.40	502.05
Depreciation	250.62	208.42	207.59	370.00	285.09	283.28	495.01	431.86	424.24
Taxes on Income	23.62	18.21	18.00	38.63	31.71	30.85	48.59	47.18	45.43
Other expenses	0.00	11.07	11.07	0.00	0.75	0.75	0.00	3.88	3.88
Other adjustments pertaining to previous Control Periods	-27.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Aggregate Revenue Requirement	811.68	689.69	685.31	1259.22	985.20	972.95	1577.56	1380.54	1351.82
Less: Non-Tariff Income	57.67	46.83	46.83	72.90	79.52	79.52	76.49	113.04	113.04
Net ARR	754.00	642.87	638.48	1186.32	905.67	893.43	1501.07	1267.50	1238.78
Particulars	FY 2017-18			FY 2018-19			Total		
	Approved in Tariff Order	Claimed	Approved	Approved in Tariff Order	Claimed	Approved	Approved in Tariff Order	Claimed	Approved
Operation & Maintenance expenses	484.05	431.82	431.82	567.23	603.58	603.58	1905.42	1960.53	1960.53
Return on Capital Employed	685.23	619.72	594.43	712.98	731.16	694.96	2993.67	2443.01	2349.26
Depreciation	510.92	584.45	570.46	529.67	738.85	718.75	2156.23	2248.66	2204.32
Taxes on Income	46.69	61.06	54.06	48.58	75.53	70.09	206.11	233.70	218.43
Other expenses	0.00	16.23	16.23	0.00	8.48	8.48	0.00	40.41	40.41
Other adjustments pertaining to previous Control Periods	0.00	0.00	0.00	0.00	0.00	0.00	-27.62	0.00	0.00
Aggregate Revenue Requirement	1726.89	1713.28	1667.01	1858.46	2157.61	2095.87	7233.81	6926.32	6772.96
Less: Non-Tariff Income	121.00	119.28	119.28	133.00	287.77	287.77	461.06	646.44	646.44
Net ARR	1605.89	1594.00	1547.73	1725.46	1869.84	1808.10	6772.74	6279.87	6126.52

**This amount has been added to the revenue*

4.13 REVENUE SIDE TRUE-UP***Petitioner's submission***

4.13.1 The Petitioner has claimed the revenue from Transmission Charges as Rs. 815.36 Crore, Rs. 1345.95 Crore, Rs. 1642.42 Crore, Rs. 1722.90 Crore and Rs. 1755.00 Crore for FY 2014-15, FY 2015-16, FY 2016-17, FY 2017-18 and FY 2018-19 respectively.

Commission's View

4.13.2 The Commission observed that the entire revenue claimed by the Petitioner is out of

operations only and same was verified with audited accounts submitted by the Petitioner. The Commission has considered the revenues as claimed by the Petitioner for the 3rd Control Period as given below:

Table 4-15: Revenue from Transmission Charges for 3rd Control Period
(Rs. Crore)

Financial Year	Claimed	Approved
2014-15	815.36	815.36
2015-16	1345.95	1345.95
2016-17	1642.42	1642.42
2017-18	1722.90	1722.90
2018-19	1755.00	1755.00
Total	7281.63	7281.63

4.14 SUMMARY OF TRUE-UP OF 3RD CONTROL PERIOD

Petitioner's submission

4.14.1 The Petitioner has claimed the total revenue surplus of Rs. 1001.75 Crore for 3rd Control Period. After adjusting the revenue surplus of Rs. 634.60 Crore by the Commission on provisional true-up of FY 2014-15 and FY 2015-16, the net revenue surplus is Rs. 367.15 Crore for 3rd Control Period.

4.14.2 The Petitioner has proposed to pass on this net revenue surplus of Rs. 367.15 Crore in the ARR for FY 2019-20.

Commission's View

4.14.3 Based on the approved ARR and revenue for 3rd Control Period, the total revenue gap/(surplus) approved by the Commission on true-up of 3rd Control Period is as shown in the Table below:

Table 4-16: Total revenue gap/(surplus) approved by the Commission for 3rd Control Period

(Rs. Crore)

Particulars	FY 2014-15		FY 2015-16		FY 2016-17	
	Claimed	Approved	Claimed	Approved	Claimed	Approved
Aggregate Revenue Requirement	642.87	638.48	905.67	893.43	1267.50	1238.78
Revenue from Transmission Charges	815.36	815.36	1345.95	1345.95	1642.42	1642.42
Revenue Gap/(Surplus)	-172.50	-176.88	-440.28	-452.52	-374.92	-403.64
Particulars	FY 2017-18		FY 2018-19		Total	
	Claimed	Approved	Claimed	Approved	Claimed	Approved
Aggregate Revenue Requirement	1594.00	1547.73	1869.84	1808.10	6279.87	6126.52
Revenue from Transmission Charges	1722.90	1722.90	1755.00	1755.00	7281.63	7281.63
Revenue Gap/(Surplus)	-128.90	-175.17	114.84	53.10	-1001.75	-1155.11

4.14.4 Due to the above changes, the revenue surplus of Rs. 1001.75 Crore as claimed by the Petitioner has increased to Rs. 1155.11 Crore.

4.14.5 As per the provisional true-up for FY 2014-15 and FY 2015-16, the surplus revenue of Rs. 634.60 Crore has already been passed on vide Order dated 01.05.2017 in O. P. No. 24 of 2016. Considering the same, the net revenue gap/(surplus) for the 3rd Control Period works out as under:

Table 4–17: Net revenue gap/(surplus) for 3rd Control Period
(Rs. Crore)

Particulars	Claimed	Approved
Revenue Gap/(Surplus) on account of final true-up	-1001.75	-1155.11
Less: Revenue Gap/(Surplus) already adjusted as special appropriation in provisional true-up for FY 2014-15 and FY 2015-16	-634.60	-634.60
Net Revenue Gap/(Surplus) for the Control Period	-367.15	-520.51

4.14.6 As against the revenue surplus of Rs. 367.15 Crore claimed by the Petitioner, the Commission has approved the revenue surplus of Rs. 520.51 Crore.

4.14.7 Clause 20.2 of the Regulation No. 5 of 2005 stipulates as under:

“..... Variations in revenue recovery over approved revenue requirement on account of variations in transmission usage will be adjusted in subsequent Control Period with financing cost at average rate of borrowing during the year to which the variations relate.”

4.14.8 The Commission considered it appropriate for adjustment of approved revenue surplus of Rs. 520.51 Crore in the ARR for FY 2019-20 as shown in the Table below:

Table 4–18: Recovery of approved surplus for 3rd Control Period
(Rs. Crore)

Financial Year	Outstanding gap/(surplus)	Principal adjusted	Financing cost @ interest rate of 9.85%	Total allowed for adjustment during the year
	(i)	(ii)	(iii)	(iv)=(ii)+(iii)
2019-20	-520.51	-520.51	-25.64	-546.15

Contd...

CHAPTER 5

ANALYSIS AND CONCLUSIONS ON MYT FOR 4TH CONTROL PERIOD FY 2019-20 TO FY 2023-24

5.1 CAPITAL INVESTMENT PLAN FOR 4TH CONTROL PERIOD

Petitioner's submission

5.1.1 The Capital Investment Plan proposed by the Petitioner for the 4th Control Period is as shown in the Table below:

Table 5–1: Capital Investment Plan proposed by the Petitioner for 4th Control Period
(Rs. Crore)

Particulars	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
400 kV Schemes	1201.50	1334.60	1015.00	390.42	218.00
220 kV Schemes	681.37	766.13	701.97	612.61	600.80
Renovation & Modernization Improvement Schemes	53.11	56.00	59.70	63.29	67.90
Lift Irrigation Schemes	1010.19	1285.22	976.57	300.00	200.84
Telecom Schemes	85.35	115.34	1.15	0.67	0.05
Total Base Capital Investment	3031.52	3557.29	2754.39	1366.99	1087.59
Add: Interest During Construction	369.27	277.94	220.27	141.69	133.34
Add: Expenses Capitalized	120.88	132.97	146.26	160.89	176.98
Total Capital Investment during the year	3521.67	3968.20	3120.92	1669.57	1397.91

5.1.2 The Petitioner has submitted the details of schemes towards which the capital investment has been claimed for 4th Control Period.

Commission's View

5.1.3 The Commission, while approving the capital investment plan for the 4th Control Period has taken the following into consideration:

- i. The licensee, TSTransco being the State Transmission Utility (STU) has to ensure development of an efficient, coordinated and economical system of intra-State transmission lines and substations for smooth flow of electricity from a generating station to the load centres, as per the provisions of the Electricity Act, 2003.

- ii. Investment schemes which have already been accorded in-principle approvals by the Commission are under various phases of implementation.
- iii. Investments in telecom are required for real-time data transfer to the system operator, SLDC.
- iv. The investment towards LIS works, being contributory in nature, shall be borne by Irrigation Department.
- v. Evacuation of Power from upcoming generating station from various locations in the State of Telangana.
- vi. The significance of other works proposed by the Petitioner for improvement in performance and monitoring.

5.1.4 The capital investments undertaken by the Petitioner during the 3rd Control Period is as shown in the Table below:

Table 5–2: Capital investments during the 3rd Control Period
(Rs. Crore)

Financial Year	Capital investment
2014-15	1311.62
2015-16	1700.43
2016-17	2524.43
2017-18	2984.68
2018-19	3539.64
Total	12060.90

5.1.5 As against the total capital investment of Rs. 12060.90 Crore during the 3rd Control Period, the Petitioner has proposed the total capital investment of Rs. 13678.27 Crore during the 4th Control Period. The actual investments have increased significantly towards the end of the 3rd Control Period in comparison to the starting years of the 3rd Control Period.

5.1.6 Out of the proposed capital investment during each year of the 4th Control Period, the major capital investments are towards 400 kV Schemes and LIS works. In accordance with Clause 14.2 of the Regulation No. 5 of 2005, the Petitioner is required to seek the approval of the Commission for individual schemes in the Capital Investment Plan at least 90 days before undertaking the investment in accordance with the Guidelines on Investment Approval.

- i. The 400 kV Schemes proposed during the 4th Control Period are ongoing works for which the in-principle approvals have already been accorded by the Commission.
- ii. As regards LIS works, the investment towards the same is contributory in nature and shall be borne by Irrigation Department.
- iii. The 220 kV Schemes proposed during the 4th Control Period are a mix of ongoing schemes and new schemes.
- iv. The Telecom work of implementation of OPGW based reliable communication proposed by the Petitioner has been accorded in-principle approval by the Commission.
- v. The proposed capital investments under RMI scheme is in line with the approved capital investments for FY 2017-18 and FY 2018-19 vide the Commission's Order dated 01.05.2017.

5.1.7 The Commission observed that the actual capital investment during FY 2019-20 (upto December 2019) is Rs. 1736.62 Crore. The Commission deems it fit to consider the capital investments for FY 2019-20 as Rs. 2300.00 Crore as against the claim of Rs. 3031.52 Crore and carry forward the balance investments to FY 2020-21.

5.1.8 The capital investment plan approved by the Commission for 4th Control Period is as shown in the Table below:

Table 5-3: Capital investment plan approved by the Commission for 4th Control Period (Rs. Crore)

Particulars	FY 2019-20		FY 2020-21		FY 2021-22		FY 2022-23		FY 2023-24	
	Claimed	Approved	Claimed	Approved	Claimed	Approved	Claimed	Approved	Claimed	Approved
400 kV Schemes	1201.50	1201.50	1334.60	1334.60	1015.00	1015.00	390.42	390.42	218.00	218.00
220 kV Schemes	681.37	429.01	766.13	1018.49	701.97	701.97	612.61	612.61	600.80	600.80
RMI Schemes	53.11	33.44	56.00	75.67	59.70	59.70	63.29	63.29	67.90	67.90
Lift Irrigation Schemes	1010.19	636.05	1285.22	1659.36	976.57	976.57	300.00	300.00	200.84	200.84
Telecom Schemes	85.35	0.00	115.34	200.69	1.15	1.15	0.67	0.67	0.05	0.05
Base Capital Investment	3031.52	2300.00	3557.29	4288.81	2754.39	2754.39	1366.99	1366.99	1087.59	1087.59
IDC	369.27	280.16	277.94	335.10	220.27	220.27	141.69	141.69	133.34	133.34
O&M expenses capitalised	120.88	91.71	132.97	160.31	146.26	146.26	160.89	160.89	176.98	176.98
Total	3521.67	2671.87	3968.20	4784.22	3120.92	3120.92	1669.57	1669.57	1397.91	1397.91

5.2 CAPITALISATION FOR 4TH CONTROL PERIOD

Commission's View

5.2.1 The Commission has considered the closing Capital Works in Progress (CWIP) as on 31.03.2019 as the opening CWIP as on 01.04.2019. Based on the approved capital

investment for 4th Control Period, the approved capitalisation for the 4th Control Period is as shown in the Table below:

Table 5–4: Capitalisation approved by the Commission for 4th Control Period
(Rs. Crore)

Financial Year	Claimed	Approved
2019-20	2826.26	2744.09
2020-21	1968.29	2105.43
2021-22	6102.86	4718.61
2022-23	770.38	2555.27
2023-24	5376.12	4864.66
Total	17043.92	16988.07

5.3 TRANSMISSION NETWORK FOR 4TH CONTROL PERIOD

Commission's View

5.3.1 The Petitioner has submitted the projected Transmission Network for the 4th Control Period as shown in the Table below:

Table 5–5: Transmission Network projected for 4th Control Period

Financial Year	Lines (ckt. km.)			Bays (No.)		
	Opening	Addition	Closing	Opening	Addition	Closing
2019-20	21582	3166	24747	2667	438	3105
2020-21	24747	1856	26603	3105	344	3449
2021-22	26603	896	27498	3449	140	3589
2022-23	27498	598	28096	3589	24	3613
2023-24	28096	401	28497	3613	44	3657

5.3.2 Based on the approved capitalisation, the Commission has approved the Transmission Network for 4th Control Period as shown in the Table below:

Table 5–6: Transmission Network projections approved for 4th Control Period

Financial Year	Lines (ckt. km.)			Bays (No.)		
	Opening	Addition	Closing	Opening	Addition	Closing
2019-20	21582	2937	24519	2667	425	3092
2020-21	24519	1948	26467	3092	357	3449
2021-22	26467	692	27159	3449	108	3557
2022-23	27159	700	27859	3557	40	3597
2023-24	27859	503	28361	3597	60	3657

5.4 TARGETS FOR EFFICIENCY PARAMETERS

- 5.4.1 Regulation No. 5 of 2005 stipulates the Transmission Licensee to submit the proposals for targets for Efficiency Parameters along with its MYT Petition. The Efficiency Parameters for the Transmission Licensee are (i) Transmission System Availability and (ii) Transmission Loss. The Petitioner's submissions regarding the targets for Efficiency Parameters for the 4th Control Period and the Commission's decision on the same is detailed in the below paragraphs.

5.5 TRANSMISSION SYSTEM AVAILABILITY FOR 4TH CONTROL PERIOD

Petitioner's submission

- 5.5.1 The Petitioner has proposed the Transmission System Availability of 99.9% for each year of the 4th Control Period.

Commission's View

- 5.5.2 The Commission approves the Transmission System Availability of 99.9% for each year of the 4th Control Period as proposed by the Petitioner.

5.6 TRANSMISSION LOSS TRAJECTORY FOR 4TH CONTROL PERIOD

Petitioner's submission

- 5.6.1 The Petitioner has proposed the transmission loss trajectory for the 4th Control Period as shown in the Table below:

Table 5–7: Transmission loss trajectory proposed by the Petitioner for 4th Control Period

Financial Year	Proposed
2019-20	3.25% ± 0.2%
2020-21	3.24% ± 0.2%
2021-22	3.23% ± 0.2%
2022-23	3.22% ± 0.2%
2023-24	3.21% ± 0.2%

- 5.6.2 The Petitioner submitted that the proposed transmission losses are exclusive of PGCIL losses. The Petitioner submitted that the proposed transmission loss trajectory is in line with the investment proposals for the 4th Control Period and in case of any change in approved investments from the proposed investments, the trajectory may also vary accordingly.

Commission's View

- 5.6.3 The comparison of the approved target for transmission loss and actual transmission loss achieved during the 3rd Control Period is as shown in the Table below:

Table 5–8: Transmission loss for the 3rd Control Period

Financial Year	Tariff Order	Actual
2014-15	4.02%	3.14%
2015-16	4.02%	3.12%
2016-17	4.01%	3.36%
2017-18	3.10%	3.25%
2018-19	3.09%	2.85%

- 5.6.4 The transmission loss proposed by the Petitioner for each year of the 4th Control Period is higher than the actual loss achieved for FY 2018-19. The Commission directed the Petitioner to submit the justification in this regard. The Petitioner submitted as under:
- 5.6.5 The projections in Resource Plan have been made as per the prevailing practice i.e., based on estimations given by the DISCOMs. In practice the actual losses have been less than the projected losses. The actual losses have been on lower side inspite of network being expanded to cater the loads of 24 hrs agriculture supply and industrial loads. This could be possible due to the following measures taken by TSTransco:
- The new substations have been constructed in such a way that the long idle transmission lines were effectively loaded thereby increasing the load factor of transmission lines.
 - Many EHT transmission lines have been made LILO to the nearest available substations for effecting the transmission of power at higher voltages.
 - The scheduling of power was effectively managed by SLDC thereby reducing the length for which the power is transmitted.
 - SLDC of TSTransco has been awarded for the best Grid Management by CEA.
- 5.6.6 With all the above practices adopted by TSTransco the transmission losses were maintained below the projected values. Continuing good practices as mentioned above and also with adoption of new technology the losses would be maintained below the projected values of losses. The revised Resource Plan is also being prepared by TSTransco as per the Commission's directions.
- 5.6.7 The Commission does not find it prudent to consider the transmission loss for the 4th Control Period higher than the actual loss of 2.85% achieved during FY 2018-19, more so importantly in view of the approved capital investments for the 3rd Control Period. The Commission also does not find the annual loss reduction of 0.01% proposed by the Petitioner during the 4th Control Period prudent in view of actual reduction being significantly higher than the same.

5.6.8 Therefore, the Commission deems it fit to consider the actual loss level of 2.85% achieved for FY 2018-19 as the base for projecting the loss trajectory for the 4th Control Period. Taking into consideration the submissions of the Petitioner regarding the achievable loss level in the range of 2.85% - 2.50%, the Commission has approved the transmission loss trajectory for the 4th Control Period so as to achieve the loss level of 2.50% by the end of the Control Period. The transmission loss trajectory approved by the Commission for 4th Control Period is as shown in the Table below:

Table 5–9: Transmission loss trajectory approved by the Commission for 4th Control Period

Financial Year	Proposed	Approved
2019-20	3.25% ± 0.2%	2.78%
2020-21	3.24% ± 0.2%	2.71%
2021-22	3.23% ± 0.2%	2.64%
2022-23	3.22% ± 0.2%	2.57%
2023-24	3.21% ± 0.2%	2.50%

5.7 AGGREGATE REVENUE REQUIREMENT (ARR)

5.7.1 The ARR of Transmission Licensee (excluding SLDC) for each year of the Control Period shall contain the following items:

- i. Operation and Maintenance (O&M) expenses;
- ii. Return on Capital Employed (RoCE);
- iii. Depreciation;
- iv. Taxes on Income;
- v. Corrections for “uncontrollable” items and “controllable” items; and
- vi. Any other relevant expenditure.

5.7.2 The Petitioner’s submissions and the Commission’s analysis on each item of ARR is detailed below:

5.8 OPERATION AND MAINTENANCE (O&M) EXPENSES FOR 4TH CONTROL PERIOD

Petitioner’s submission

5.8.1 The O&M expenses cover the employee Cost, A&G expenses, and R&M expenses. The O&M expenses of the Licensee are driven by the length of lines in Circuit Kilometres and number of Substation Bays. The total O&M expenses have been allocated to Lines and Substations in the ratio of 30:70. The actual net O&M expenses for FY 2018-19 are Rs. 634.26 Crore as per the provisional accounts. Out of Rs.

634.26 Crore, an amount of Rs. 190.28 Crore has been allocated to Lines and an amount of Rs. 443.98 Crore has been allocated to Substations. The O&M expenses for Lines (Rs./ckt. km.) and substation (Rs./Bay) has been computed for FY 2018-19 considering the actual net O&M expenses and actual Transmission Network for FY 2018-19 as on 31.03.2019. The norms thus derived for FY 2018-19 have been escalated by the annual escalation rate of 7.68% to arrive at the norms of O&M expenses for each year of the 4th Control Period. The norms thus arrived at for each year of the Control Period have been multiplied by the actual line length and number of bays as on 31st March of the respective year to arrive at the normative O&M expenses for the respective year.

5.8.2 The norms of O&M expenses and normative O&M expenses claimed by the Petitioner for 4th Control Period is as shown in the Table below:

Table 5–10: Normative O&M expenses claimed by the Petitioner for 4th Control Period

Financial Year	Norms of O&M expenses		Normative O&M expenses		
			Gross expenses	Capitalisation	Net expenses
	Rs./Bay	Rs./ckt km	Rs. Crore	Rs. Crore	Rs. Crore
2018-19 (Base Year)	1664724	88165	-	-	-
2019-20	1792575	94936	912.41	120.88	791.53
2020-21	1930245	102227	1070.66	132.97	937.69
2021-22	2078488	110078	1194.30	146.26	1048.04
2022-23	2238116	118532	1302.55	160.89	1141.66
2023-24	2410003	127636	1422.04	176.98	1245.06
Total	-	-	5901.98	737.98	5164.00

Commission's View

5.8.3 The Petitioner has considered the actual O&M expenses of Rs. 634.26 Crore for FY 2018-19 for deriving the norms of O&M expenses for the 4th Control Period while the actual net O&M expenses of Rs. 603.58 Crore has been claimed for true-up of FY 2018-19. The Petitioner submitted that the variation is because of O&M expenses pertaining to filed Telecom units has been considered in Transmission Business for projecting the O&M expenses for 4th Control Period while the same have been considered as a part of SLDC activity in true-up claim for FY 2018-19.

5.8.4 The Commission directed the Petitioner to submit the computation for the escalation

rate of 7.68% along with supporting documents considered for projecting the O&M expenses for the 4th Control Period. The Petitioner submitted that the escalation rate of 7.68% has been considered based on the methodology specified by CERC and submitted the copy of “Explanation for the Notification on escalation factors and other parameters for Tariff Based Competitive Bidding for transmission service, dated 07.10.2019”. The Commission finds that the Petitioner has not submitted the computation for the escalation rate of 7.68%. The Commission does not find merit in considering the escalation rate based on the computation methodology of escalation factor specified by CERC for Tariff Based Competitive Bidding projects as such escalation factor shall be applied on the quoted escalable transmission charges and not O&M expenses. Therefore, the Commission finds it prudent to consider the escalation rate of 3.51%, which is considered by CERC for determining the normative O&M expenses for the period from FY 2019-20 to FY 2023-24 for transmission.

- 5.8.5 As regards O&M expenses, Clause 12 of the Regulation No. 5 of 2005 stipulates as under:

“12 OPERATION AND MAINTENANCE EXPENSES

12.1 The licensee in its filings for the control period shall submit the consolidated O&M expenses for the Base Year of the Control Period and for the two years preceding the Base Year. The O&M expenses for the Base Year shall be determined based on latest audited accounts, best estimates of Licensee of the actual O&M expenses for relevant years and other factors considered relevant. The O&M expenses for the Base Year, if required, will be used for projecting the expenses for each year of the control period. The Commission will determine the admissible quantum of O&M expenses for each year of the control period on the basis of the following formula:

$$O\&M_{Lo} = 0.3 * O\&M_o / LL_o \quad O\&M_{So} = 0.7 * O\&M_o / SS_o$$

$$O\&M_{Ln} = O\&M_{Ln-i} * INDX \quad O\&M_{Sn} = O\&M_{Sn-i} * INDX$$

$$O\&M_n = O\&M_{Ln} * LL_n + O\&M_{Sn} * SS_n$$

Where,

O&M_{Lo} is the O&M cost per ckt-km (circuit-kilometers) of EHT (Extra High Tension) lines for the Base Year of the first Control Period

O&M_{So} is the O&M cost per bay of substations for the Base Year of the first Control Period

Note: *The O&M cost per ckt-km of lines and per substation bay for the Base Year of second and subsequent Control Periods shall be determined on the basis of actual O&M cost of lines and substations to be filed separately by the Licensee.*

O&M_{Ln} is O&M cost per ckt-km of EHT lines in nth year

O&M_{Sn} is O&M cost per Bay in nth year

LL_n is the cumulative length of EHT lines in ckt-kms in nth year

SS_n is the number of EHT Substation Bays in nth year

INDX is the Inflation Factor”

- 5.8.6 The Commission has approved the normative O&M expenses for the 4th Control

Period in accordance with the provisions of the Regulation No. 5 of 2005:

- i. The actual net O&M expenses for Base Year i.e., FY 2018-19 has been considered as the base.
- ii. The actual net O&M expenses for FY 2018-19 have been allocated in the ratio of 30:70 between lines and substations.
- iii. The O&M expenses thus allocated to lines and substations is divided by the cumulative length of lines and cumulative number of substation bays in FY 2018-19.
- iv. The norms thus arrived for Base Year have been escalated by the annual escalation rate of 3.51% to arrive at the norms of O&M expenses for each year of the 4th Control Period.
- v. The norms thus arrived for each year of the 4th Control Period have been multiplied by the cumulative length of lines and cumulative number of substation bays approved for the respective year to arrive at the normative O&M expenses for 4th Control Period.

5.8.7 The norms of O&M expenses and normative O&M expenses approved by the Commission for 4th Control Period is as shown in the Table below:

Table 5–11: Norms of O&M expenses and normative O&M expense approved by the Commission for 4th Control Period

Financial Year	Norms of O&M expenses		Normative O&M expenses		
			Gross expenses	Capitalisation	Net expenses
	Rs./Bay	Rs./ckt km	Rs. Crore	Rs. Crore	Rs. Crore
2018-19	1664724	88167			
2019-20	1723156	91262	848.32	91.71	756.61
2020-21	1783639	94465	1025.51	160.31	865.20
2021-22	1846245	97781	1068.58	146.26	922.32
2022-23	1911048	101213	1130.28	160.89	969.39
2023-24	1978126	104766	1197.51	176.98	1020.53
Total	-	-	5270.20	736.15	4534.05

5.8.8 The summary of O&M expenses claimed by the Petitioner and approved by the Commission for 4th Control Period is as shown in the Table below:

Table 5–12: Normative Net O&M expenses for 4th Control Period
(Rs. Crore)

Financial Year	Claimed	Approved
2019-20	791.53	756.61
2020-21	937.69	865.20
2021-22	1048.04	922.32
2022-23	1141.66	969.39
2023-24	1245.06	1020.53
Total	5164.00	4534.05

5.9 REGULATED RATE BASE (RRB) FOR 4TH CONTROL PERIOD

Petitioner's submission

- 5.9.1 The Petitioner has claimed RRB of Rs. 8766.72 Crore, Rs. 9428.92 Crore, Rs. 11882.81 Crore, Rs. 13637.05 Crore and Rs. 14405.70 Crore for FY 2019-20, FY 2020-21, FY 2021-22, FY 2022-23 and FY 2023-24 respectively.

Commission's View

- 5.9.2 As regards RRB, Clause 13 of the Regulation No. 5 of 2005 stipulates as under:

“

The Regulated Rate Base (RRB) for the purposes of computing the RoCE for a year of the Control Period will be computed in the following manner.

$$RRB_i = RRB_{i-1} + \Delta RAB_i + WC_i$$

Where,

RRB_i : Regulated Rate Base for the ith year of the Control Period

ΔRAB_i : Change in Rate Base in the ith year of the Control Period.

This component would be the average of the value at the beginning and end of the year as the asset creation is spread across a year and is arrived as follows:

$$\Delta RAB_i = (Inv_i - D_i - CC_i)/2$$

Where,

Inv_i : Investments projected to be capitalised during the ith year of the Control Period and approved.

D_i = Amount set aside or written off on account of Depreciation of fixed assets for the ith year of the Control Period.

CC_i = User Contributions pertaining to the ARAB_i and capital grants/subsidies received during the ith year of the Control Period for construction of service lines or creation of fixed assets.

RRB_{i-1} : Regulated Rate Base for the financial year preceding the ith year of the Control Period and shall be determined on the basis of approved Capital Investment Plan referred to in clause 14.1 of this Regulation.

For the first year of the Control Period, RRB₀ will be the Regulated Rate Base for the Base Year i.e. RRB₀. The values for the Base Year will be determined based on latest audited accounts available, best estimates of the actuals pertaining to the relevant years and any other factors considered relevant by the Commission.

$$RRB_0 = OCFA_0 - AD_0 - CC_0$$

Where,

$OCFA_0$ = Original Cost of Fixed Assets at the end of the Base Year available for use and necessary for the purpose of the licensed business

AD_0 = Amounts written off or set aside on account of depreciation and advance against depreciation, if any, of fixed assets pertaining to the regulated business at the end of the Base Year

CC_0 = Total contributions pertaining to the $OCFA_0$ made by the users towards the cost of construction of transmission lines by the Transmission Licensee and also includes the capital grants/subsidies received for this purpose, pertaining to the capitalised assets.

WC_i = Working Capital Requirement in the i th year of the Control Period and shall be considered equivalent of 45 days' Operations and Maintenance expenses as allowed for that year and the carrying cost of maintaining an appropriate inventory level of O&M stores."

5.9.3 The Commission considered the RRB for 4th Control Period in accordance with the provisions of the Regulation No. 5 of 2005:

- The closing GFA for FY 2018-19 has been considered as the opening cost of fixed assets for FY 2019-20.
- The closing accumulated depreciation for FY 2018-19 has been considered as the opening accumulated depreciation for FY 2019-20.
- The closing balance of consumer contribution for FY 2018-19 has been considered as the opening balance for FY 2019-20.
- The approved capitalisation during each year has been considered as investments capitalised during the respective year.
- The consumer contributions received during each year has been considered as proposed by the Petitioner for the respective year.
- The approved depreciation during each year has been considered as the depreciation addition during the respective year.
- The closing GFA for each year of the Control Period has been considered as the opening GFA for the subsequent year of the Control Period.
- The closing accumulated depreciation for each year of the Control Period has been considered as the opening accumulated depreciation for the subsequent year of the Control Period.
- The closing balance of consumer contribution for each year of the Control Period has been considered as the opening balance for the subsequent year of the Control Period.
- The working capital for each year has been considered as equivalent to 45 days

of approved net O&M expenses for the respective year.

- 5.9.4 The RRB claimed by the Petitioner and approved by the Commission for 4th Control Period is as shown in the Table below:

Table 5–13: RRB for 4th Control Period
(Rs. Crore)

Financial Year	Claimed	Approved
2019-20	8766.72	8346.69
2020-21	9428.92	9205.27
2021-22	11882.81	11351.61
2022-23	13637.05	14073.03
2023-24	14405.70	16225.85
Total	58121.20	59202.45

5.10 WEIGHTED AVERAGE COST OF CAPITAL (WACC) FOR 4TH CONTROL PERIOD

Petitioner's submission

- 5.10.1 Debt portion has been considered at 75% of RRB and Equity portion has been considered as 25% of RRB. The cost of debt has been considered as 11% and the cost equity has been considered 14%. Accordingly, WACC has been claimed as 11.75% for the 4th Control Period.

Commission's View

- 5.10.2 As regards WACC, Clause 13 of the Regulation No. 5 of 2005 stipulates as under:

“.....

The WACC shall be computed in the following manner:

$$WACC = \left\{ \frac{D/E}{1+D/E} \right\} r_d + \left\{ \frac{1}{1+D/E} \right\} r_e$$

Where,

D/E is the Debt to Equity Ratio and shall be determined at the beginning of the Control Period after considering Transmission Licensee's proposal, previous years' D/E mix, market conditions and other relevant factors

r_d is the Cost of Debt and shall be determined at the beginning of the Control Period after considering Transmission Licensee's proposals, present cost of debt, market conditions and other relevant factors.

r_e is the Return on Equity and shall be determined at the beginning of the Control Period after considering CERC norms, Transmission Licensee's proposals, previous years' D/E mix, risks associated with distribution & supply business, market conditions and other relevant factors

The Weighted Average Cost of Capital as determined above shall remain unchanged during the Control Period”

- 5.10.3 Regulation No. 5 of 2005 stipulates that the Debt Equity ratio shall be determined at

the beginning of the Control Period after considering Transmission Licensee's proposal, previous years' D/E mix, market conditions and other relevant factors. The Commission has considered the Debt Equity ratio of 75:25 for the 4th Control Period.

5.10.4 Regulation No. 5 of 2005 stipulates that the cost of debt shall be determined at the beginning of the Control Period after considering Transmission Licensee's proposals, present cost of debt, market conditions and other relevant factors. The Petitioner has proposed the cost of debt of 11% for the 4th Control Period based on the sanction letters of PFC and REC. The Commission does not find it prudent to consider the cost of debt as 11% for the 4th Control Period as it does not provide any impetus to the Licensee for negotiating the interest rates with the lending agencies. The Commission has considered the cost of debt equivalent to SBI 1-year MCLR (7.85% as on 10.02.2020) plus a margin of 2% and accordingly, the cost of debt has been considered as 9.85% for the 4th Control Period.

5.10.5 The Petitioner has proposed the cost of equity as 14%. The Commission has considered the cost of equity as 14%, the same as proposed by the Petitioner, for the 4th Control Period.

5.10.6 Based on the above, WACC claimed by the Petitioner and approved by the Commission for 4th Control Period is as shown in the Table below:

Table 5–14: WACC for 4th Control Period

Particulars	Units	Claimed	Approved
Debt	%	75%	75%
Equity	%	25%	25%
Debt equity ratio		3.00	3.00
Cost of Debt	%	11.00%	9.85%
Cost of Equity	%	14.00%	14.00%
WACC	%	11.75%	10.89%

5.11 RETURN ON CAPITAL EMPLOYED (ROCE) FOR 4TH CONTROL PERIOD

Petitioner's submission

5.11.1 The Petitioner has claimed RoCE of Rs. 1030.09 Crore, Rs. 1107.90 Crore, Rs. 1396.23 Crore Rs. 1602.35 Crore and Rs. 1692.67 Crore for FY 2019-20, FY 2020-21, FY 2021-22, FY 2022-23 and FY 2023-24 respectively.

Commission's View

5.11.2 As regards RoCE, Clause 13 of the Regulation No. 5 of 2005 stipulates as under:

“13. RETURN ON CAPITAL EMPLOYED

Return on Capital Employed (RoCE) for the RRB for the year ‘i’ shall be computed in the following manner:

$$\text{RoCE} = \text{WACC} * \text{RRB}_i$$

Where,

WACC is the Weighted Average Cost of Capital as fixed by the Commission for the Control period and expressed in terms of percentage;

RRB is the Regulated Rate Base (the asset base) approved by the Commission for each year of the Control period on which the Transmission Licensee shall be entitled to earn a return based on the Commission approved Weighted Average Cost of Capital (WACC).

.....”

5.11.3 In accordance with the above, the Commission has approved RoCE for 4th Control Period considering the approved RRB and WACC for each year. The RoCE approved by the Commission for the 4th Control Period is as shown in the Table below:

Table 5–15: RoCE for 4th Control Period

(Rs. Crore)

Financial Year	Claimed	Approved
2019-20	1030.09	908.75
2020-21	1107.90	1002.22
2021-22	1396.23	1235.91
2022-23	1602.35	1532.20
2023-24	1692.67	1766.59
Total	6829.24	6445.67

5.12 DEPRECIATION FOR 4TH CONTROL PERIOD

Petitioner’s submission

5.12.1 Depreciation is a claim towards replacement cost of fixed assets. Depreciation has been calculated for full year on all the fixed assets capitalized up to the previous year and for half year on asset addition during the year considering the rates notified by the Ministry of Power, GoI. To offset the applicable depreciation on Lift Irrigation assets the same amount is considered as non-tariff income (amortization of grants).

5.12.2 The Petitioner has claimed the depreciation of Rs. 899.66 Crore, Rs. 1032.35 Crore, Rs. 1277.14 Crore, Rs. 1482.28 Crore and Rs. 1666.36 Crore for FY 2019-20, FY 2020-21, FY 2021-22, FY 2022-23 and FY 2023-24 respectively.

Commission’s View

5.12.3 As regards depreciation, Clause 15 of the Regulation No. 5 of 2005 stipulates as under:

“15 DEPRECIATION

Depreciation shall be computed in the following manner:

15.1 For each year of the Control Period, depreciation shall be calculated on the amount of Original Cost of the Fixed Assets included in the RRB at the beginning of each year of the Control Period:

Provided that depreciation on assets funded by consumer /user contributions or through any capital subsidy/grant etc shall not be allowed in the revenue requirement of the Transmission Licensee.

15.2 Depreciation allowance for each year of the Control Period shall be determined, generally based on the methodology, rates and other terms as decided by CERC from time to time.

15.3 Depreciation shall be charged from the 1st April of the following year from the date the asset is put to use.”

5.12.4 The Commission directed the Petitioner to submit the depreciation computations for 4th Control Period in accordance with the above stated provision of the Regulations. The Petitioner submitted that since incorporation of TSTransco as well as in AP Transco from which the fixed assets have been transferred to TSTransco, the depreciation is being calculated on Straight Line Method with the depreciation rates notified by Ministry of Power, GoI. In line with the accounts and to have uniformity, the depreciation has been claimed in accordance with the same for the 4th Control Period. The Petitioner further submitted as under:

- The depreciation amount claimed through tariff is being utilised for repayment of term loans.
- The term loans are being availed from financial institutions with repayment period of 10 to 12 years. As such, there is a cash outflow of 7% to 8% of outstanding term loans every year.
- Considering depreciation at lower rates would have impact on the working capital/cashflows of the Licensee.
- In accordance with Clause 15.2 of the Regulation No. 5 of 2005, it is not mandatory to consider the methodology/rates of CERC for approval of depreciation.

5.12.5 The Petitioner requested the Commission to consider the depreciation rates as notified by Ministry of Power, GoI.

5.12.6 The Commission does not find merit in the submissions of the Petitioner as allowing depreciation at lower rates than those notified by Ministry of Power would entail lower depreciation and accordingly the RRB and RoCE thereon would be on higher side on

account of lower depreciation.

5.12.7 The Commission has approved depreciation for the 4th Control Period in accordance with the provisions of Regulation No. 5 of 2005:

- i. The rates of depreciation as notified by CERC in its (Terms and Conditions of Tariff) Regulations, 2019 have been considered.
- ii. The depreciation has been approved considering the approved opening GFA for each year of the Control Period.
- iii. The amortisation of assets funded by consumer contributions/grants has been considered as non-tariff income, in line with the proposal of the Petitioner.

5.12.8 The depreciation claimed by the Petitioner and approved by the Commission for the 4th Control Period is as shown in the Table below:

Table 5–16: Depreciation for 4th Control Period
(Rs. Crore)

Financial Year	Claimed	Approved
2019-20	899.66	747.00
2020-21	1032.35	890.54
2021-22	1277.14	1000.26
2022-23	1482.28	1245.29
2023-24	1666.36	1378.79
Total	6357.80	5261.88

5.12.9 **The Commission directs the Petitioner to submit the computations of depreciation for each year of the 4th Control Period in accordance with the provisions of the CERC Tariff Regulations, 2019 in Annual Performance Review for each year of the 4th Control Period.**

5.13 TAXES ON INCOME

Petitioner's submission

5.13.1 The income tax component on the Return on Equity @14% on 25% of RRB has been computed with the corporate tax rate.

5.13.2 The Petitioner has claimed the tax on income of Rs. 84.28 Crore, Rs. 90.65 Crore, Rs. 114.24 Crore, Rs. 131.10 Crore and Rs. 138.49 Crore for FY 2019-20, FY 2020-21, FY 2021-22, FY 2022-23 and FY 2023-24 respectively.

Commission's View

5.13.3 As regards tax on income, Clause 16 of the Regulation No. 5 of 2005 stipulates as under:

“16 TAXES ON INCOME

16.1 Taxes on Income, if any, on the income stream of the licensed business of the Transmission Licensee shall be treated as an expense and shall be recoverable through ARR.

16.2 Taxes on Income actually payable and paid shall be included in the ARR, limited, however, to tax on Return on Equity component of the Return on Capital Employed, and excluding tax on profit, if any, in excess of such return (arising out of any reason, including efficiency of the Transmission Licensee or any explicit incentive provided in the ARR), penalties, interest on delayed payment of tax, etc. , and duly adjusted for any refunds, etc. received for the previous periods.

16.3 Tax incidence on income arising out of true-up of cost adjustments of previous year(s) due to un-controllable factors shall also be considered as pass-through, on actual basis, provided the tax so claimed and that already allowed for the year (s) which the true-up relates does not exceed the overall ceiling specified in clause 16.2 adjusted against the tax already provided in the previous year(s).”

5.13.4 The Commission observed that although the Petitioner has submitted that tax on income has been claimed considering corporate tax rate, the tax rate of 21.55% which is the MAT Rate for FY 2018-19 has been considered in its computations. Further, the Petitioner in its replies to stakeholders submitted that it is paying income tax at MAT Rate.

5.13.5 The Commission has approved the tax on income for the 4th Control Period in accordance with the Regulations:

- i. RoE has been considered as equivalent to 14% of equity component of RRB.
- ii. The revised MAT rate of 17.472% has been considered for computing tax on RoE.

5.13.6 The tax on income claimed by the Petitioner and approved by the Commission for the 4th Control Period is as shown in the Table below:

Table 5–17: Tax on income for 4th Control Period
(Rs. Crore)

Financial Year	Claimed	Approved
2019-20	84.28	61.85
2020-21	90.65	68.21
2021-22	114.24	84.11
2022-23	131.10	104.28
2023-24	138.49	120.23
Total	558.77	438.68

5.14 IMPACT OF TRUE-UP OF 3RD CONTROL PERIOD

Petitioner's submission

- 5.14.1 The Petitioner has claimed the surplus amount of Rs. 367.15 Crore on account of final true-up of 3rd Control Period and proposed the same to be passed on in the ARR for FY 2019-20.

Commission's View

- 5.14.2 The Commission has approved the surplus amount of Rs. 546.15 Crore on account of final true-up of 3rd Control Period and approved the same to be passed on in the ARR for FY 2019-20.

5.15 NON-TARIFF INCOME

Petitioner's submission

- 5.15.1 The major components of other income include supervision charges, interest income on staff loans and advances, income from investments, amortization of consumer grants, income from sale of scrap etc. The Petitioner has claimed the non-tariff income of Rs. 426.34 Crore, Rs. 340.41 Crore, Rs. 489.67 Crore, Rs. 383.01 Crore and Rs. 467.81 Crore for FY 2019-20, FY 2020-21, FY 2021-22, FY 2022-23 and FY 2023-24 respectively.

Commission's View

- 5.15.2 As regards non-tariff income, Clause 19 of the Regulation No. 5 of 2005 stipulates as under:

"19 NON-TARIFF INCOME

All income being incidental to transmission business and derived by the Licensee from sources, including but not limited to profit derived from disposal of assets, income from investments, rents, penalties for over/under utilization of transmission system and any other miscellaneous receipts from Users, shall constitute Non-Tariff Income."

- 5.15.3 The non-tariff income claimed by the Petitioner and approved by the Commission for 4th Control Period as claimed by the Petitioner.

**Table 5–18: Non-tariff income for 4th Control Period
(Rs. Crore)**

Financial Year	Claimed	Approved
2019-20	426.34	296.14
2020-21	340.41	502.21
2021-22	489.67	378.67
2022-23	383.01	452.51
2023-24	467.81	477.71
Total	2107.24	2107.24

5.16 AGGREGATE REVENUE REQUIREMENT (ARR) FOR 4TH CONTROL PERIOD***Commission's View***

5.16.1 The ARR for 4th Control Period claimed by the Petitioner and approved by the Commission based on above analysis is as shown in the Table below:

Table 5–19: ARR for 4th Control Period**(Rs. Crore)**

Particulars	FY 2019-20		FY 2020-21		FY 2021-22	
	Claimed	Approved	Claimed	Approved	Claimed	Approved
Operation & Maintenance expenses	791.53	756.61	937.69	865.20	1048.04	922.32
Return on Capital Employed	1030.09	908.75	1107.90	1002.22	1396.23	1235.91
Depreciation	899.66	747.00	1032.35	890.54	1277.14	1000.26
Taxes on Income	84.28	61.85	90.65	68.21	114.24	84.11
Other adjustments pertaining to previous Control Periods	-367.15	-546.15	0.00	0.00	0.00	0.00
Aggregate Revenue Requirement	2438.42	1928.06	3168.59	2826.16	3835.65	3242.60
Less: Non-Tariff Income	426.34	296.14	340.41	502.21	489.67	378.67
Aggregate Revenue Requirement	2012.08	1631.92	2828.18	2323.95	3345.98	2863.93
Particulars	FY 2022-23		FY 2023-24		Total	
	Claimed	Approved	Claimed	Approved	Claimed	Approved
Operation & Maintenance expenses	1141.66	969.39	1245.06	1020.53	5164.00	4534.05
Return on Capital Employed	1602.35	1532.20	1692.67	1766.59	6829.24	6445.67
Depreciation	1482.28	1245.29	1666.36	1378.79	6357.80	5261.88
Taxes on Income	131.10	104.28	138.49	120.23	558.77	438.68
Other adjustments pertaining to previous Control Periods	0.00	0.00	0.00	0.00	-367.15	-546.15
Aggregate Revenue Requirement	4357.40	3851.17	4742.59	4286.14	18542.66	16134.13
Less: Non-Tariff Income	383.01	452.51	467.81	477.71	2107.24	2107.24
Aggregate Revenue Requirement	3974.39	3398.66	4274.78	3808.43	16435.42	14026.89

5.17 TRANSMISSION TARIFF FOR 4TH CONTROL PERIOD***Petitioner's submission***

5.17.1 The DISCOMs have projected the installed generation capacity as their Contracted Capacity. The demand from Open Access Consumers has been estimated and added to the total contracted demand of DISCOMs. The Transmission Tariff has been computed by dividing the net ARR of each year with the total Contracted Capacity for the respective year.

5.17.2 The Transmission Tariff claimed by the Petitioner for 4th Control Period is as shown in the Table below:

Table 5–20: Transmission Tariff claimed by the Petitioner for 4th Control Period

Financial Year	Aggregate Revenue Requirement	Transmission Contracted Capacity	Transmission Tariff
	Rs. Crore	MW	Rs./kW/month
2019-20	2012.08	15235.49	110.05
2020-21	2828.18	17563.93	134.19
2021-22	3345.98	17569.01	158.71
2022-23	3974.39	19587.43	169.09
2023-24	4274.78	21113.59	168.72

Commission's View

- 5.17.3 As regards Transmission Tariff, Clause 20 of the Regulation No. 5 of 2005 stipulates as under:

“20 TRANSMISSION TARIFF

20.1 The transmission tariff payable by the users of the Transmission system shall be determined in accordance with the following formula:

$$TR = \text{Net ARR} / (12 * TCC)$$

Where,

TR: Transmission Rate in Rs./kW/month

Net ARR: Net ARR, as determined under clause 8.3

TCC: Total Contracted Capacity in kW of the Transmission system by all Long-Term Users

20.2 Each Transmission User (including the distribution Licensees) shall have to execute an agreement in terms of the Open Access Regulation duly mentioning, inter alia, contracted capacity with the Licensee. Variations in revenue recovery over approved revenue requirement on account of variations in transmission usage will be adjusted in subsequent Control Period with financing cost at average rate of borrowing during the year to which the variations relate.”

- 5.17.4 The Commission directed the Petitioner to submit the copies of Agreements executed by the Transmission Users (including Distribution Licensees) based on which the Contracted Capacities for each year of the 4th Control Period has been submitted in the Petition. The Commission observed that the DISCOMs are yet to execute the Agreements with the Transmission Licensee for 4th Control Period in accordance with the provisions of the Regulations. Therefore, the Commission has considered the following:
- The year wise generation capacity of the existing generating stations has been considered based on the share allocation to the DISCOMs.
 - The year wise generation capacity of new generating stations has been considered based on the current physical progress and expected Commercial

Operation Date (COD) as per the monthly reports published by Central Electricity Authority (CEA).

- iii. The generation capacity under NCE sources has been considered based on the existing capacity under operation and the new capacities expected to be commissioned during the 4th Control Period.
- iv. The Commission has considered the Open Access capacity as proposed by the Petitioner.

5.17.5 The Transmission Contracted Capacity claimed by the Petitioner and approved by the Commission has been enclosed at Annexure 4 of the Order.

5.17.6 Based on the approved ARR and Transmission Contracted Capacity, the Transmission Tariff approved by the Commission for 4th Control Period is as shown in the Table below:

Table 5–21: Transmission Tariff approved by the Commission for 4th Control Period

Financial Year	Claimed			Approved		
	Aggregate Revenue Requirement	Transmission Contracted Capacity	Transmission Tariff	Aggregate Revenue Requirement	Transmission Contracted Capacity	Transmission Tariff
	Rs. Crore	MW	Rs./kW/month	Rs. Crore	MW	Rs./kW/month
2019-20	2012.08	15235.49	110.05	1631.92	14732.94	92.31
2020-21	2828.18	17563.93	134.19	2323.95	18411.04	105.19
2021-22	3345.98	17569.01	158.71	2863.93	21370.12	111.68
2022-23	3974.39	19587.43	169.09	3398.66	21878.73	129.45
2023-24	4274.78	21113.59	168.72	3808.43	21866.04	145.14

ADDITIONAL PRAYERS REGARDING TRANSMISSION TARIFFS FOR 4TH CONTROL PERIOD

5.18 EXEMPTION FROM PAYMENT OF TRANSMISSION CHARGES

Petitioner's submission

5.18.1 Vide the Tariff Order dated 01.05.2017, the Commission exempted the wind, solar and mini-hydel generators from payment of Transmission Charges. However, the Government Policy provided for exemption only to solar power plants commissioned during the policy period of 5 years with exemption period of up to 10 years from the date of commissioning and that to only for captive use within the State. Further, no guidelines have been issued on time limits, type of transactions etc., and there has been no mention of remedy for the amount of loss due to this waiver like reimbursement from the Government etc. There has also been no restriction imposed in the Tariff Order on non-applicability of exemption for inter-State transactions.

- 5.18.2 The Petitioner requested the Commission to limit the exemption as per the Government Solar Policy only to captive solar developers who commission their plants within the operative period i.e. five years from the date of Policy (up to 31.05.2020) and exemption of up to 10 years from the date of commissioning of the plant with a proper reimbursement mechanism from the Government.

Commission's View

- 5.18.3 The Commission has gone through the submissions of the Petitioner in this regard. The Commission vide its Amendment Order dated 31.12.2016 in O. P. Nos. 78 & 79 of 2015 amended the Wheeling Tariff Order dated 27.03.2015 for the 3rd Control Period to give effect to the exemption from payment of wheeling charges as provided in the Telangana Solar Power Policy 2015. In accordance with the same, the Commission deems it fit to rule that the exemption from payment of Transmission Tariff shall be applicable to the eligible developers in accordance with the provisions of Telangana Solar Power Policy 2015. As regards the mechanism for making good of revenue lost due to the subject exemption, the Petitioner may take up the issue with the State Government for appropriate relief.

5.19 EXEMPTION OF LEVY OF TRANSMISSION & SLDC CHARGES ON DISCOMS FOR SHORT-TERM POWER PURCHASES

Petitioner's submission

- 5.19.1 As per the existing billing methodology, transmission charges are being levied on DISCOMs for the approved contracted capacities given in Transmission Tariff Order. However due to the under generation in thermal power projects and hydel projects due to coal shortage and low inflows to reservoirs etc., there used to be shortage of power. To cope up this shortage of power, DISCOMs purchase power under short-term sources which are not mentioned in Transmission Tariff Order. If TSTransco levies transmission charges on these purchases also, DISCOMs will have to pay transmission charges for their long-term capacities and also for short-term purchases made from intra-State and Inter-State sources. This will result in double billing on DISCOMs and the revenue received by TSTransco will become more than the revenue required. To avoid this excess revenue from DISCOMs, the Commission may exempt the DISCOMs from payment of transmission charges on short-term purchases made from both intra-State and Inter-State sources as long as their peak load is within their

approved contracted capacity given in Transmission Tariff Order.

Commission's View

- 5.19.2 The Commission has gone through the submissions of the Petitioner in this regard. The DISCOMs are the users of the intra-State Transmission Network like other users. Allowing the exemption sought by the Petitioner only for the DISCOMs is not prudent as it would amount to discrimination amongst the users of the intra-State Transmission Network. Therefore, the prayer of the Petitioner in this regard is not acceptable.

5.20 DETERMINATION OF TRANSMISSION CHARGES IN MW/HR FOR INTER-STATE SHORT-TERM OPEN ACCESS TRANSACTIONS

Petitioner's submission

- 5.20.1 The units of Transmission Tariff is in Rs./kW/month. As short-term Open Access transactions especially Inter-State and Indian Energy Exchange (IEX) transactions take place only for some days or hours the Transmission Tariff may also be determined in the units of MW/Hr. Currently, TSTransco is converting the approved Transmission Tariff in Rs./kW/month into MW/Hr by using the below formula

$$TR \text{ (in MW/Hr)} = TR \text{ (in kW/month)} * 1000 / (30 * 24)$$

- 5.20.2 The Petitioner requested the Commission to determine the Transmission Charges both in Rs./kW/month and in Rs./MW/Hr for the 4th Control Period.

Commission's View

- 5.20.3 As regards Transmission Tariff, Clause 20 of the Regulation No. 5 of 2005 stipulates as under:

“20 TRANSMISSION TARIFF

20.1 The transmission tariff payable by the users of the Transmission system shall be determined in accordance with the following formula:

$$TR = \text{Net ARR} / (12 * TCC)$$

Where,

TR: Transmission Rate in Rs./kW/month

Net ARR: Net ARR, as determined under clause 8.3

TCC: Total Contracted Capacity in kW of the Transmission system by all Long-Term Users

.....”

- 5.20.4 Determination of Transmission Tariff in any other methodology not stipulated in the Regulations is not warranted.

5.21 ADDITIONAL POINTS FOR INCLUSION IN NOTES ON APPLICABILITY OF TRANSMISSION CHARGES

Petitioner's submission

5.21.1 The Petitioner requested the Commission to include the following in Notes on Applicability of Transmission Charges:

“If the wheeling involves transmission of electricity through transmission system of a Transmission Licensee, the consumer or the supplier as the case may be, shall pay the applicable transmission charges and transmission losses in kind also. Transmission system is considered to be involved in the wheeling of electricity in the following cases:

- *Entry/Exit point is connected to the EHT System.*
- *The entry and exit points are connected to the network of more than one DISCOM.”*

Commission's View

5.21.2 The Commission accepts the proposal of the Petitioner to include the addition points as the same are in line with the Commission's approval in the MYT Order for Wheeling Business for 3rd Control Period.

5.22 TRANSMISSION TARIFF SCHEDULE FOR 4TH CONTROL PERIOD

5.22.1 The approved Transmission Tariff and Transmission Loss for 4th Control Period is as shown in the Table below:

Table 5–22: Transmission Tariff Schedule approved for 4th Control Period

Financial Year	Transmission Tariff	Transmission Losses
	Rs./kW/month	%
2019-20	92.31	2.78%
2020-21	105.19	2.71%
2021-22	111.68	2.64%
2022-23	129.45	2.57%
2023-24	145.14	2.50%

Notes on Transmission Tariff:

5.22.2 The Users of Transmission System shall pay the Transmission Charges and also bear the transmission loss in kind for both energy and capacity in kind as approved above.

5.22.3 The Transmission Charges payable and energy Losses to be borne shall be related to the Contracted Capacity in kW, at the entry point.

- 5.22.4 If the wheeling involves transmission of electricity through transmission system of a Transmission Licensee, the consumer or the supplier as the case may be, shall pay the applicable transmission charges and transmission losses in kind also. Transmission system is considered to be involved in the wheeling of electricity in the following cases:
- Entry/Exit point is connected to the EHT System.
 - The entry and exit points are connected to the network of more than one DISCOM.
- 5.22.5 Exemption from payment of Transmission Charges and/or Transmission Losses in kind for the eligible Users of the Transmission Network shall be as per the Policy, if any, issued by the State Government, from time to time. The Licensee may take up the issue of making good of revenue loss due to such exemption with the State Government for proper relief.
- 5.22.6 The other conditions applicable for levy and collection of these charges shall be as per the provisions of the APERC (Terms and Conditions of Open Access to Intra-State Transmission and Distribution) Regulation, 2005 (Regulation No. 2 of 2005) and the Balancing and Settlement Code, in force.
- 5.22.7 The Transmission Tariff/Charges are to be levied as per the terms and conditions approved by the Commission from time to time.

The Commission's earlier directives and new directives issued in this Order are enclosed as Appendix B.

The aforementioned Transmission Tariff and Transmission Losses determined for each year of the 4th Control Period are applicable from 1st April to 31st March of the respective Financial Year. However, for FY 2019-20, the Transmission Tariff and Transmission Losses are applicable w.e.f. 28.03.2020.

This order is corrected and signed on this day the 20th March, 2020.

Sd/-
BANDARU KRISHNAIAH
(MEMBER)

Sd/-
M. D. MANOHAR RAJU
(MEMBER)

Sd/-
T. SRIRANGA RAO
(CHAIRMAN)

//CERTIFIED COPY//

APPENDIX A – SCHEDULE OF APPROVED TRANSMISSION TARIFF

Financial Year	Transmission Tariff	Transmission Losses
	Rs./kW/month	%
2019-20	92.31	2.78%
2020-21	105.19	2.71%
2021-22	111.68	2.64%
2022-23	129.45	2.57%
2023-24	145.14	2.50%

Notes on Transmission Tariff:

1. The Users of Transmission System shall pay the Transmission Charges and also bear the transmission loss in kind for both energy and capacity in kind as approved above.
2. The Transmission Charges payable and energy Losses to be borne shall be related to the Contracted Capacity in kW, at the entry point.
3. If the wheeling involves transmission of electricity through transmission system of a Transmission Licensee, the consumer or the supplier as the case may be, shall pay the applicable transmission charges and transmission losses in kind also. Transmission system is considered to be involved in the wheeling of electricity in the following cases:
 - Entry/Exit point is connected to the EHT System.
 - The entry and exit points are connected to the network of more than one DISCOM.
4. Exemption from payment of Transmission Charges and/or Transmission Losses in kind for the eligible Users of the Transmission Network shall be as per the Policy, if any, issued by the State Government, from time to time. The Licensee may take up the issue of making good of revenue loss due to such exemption with the State Government for proper relief.
5. The other conditions applicable for levy and collection of these charges shall be as per the provisions of the APERC (Terms and Conditions of Open Access to Intra-State Transmission and Distribution) Regulation, 2005 (Regulation No. 2 of 2005) and the Balancing and Settlement Code, in force.
6. The Transmission Tariff/Charges are to be levied as per the terms and conditions approved by the Commission from time to time.

APPENDIX B – COMMISSION’S DIRECTIVES

EARLIER DIRECTIVES

1. Segregation of assets and liabilities between APTransco and TSTransco

The Commission directs the Petitioner to submit a compliance report on the segregation of assets and liabilities between APTransco and TSTransco by 30.06.2020.

2. Transmission Works relating to LI Schemes

The Commission directs the Petitioner to execute the transmission works relating to LIS duly coordinating with the Irrigation Department.

NEW DIRECTIVES

3. Annual Performance Review

The Commission directs the Petitioner to file the Performance Review (true-up) for each year of the 4th Control Period before 31st December of the following year. As a first step, the Petitioner shall file the Annual Performance Review for FY 2019-20 by 31.12.2020.

4. Capitalisation details for 3rd Control Period from FY 2014-15 to FY 2018-19

The Commission directs the Petitioner to submit the complete details sought regarding the capitalisation for the 3rd Control Period, in the Petition to be filed for Annual Performance Review for FY 2019-20.

5. Computations of Depreciation in accordance with CERC (Terms and Conditions of Tariff) Regulations, 2019

The Commission directs the Petitioner to submit the computations of depreciation for each year of the 4th Control Period in accordance with the provisions of the CERC Tariff Regulations, 2019 in Annual Performance Review for each year of the 4th Control Period.

6. Capital Investments

Considering the importance of capitalisation of works, the Commission lays down the following requirements to be fulfilled before accepting inclusion of the value of the capitalised work in the OCFA:

- a. On completion of a capital work, a physical completion certificate (PCC) to the effect

that the work in question has been fully executed, physically, and the assets created are put in use, to be issued by the concerned engineer not below the rank of Superintendent Engineer.

- b. The PCC shall be accompanied or followed by a financial completion certificate (FCC) to the effect that the assets created have been duly entered in the fixed assets register by transfer from the CWIP register to OCFA. The FCC shall have to be issued by the concerned finance officer not below the rank of senior Accounts Officer.
- c. The above mentioned certificates have to be submitted to the Commission within 60 days of completion of work, at the latest.

The Commission may also inspect or arrange to inspect, at random, a few of the capitalised works included in the OCFA to confirm that the assets created are actually being used and are useful for the business.

ANNEXURE 1

PUBLIC NOTICE

BEFORE THE HONOURABLE
TELANGANA STATE ELECTRICITY REGULATORY COMMISSION (TSERC)
 D.No. 11-4-660, 5th Floor, Singareni Bhavan, Red Hills, Lakdi-Ki-pool, Hyderabad-500 004.

TRANSMISSION CORPORATION OF TELANGANA LIMITED
PUBLIC NOTICE

1. Notice is hereby given to all that the Transmission Corporation of Telangana Limited (TSTRANSCO) filed before the Telangana State Electricity Regulatory Commission (TSERC) for determination of Aggregate Revenue Requirement (ARR), Filing for Proposed Tariff (FPT) under Multi Year Tariff (MYT) framework for 4th Control Period (2019-20 to 2023-24) for Transmission Business of TSTRANSCO and Annual Fee, Operating Charges for the State Load Dispatch Centre (SLDC) activity and true up for 3rd Control Period for Transmission Business and SLDC Activity. These filings have been taken on record by the Hon'ble Commission in O.P.No.3 of 2019 (Transmission Business) & O.P.No. 2 of 2019 (SLDC activity).

2. Copies of the filings referred are available in the Office of the Chief Engineer (Commil & RAC), Room No.149, 'A' Block, TSTRANSCO, Vidyut Soudha, Hyderabad - 500 002 and the Chief Engineer/ (Metro Zone, Rural Zone, Karimnagar and Warangal Zone) and Superintending Engineer/ OMCR TSTRANSCO (Khammam, Nizamabad, Adilabad, Karimnagar, Nalgonda, Mahabubnagar, Warangal, Metro East, Metro West, Metro Central and Sangareddy located at Hyderabad). Interested persons may inspect/peruse the said filings and take note thereof during office hours at any of the said offices free of cost. These proposals are also available on www.tstransco.in and the same may be accessed at www.tsere.gov.in. Hard copy of these filings can be obtained from the above offices on payment of Rs.300/- by cash for TSTRANSCO Business and Rs.50/- for SLDC filings.

3. Objections/suggestions if any, on the said filings together with supporting material may be sent to the Chief Engineer/ Commil & RAC, Room No.149, 'A' Block, TSTRANSCO, Vidyut Soudha, Hyderabad - 500 002 in person or through Registered Post so as to reach on or before **10.01.2020 by 5.00 PM**. A copy of the same must also be filed with the Secretary(FAC), TSERC, at the Singareni Bhavan, Red Hills address as mentioned above. The objections/suggestions should be duly signed and should carry full name and postal address of the person(s) sending the objections/suggestions. If the objections/ suggestions are filed on behalf of any organization or any category of consumers, it should be clearly mentioned. If the objector also wants to be heard in person it may also be specifically mentioned. The Objection/Suggestion should accompany the following statement as an overleaf:-

Name & full address of the Objector	Brief details of Objection(s)/ Suggestion(s)	Objections against filings by TSTRANSCO for determination of ARR and Tariff for Transmission Business and Annual Fee & Operating Charges for SLDC activity for the period of 2019-20 to 2023-24	Whether copy of objection & proof of delivery at TSTRANSCO's office enclosed (Yes/No)	Whether Objector wants to be heard in person (Yes/No)

4. The summary of filings are indicated in Schedules I (Transmission Business) and II (SLDC Activity).

5. Telangana State Electricity Regulatory Commission intends to conduct a **Public Hearing at Court Hall, TSERC, #11-4-660, 5th Floor, Singareni Bhavan, Red Hills, Hyderabad - 500 004 on 07.02.2020 from 11.00 AM.**

Place : Hyderabad
 Date : 10.12.2019

Sd/-
CHAIRMAN & MANAGING DIRECTOR
TSTRANSCO

SCHEDULE - I
ARR / Transmission Charges for Transmission Business

Details	2019-20	2020-21	2021-22	2022-23	2023-24
A) ARR /Transmission Charges					
1) ARR of Transmission Business (Rs. Crores.)	2012.08	2028.18	3345.96	3974.39	4274.77
2) Transmission Contracted Capacity (MW)	15235	17564	17569	19588	21114
3) Transmission Charges (Rs./KW/Month)	110.05	134.19	158.71	169.09	168.72
B) Target Transmission Loss Range (%)	3.25 +/- 0.2	3.24 +/- 0.2	3.23 +/- 0.2	3.22 +/- 0.2	3.21 +/- 0.2
C) Capital Investments (Rs. Crores.)	3521.67	3968.20	3120.93	1669.57	1397.91

SCHEDULE - II
Annual Fee and Operating Charges for SLDC Activity

Details	2019-20	2020-21	2021-22	2022-23	2023-24
1 Total Operating Charges (Rs. Crores)	57.09	40.67	43.66	48.38	51.99
2 Generation Capacity (MW)	16540	18892	18924	20979	22537
3 Operating Charges (Rs./MW/Month)	2676.57	1794.04	1922.49	1921.72	1922.54
4 Total Capital Cost (Rs. Crores)	6.36	8.89	9.90	10.26	10.51
5 Annual Fee (Rs./MW/Annun)	3844	4708	5233	4890	4662

R.O.No. 38/19

ANNEXURE 2**LIST OF STAKEHOLDERS WHO SUBMITTED THE WRITTEN
COMMENTS / OBJECTIONS / SUGGESTIONS**

S. No.	Name and Address of the stakeholder
1	Sri. M. Venugopala Rao, Senior Journalist & Convenor, Centre for Power Studies, H. No. 1-100/MP/101, Monarch Prestige, Journalist's Colony, Gopanpally, Serlingampally Mandal, Hyderabad – 500 032
2	Sri. M. Thimma Reddy, Convenor, People's Monitoring Group on Electricity Regulation, 139, Kakatiyanagar, Hyderabad – 500 008
3	Electric Power Transmission Association, F-1, The Mira Corporate Suites, 1&2 Ishwar Nagar, Mathura Road, Okhla Crossing, New Delhi – 110 065

ANNEXURE 3**LIST OF STAKEHOLDERS WHO ATTENDED THE PUBLIC
HEARING HELD ON 07.02.2020**

S. No.	Name and Address of the stakeholder
1	Sri. M. Venugopala Rao, Senior Journalist & Convenor, Centre for Power Studies, H. No. 1-100/MP/101, Monarch Prestige, Journalist's Colony, Gopanpally, Serlingampally Mandal, Hyderabad – 500 032
2	Sri. M. Thimma Reddy, Convenor, People's Monitoring Group on Electricity Regulation, 139, Kakatiyanagar, Hyderabad – 500 008
3	Electric Power Transmission Association, F-1, The Mira Corporate Suites, 1&2 Ishwar Nagar, Mathura Road, Okhla Crossing, New Delhi – 110 065

ANNEXURE 4

TRANSMISSION CONTRACTED CAPACITY FOR 4TH CONTROL PERIOD

Generating station/source	Installed Capacity (MW)		Net Capacity TS Share (MW)		Year wise Capacity (MW)																			
					FY 2019-20				FY 2020-21				FY 2021-22				FY 2022-23				FY 2023-24			
	Claimed	Approved	Claimed	Approved	Claimed		Approved		Claimed		Approved		Claimed		Approved		Claimed		Approved					
					SPDCL	NPDCL	SPDCL	NPDCL	SPDCL	NPDCL	SPDCL	NPDCL	SPDCL	NPDCL	SPDCL	NPDCL	SPDCL	NPDCL	SPDCL	NPDCL	SPDCL	NPDCL		
KTPS-A	180.00	180.00	162.54	162.00	114.67	47.87	114.29	47.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
KTPS-B	120.00	120.00	108.36	108.00	76.45	31.91	76.19	31.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
KTPS-C	120.00	120.00	108.36	108.00	76.45	31.91	76.19	31.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
RTS-B	62.50	62.50	56.88	56.25	40.13	16.75	39.68	16.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
KTPS-D (V)	500.00	500.00	455.00	455.00	321.00	134.00	321.00	134.00	321.00	134.00	321.00	134.00	321.00	134.00	321.00	134.00	321.00	134.00	321.00	134.00	321.00	134.00	134.00	
KTPS-VI	500.00	500.00	462.50	462.50	326.29	136.21	326.29	136.21	326.29	136.21	326.29	136.21	326.29	136.21	326.29	136.21	326.29	136.21	326.29	136.21	326.29	136.21	136.21	
KTPS-VII	800.00	800.00	760.00	758.00	536.18	223.82	534.77	223.23	536.18	223.82	534.77	223.23	536.18	223.82	534.77	223.23	536.18	223.82	534.77	223.23	536.18	223.82	534.77	
KTPP-I	500.00	500.00	462.50	462.50	326.29	136.21	326.29	136.21	326.29	136.21	326.29	136.21	326.29	136.21	326.29	136.21	326.29	136.21	326.29	136.21	326.29	136.21	136.21	
KTPP-II	600.00	600.00	555.00	558.00	391.55	163.45	393.67	164.33	391.55	163.45	393.67	164.33	391.55	163.45	393.67	164.33	391.55	163.45	393.67	164.33	391.55	163.45	393.67	
Bhadradi-TPS-I	270.00	270.00	245.70	247.05	173.34	72.36	174.29	72.76	173.34	72.36	174.29	72.76	173.34	72.36	174.29	72.76	173.34	72.36	174.29	72.76	173.34	72.36	174.29	
Bhadradi-TPS-II	270.00	270.00	245.70	247.05	173.34	72.36	174.29	72.76	173.34	72.36	174.29	72.76	173.34	72.36	174.29	72.76	173.34	72.36	174.29	72.76	173.34	72.36	174.29	
Bhadradi-TPS-III	270.00	270.00	245.70	247.05	173.34	72.36	0.00	0.00	173.34	72.36	174.29	72.76	173.34	72.36	174.29	72.76	173.34	72.36	174.29	72.76	173.34	72.36	174.29	
Bhadradi-TPS-IV	270.00	270.00	245.70	247.05	173.34	72.36	0.00	0.00	173.34	72.36	174.29	72.76	173.34	72.36	174.29	72.76	173.34	72.36	174.29	72.76	173.34	72.36	174.29	
Yadradi-TPS-I	800.00	800.00	760.00	758.00	0.00	0.00	0.00	0.00	0.00	0.00	534.77	223.23	0.00	0.00	534.77	223.23	536.18	223.82	534.77	223.23	536.18	223.82	534.77	
Yadradi-TPS-II	800.00	800.00	760.00	758.00	0.00	0.00	0.00	0.00	0.00	0.00	534.77	223.23	0.00	0.00	534.77	223.23	536.18	223.82	534.77	223.23	536.18	223.82	534.77	
Yadradi-TPS-III	800.00	800.00	760.00	758.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	534.77	223.23	0.00	0.00	534.77	223.23	536.18	223.82	534.77	
Yadradi-TPS-IV	800.00	800.00	760.00	758.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	534.77	223.23	0.00	0.00	534.77	223.23	536.18	223.82	534.77	
Yadradi-TPS-V	800.00	800.00	760.00	758.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	534.77	223.23	0.00	0.00	534.77	223.23	0.00	0.00	534.77	
Total Thermal	8462.50	8462.50	7913.94	7908.45	2902.37	1211.57	2556.98	1067.37	2594.67	1083.13	3668.74	1531.46	2594.67	1083.13	5273.05	2201.15	3667.03	1530.77	5273.05	2201.15	4739.39	1978.41	5273.05	
Hydel																								
NSPH	815.60	815.60	807.44	807.44	569.65	237.79	569.65	237.79	569.65	237.79	569.65	237.79	569.65	237.79	569.65	237.79	569.65	237.79	569.65	237.79	569.65	237.79	569.65	
NSLCPH	60.00	60.00	59.40	59.40	41.91	17.49	41.91	17.49	41.91	17.49	41.91	17.49	41.91	17.49	41.91	17.49	41.91	17.49	41.91	17.49	41.91	17.49	41.91	
Pochampad-PH	36.00	36.00	35.64	35.64	25.14	10.50	25.14	10.50	25.14	10.50	25.14	10.50	25.14	10.50	25.14	10.50	25.14	10.50	25.14	10.50	25.14	10.50	25.14	
Nizamsagar-PH	10.00	10.00	9.90	9.90	6.98	2.92	6.98	2.92	6.98	2.92	6.98	2.92	6.98	2.92	6.98	2.92	6.98	2.92	6.98	2.92	6.98	2.92	6.98	
Singur	15.00	15.00	14.85	14.85	10.48	4.37	10.48	4.37	10.48	4.37	10.48	4.37	10.48	4.37	10.48	4.37	10.48	4.37	10.48	4.37	10.48	4.37	10.48	
SSLM-LBPH	900.00	900.00	891.00	889.20	628.60	262.40	627.33	261.87	628.60	262.40	627.33	261.87	628.60	262.40	627.33	261.87	628.60	262.40	627.33	261.87	628.60	262.40	627.33	
Privadarshini-Jurala	234.00	234.00	231.66	231.66	163.44	68.22	163.44	68.22	163.44	68.22	163.44	68.22	163.44	68.22	163.44	68.22	163.44	68.22	163.44	68.22	163.44	68.22	163.44	
Lower-Jurala	240.00	240.00	237.60	237.60	167.63	69.97	167.63	69.97	167.63	69.97	167.63	69.97	167.63	69.97	167.63	69.97	167.63	69.97	167.63	69.97	167.63	69.97	167.63	
Pulichintala	120.00	120.00	118.80	118.80	83.81	34.99	83.81	34.99	83.81	34.99	83.81	34.99	83.81	34.99	83.81	34.99	83.81	34.99	83.81	34.99	83.81	34.99	83.81	
Total Hydel	2430.60	2430.60	2406.29	2404.49	1697.64	708.65	1696.37	708.12	1697.64	708.65	1696.37	708.12	1697.64	708.65	1696.37	708.12	1697.64	708.65	1696.37	708.12	1697.64	708.65	1696.37	
Total Genco	10893.10	10893.10	10320.23	10312.94	4600.01	1920.22	4253.35	1775.49	4292.31	1791.78	5365.11	2239.59	4292.31	1791.78	6969.42	2909.28	5364.67	2239.42	6969.42	2909.28	6437.03	2687.06	6969.42	
Interstate Hydel Projects																								
Machkund PH	120.00	120.00	44.81	44.81	31.61	13.20	31.62	13.20	31.61	13.20	31.62	13.20	31.61	13.20	31.62	13.20	31.61	13.20	31.62	13.20	31.61	13.20	31.62	
Tungabhadra PH & Hampi	72.00	72.00	30.73	30.73	21.68	9.05	21.68	9.05	21.68	9.05	21.68	9.05	21.68	9.05	21.68	9.05	21.68	9.05	21.68	9.05	21.68	9.05	21.68	
Total IS Hydel	192.00	192.00	75.54	75.55	53.29	13.20	53.30	22.25	53.29	22.25	53.30	22.25	53.29	22.25	53.30	22.25	53.29	22.25	53.30	22.25	53.29	22.25	53.30	

Generating station/source	Installed Capacity (MW)		Net Capacity TS Share (MW)		Year wise Capacity (MW)																			
					FY 2019-20				FY 2020-21				FY 2021-22				FY 2022-23				FY 2023-24			
	Claimed	Approved	Claimed	Approved	Claimed		Approved		Claimed		Approved		Claimed		Approved		Claimed		Approved					
					SPDCL	NPDCIL	SPDCL	NPDCIL	SPDCL	NPDCIL	SPDCL	NPDCIL	SPDCL	NPDCIL	SPDCL	NPDCIL	SPDCL	NPDCIL	SPDCL	NPDCIL	SPDCL	NPDCIL		
CGS																								
NTPC(SR)-Ramagundam-1-2	2100.00	2100.00	345.45	346.71	243.71	101.74	244.60	102.11	243.71	101.74	244.60	102.11	243.71	101.74	244.60	102.11	243.71	101.74	244.60	102.11	243.71	101.74	244.60	102.11
NTPC(SR)-Ramagundam-3	500.00	500.00	86.73	87.00	61.19	25.54	61.38	25.62	61.19	25.54	61.38	25.62	61.19	25.54	61.38	25.62	61.19	25.54	61.38	25.62	61.19	25.54	61.38	25.62
NTPC Talcher-Stage-2	2000.00	2000.00	214.47	215.00	151.31	63.16	151.68	63.32	151.31	63.16	151.68	63.32	151.31	63.16	151.68	63.32	151.31	63.16	151.68	63.32	151.31	63.16	151.68	63.32
NLC-Stage-I	630.00	630.00	59.93	66.53	42.28	17.65	46.94	19.59	42.28	17.65	46.94	19.59	42.28	17.65	46.94	19.59	42.28	17.65	46.94	19.59	42.28	17.65	46.94	19.59
NLC-Stage-II	840.00	840.00	107.13	115.67	75.58	31.55	81.60	34.06	75.58	31.55	81.60	34.06	75.58	31.55	81.60	34.06	75.58	31.55	81.60	34.06	75.58	31.55	81.60	34.06
NPC-MAPS	440.00	440.00	22.76	23.19	16.06	6.70	16.36	6.83	16.06	6.70	16.36	6.83	16.06	6.70	16.36	6.83	16.06	6.70	16.36	6.83	16.06	6.7	16.36	6.83
NPCL-Kaiga-Unit 1&2	440.00	440.00	70.41	71.81	49.68	20.74	50.66	21.15	49.68	20.74	50.66	21.15	49.68	20.74	50.66	21.15	49.68	20.74	50.66	21.15	49.68	20.74	50.66	21.15
NPCL-Kaiga-Unit 3&4	440.00	440.00	74.73	76.12	52.72	22.01	53.70	22.42	52.72	22.01	53.70	22.42	52.72	22.01	53.70	22.42	52.72	22.01	53.70	22.42	52.72	22.01	53.70	22.42
NTPC-Simhadri-I	1000.00	1000.00	538.90	538.90	380.19	158.71	380.19	158.71	380.19	158.71	380.19	158.71	380.19	158.71	380.19	158.71	380.19	158.71	380.19	158.71	380.19	158.71	380.19	158.71
NTPC-Simhadri-II	1000.00	1000.00	231.30	229.20	163.18	68.12	161.70	67.50	163.18	68.12	161.70	67.50	163.18	68.12	161.70	67.50	163.18	68.12	161.70	67.50	163.18	68.12	161.70	67.50
NTECL Valur	1500.00	1500.00	110.75	113.10	78.13	32.62	79.79	33.31	78.13	32.62	79.79	33.31	78.13	32.62	79.79	33.31	78.13	32.62	79.79	33.31	78.13	32.62	79.79	33.31
NLC Tamilnadu (Tuticorin) (NT)	1000.00	1000.00	152.37	154.90	107.49	44.87	109.28	45.62	107.49	44.87	109.28	45.62	107.49	44.87	109.28	45.62	107.49	44.87	109.28	45.62	107.49	44.87	109.28	45.62
NTPC Kudgi-I & II	2400.00	2400.00	271.68	271.20	191.67	80.01	191.33	79.87	191.67	80.01	191.33	79.87	191.67	80.01	191.33	79.87	191.67	80.01	191.33	79.87	191.67	80.01	191.33	79.87
KKNPP (Kudankulam Nuclear)	1000.00	1000.00	50.00	50.00	35.28	14.73	35.28	14.73	35.28	14.73	35.28	14.73	35.28	14.73	35.28	14.73	35.28	14.73	35.28	14.73	35.28	14.73	35.28	14.73
NCE-Bundled power NVVNL	85.00	85.00	45.81	45.81	32.32	13.49	32.32	13.49	32.32	13.49	32.32	13.49	32.32	13.49	32.32	13.49	32.32	13.49	32.32	13.49	32.32	13.49	32.32	13.49
NCE-Bundled power NTPC Coimbatore	200.00	200.00	200.00	200.00	141.10	58.90	141.10	58.90	141.10	58.90	141.10	58.90	141.10	58.90	141.10	58.90	141.10	58.90	141.10	58.90	141.10	58.90	141.10	58.90
Neyveli New Unit-1	500.00	500.00	30.66	30.66	21.63	9.03	21.63	9.03	21.63	9.03	21.63	9.03	21.63	9.03	21.63	9.03	21.63	9.03	21.63	9.03	21.63	9.03	21.63	9.03
Neyveli New Unit-2	500.00	500.00	30.66	30.66	21.63	9.03	21.63	9.03	21.63	9.03	21.63	9.03	21.63	9.03	21.63	9.03	21.63	9.03	21.63	9.03	21.63	9.03	21.63	9.03
NLC-TPS - II 2nd expansion	1320.00	1320.00	299.01	299.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	210.95	88.06	210.95	88.06	210.95	88.06	210.95	88.06
Telangana STPP(ph 1)	1600.00	1600.00	1360.00	1360.00	0.00	0.00	0.00	0.00	959.48	400.52	479.74	200.26	959.48	400.52	959.48	400.52	959.48	400.52	959.48	400.52	959.48	400.52	959.48	400.52
Total CGS	19495.00	19495.00	4302.75	4325.45	1865.15	778.60	1881.17	785.27	1865.15	778.60	1881.17	785.27	1865.15	778.60	1881.17	785.27	1865.15	778.60	1881.17	785.27	1865.15	778.60	1881.17	785.27
Joint Sector																								
APGPCIL-I	100.00	100.00	6.67	6.67	4.71	1.96	4.71	1.96	4.71	1.96	4.71	1.96	4.71	1.96	4.71	1.96	4.71	1.96	4.71	1.96	4.71	1.96	4.71	1.96
APGPCIL-II	172.00	172.00	17.84	17.84	12.59	5.25	12.59	5.25	12.59	5.25	12.59	5.25	12.59	5.25	12.59	5.25	12.59	5.25	12.59	5.25	12.59	5.25	12.59	5.25
Total Joint Sector	272.00	272.00	24.51	24.51	17.30	7.21	17.30	7.21	17.30	7.21	17.30	7.21	17.30	7.21	17.30	7.21	17.30	7.21	17.30	7.21	17.30	7.21	17.30	7.21
Others																								
Thermal-Power-Tech (Unit - I)	660.00	660.00	269.45	269.45	190.10	79.35	190.10	79.35	190.10	79.35	190.10	79.35	190.10	79.35	190.10	79.35	190.10	79.35	190.10	79.35	190.10	79.35	190.10	79.35
Thermal-Power-Tech (Unit - II)	660.00	660.00	570.00	570.00	402.14	167.87	402.14	167.87	402.14	167.87	402.14	167.87	402.14	167.87	402.14	167.87	402.14	167.87	402.14	167.87	402.14	167.87	402.14	167.87
Singareni-TPP Stage - I	1200.00	1200.00	1128.00	1131.00	795.80	332.20	797.92	333.08	795.80	332.20	797.92	333.08	795.80	332.20	797.92	333.08	795.80	332.20	797.92	333.08	795.80	332.20	797.92	333.08
Chhattisgarh-Power	1000.00	1000.00	1000.00	1000.00	705.50	294.50	705.50	294.50	705.50	294.50	705.50	294.50	705.50	294.50	705.50	294.50	705.50	294.50	705.50	294.50	705.50	294.50	705.50	294.50
Singareni Stage - II	800.00	800.00	752.00	754.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	530.54	221.46	531.95	222.05	530.54	221.46	531.95	222.05
Staggered Medium term PSA with PTC	550.00	550.00	550.00	550.00	388.03	161.98	388.03	161.98	388.03	161.98	388.03	161.98	388.03	161.98	388.03	161.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Others	4870.00	4870.00	4269.45	4274.45	2481.57	1035.90	2483.69	1036.78	2481.57	1035.90	2483.69	1036.78	2481.57	1035.90	2483.69	1036.78	2624.08	1095.38	2627.61	1096.85	2624.08	1095.38	2627.61	1096.85
NCE																								
Bio-Mass	9.00	0.00	8.19	0.00	8.19	0.00	0.00	0.00	8.19	0.00	0.00	0.00	8.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Bagasse	67.95	67.95	29.84	29.84	13.10	16.74	13.10	16.74	13.10	16.74	13.10	16.74	13.10	16.74	13.10	16.74	13.10	16.74	13.10	16.74	13.10	16.74	0.00	10.99
Industrial-Waste	7.50	7.50	6.83	6.83	6.83	0.00	6.83	0.00	6.83	0.00	6.83	0.00	6.83	0.00	6.83	0.00	6.83	0.00	6.83	0.00	6.83	0.00	6.83	0.00
MSW	11.00	37.40	11.00	17.62	11.00	0.00	0.00	0.00	11.00	0.00	17.62	0.00	11.00	0.00	17.62	0.00	11.00	0.00	17.62	0.00	11.00	0.00	17.62	0.00
Wind Power	100.80	100.80	100.30	100.30	100.30	0.00	100.30	0.00	100.30	0.00	100.30	0.00	100.30	0.00	100.30	0.00	100.30	0.00	100.30	0.00	100.30	0.00	100.30	0.00
Mini-Hydel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Solar	1893.94	1893.94	1893.94	1893.94	1271.94	622.00	1271.94	622.00	1271.94	622.00	1271.94	622.00	1271.94	622.00	1271.94									