

APPEAL FOR TRUE-UP FOR THE FY 2018-19  
&  
ANNUAL PERFORMANCE REVIEW FOR THE FY 2019-20  
&  
REVISED AGGREGATE REVENUE REQUIREMENT FOR FY 2020-  
21  
&  
DETERMINATION OF TARIFF FOR FY 2020-21  
TO  
ASSAM ELECTRICITY REGULATORY COMMISSION



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- Annexure No. 9 – Regulatory formats



## 1. Legal and Regulatory Framework

### 1.1. Background

- 1.1.1. Under the provisions of Electricity Act 2003 (hereinafter referred to as "Electricity Act") the Assam Electricity Reforms First Transfer Scheme, 2004 (hereinafter referred to as "Transfer Scheme") was notified by Government of Assam on 10th December 2004. Under Section 5 (2) of the transfer scheme the functions and undertakings as set out in Schedule-A of the transfer scheme stands transferred to Assam Power Generation Corporation Limited (APGCL). The final transfer scheme was notified by Govt. of Assam vide notification No: PEL/151/2003/Pt.349 dated 16th Aug' 2005 w.e.f 1st April'05.
- 1.1.2. Section 131 (2) of the Electricity Act provides "...Any property, interest in property, rights and liabilities vested in the State Government under sub-section (1) shall be re-vested by the State Government in a Government company or in a company or companies, in accordance with the transfer scheme so published along with such other property, interest in property, rights and liabilities of the State Government as may be stipulated in such scheme, on such terms and conditions as may be agreed between the State Government and such company or companies being State Transmission Utility or generating company or transmission licensee or distribution licensee,..."
- 1.1.3. Section 62 of the Electricity Act 2003 requires the generating company to furnish details as may be specified by the Commission for determination of tariff.
- 1.1.4. As per AERC Tariff Regulation, 2015 APGCL is now filing the Petition for Truing-up for FY 2018-19 for the following plants
  - i. Namrup Thermal Power Station
  - ii. Lakwa Thermal Power Station
  - iii. Karbi Langpi Hydro Electric Project
  - iv. Lakwa Replacement Power Plant
- 1.1.5. As per AERC Tariff Regulation, 2018 APGCL is now filing the Petitions for Annual Performance review for the FY 2019-20 and Revised Aggregate Revenue Requirement and Determination of Tariff for FY2020-21 for the following plants
  - i. Namrup Thermal Power Station
  - ii. Lakwa Thermal Power Station
  - iii. Karbi Langpi Hydro Electric Project
  - iv. Lakwa Replacement Power Plant
- 1.1.6. The various data formats and forms, as required by the Hon'ble Commission, are furnished in Annexure -9.

APPEAL FOR TRUE-UP FOR THE FY 2018-19  
To  
ASSAM ELECTRICITY REGULATORY COMMISSION



Prepared by  
ASSAM POWER GENERATION CORPORATION LTD  
Bijulee Bhawan, Paltanbazar  
Guwahati – 781 001

## AFFIDAVIT – TRUE-UP

BEFORE THE ASSAM STATE ELECTRICITY REGULATORY  
COMMISSION, GUWAHATI.

Petition No. –

Case No.  
(to be filed by the Office)

IN THE MATTER OF

Filing of Petition for True-up of the FY 2018-19

AND

IN THE MATTER OF  
Assam Power Generation Corporation Limited  
Bijulee Bhawan, Paltanbazar,  
Guwahati-781 001.

Petitioner

I, Sri Ramendra Choudhury, son of Late Nagendra Choudhury, age 59 years, residing at Six Mile, Guwahati-781022, do solemnly affirm and say as follows:

I am the General Manager (HQ) of Assam Power Generation Corporation Limited, the petitioner in the above matter and am duly authorized by the said Petitioner to make this affidavit for and on behalf of the Assam Power Generation Corporation Limited.

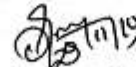
The Statement made in the Petition based on information received from official records and I believe them to reflect truly and no material has been concealed from the statements so made or documents or supporting data etc. attached.

Solemnly affirm at Guwahati on 29<sup>th</sup> November' 2019 that the contents of this affidavit are true to my knowledge, no part of it is false or no material has been concealed therefore and misleading material included therein.

Place: Guwahati

Date: 29<sup>th</sup> November' 2019

Deponent



(Ramendra Choudhury)  
General Manager (HQ),  
Assam Power Generation Corporation Ltd.





## PRAYER FOR TRUE-UP

**BEFORE THE HON'BLE ASSAM ELECTRICITY REGULATORY COMMISSION**

FILINGNO .....

CASENO.....

**IN THE MATTER OF:**

Petition for Trueing-up for FY 2018-19

**AND IN THE MATTER OF:**

Assam Power Generation Corporation Limited incorporated under the provisions of the Companies Act, 1956 and having its registered office in the State of Assam

**THE HUMBLE APPLICANT ABOVE NAMED MOST RESPECTFULLY SHEWETH:**

- i. That the Assam Power Generation Corporation Limited, hereinafter named as APGCL, is a successor corporate entity, formed in pursuant to the notification of the Government of Assam, notified under sub-sections (1), (2), (5), (6) and (7) of Section 131 and Section 133 of the Electricity Act 2003(Central Act 36 of 2003), for the purpose of transfer and vesting of functions, properties, interests, rights, obligations and liabilities, along with the transfer of Personnel of the Board to the successor corporate entities.
- ii. That the APGCL is a company incorporated with the main object of generation of electricity in the state of Assam.
- iii. That the APGCL is a generating company under the provisions laid down in Section 14 Proviso 5, read with Section 131 (2) of the Electricity Act 2003.
- iv. That the APGCL submitted petitions for Revised ARR and Determination of tariff for the FY 2018-19 to the AERC on 29/30/2017.
- v. That the AERC declared tariff for FY 2018-19 on 19/03/2018 with effectuation date from 01/04/2018.
- vi. That the licensee is now submitting the Petition for True-up for the FY 2018-19 as per the relevant Regulations.

Place: Guwahati

Date: 29<sup>th</sup> November' 2019

**Deponent**



**(R. Choudhury)**  
**General Manager (HQ),**

**Assam Power Generation Corporation Ltd.**



## 2. Background

### 2.1. Introduction

2.1.1. Assam State Electricity Board (ASEB) was constituted under section 5 of the Electricity (supply) Act 1948. The announcement of Indian Electricity Act 2003 has made a compulsion to restructure State Electricity Boards. With a view to implementing the reorganization of ASEB, the Govt. had adopted the following sector structure:

- a. One Generating Company to take over the generating functions of the State Electricity Board,
- b. One Transmission Company to take over transmission functions along with the functions of the State Transmission Utility and State Load Dispatch Centre: and
- c. Three Distribution Companies later amalgated to one for the areas in the State of Assam (later merged into one distribution company).

2.1.2. The Assam Power Generation Corporation Limited (APGCL), registered under the Companies Act (1956) on 23<sup>rd</sup> October 2003, is a successor Company of erstwhile Assam State Electricity Board (ASEB). APGCL was formed as per the Electricity Act, 2003 for the purpose of running the already installed generating capacity of ASEB and utilising the resources available in the State of Assam to add more generating capacity by constructing new power projects to cater to the energy need of the people of Assam.



## 2.2. APGCL Project Summary

- 2.2.1. NTPS: Generation of NTPS was hampered due to the frequent shutdowns of the old units and auxiliaries of NTPS in the FY 2018-19. Due to the ongoing NRPP, APGCL is doing only regular repair & maintenance works at NTPS and not investing in capital intensive high cost O&M. This means, the units of NTPS are not being overhauled for past few years. This is contributing to the frequent breakdowns of the units and auxiliaries. On the top of that, whenever the machines were available, there was the issue of low gas supply and power evacuation problem due to the damaged 20 MVA Auto transformer of the NTPS switchyard. The transformer is under AEGCL and it broke down on 20-08-2017 and it is not in operation since then. This contributed to loss of generation due to evacuation limit, as out of around 48 MW of evacuation capacity only around 32 MW evacuation capacity through the switchyard was available and the additional power evacuation from NTPS was dependent on the local load on the 33KV distribution feeders, which is uncertain and not consistent. The restoration attempts of the transformer was not fruitful as being a very old model its spares are not available in the market. Overall, NTPS lost 67.785 MU due to transmission/evacuation constraints in the FY 2018-19.
- 2.2.2. LTPS: The generation of LTPS also suffered due to low gas supply in the financial year 2018-19. LTPS received only 0.682 MMSCMD of gas on average in the FY 2018-19 against the contracted quantity of 0.9 MMSCMD . There were also some planned and force shut downs of the units towards the end of FY 18-19. Moreover, the GTs of LTPS suffered generation loss towards the end of the FY 2018-19 intermittently due to the compressor problem as well. At present, HRSG #2 & #3 is in running condition. HRSG #1 is under forced shut down since 9th Feb 2018 due to overheating because of high exhaust temperature. The Residual Life Assessment Study of HRSG #1 was done by M/s Wartsila from 19/04/2019 to 4/05/2019. The final RLA Study Report was submitted to APGCL in the last week of June 2019. Work Order was given to M/s Erector on 4th of Nov'19 for Restoration of the HRSG#1 based on the RLA Study conducted by M/s Wartsila (Under R&M 2019-20). Restoration work likely to be completed by Jan 2020 as per Work Order. The average generation of LWHRP is around 20MW (Depending upon the generations of the mother units.)
- 2.2.3. KLHEP: KLHEP could not achieve the generation target for the FY 2018-19 on account of unfavorable weather conditions. Even though the Plant Availability Factor of the station in the FY 2018-19 was 87.39%, which was more than the normative availability (indicating availability of its generating units), the station could generate only 369.288 MU of power.
- 2.2.4. LRPP: The LRPP was commissioned on 26th of April ' 2018 . The LRPP is a Gas Engine based plant comprising of 7 nos of Gas Engine from M/S Wartsila Finland Oy. The normative availability of LRPP could not be achieved in FY2018-19 as it took some time for stabilization. However at present the plant is maintaining normative availability.

## 2.3. Annual accounts



2.3.1. The audited Annual accounts of APGCL for FY 2018-19, CAG Comments and Statutory Audit Report are attached as Annexure No. 1, Annexure No. 2 and Annexure No. 3 respectively as required under AERC Tariff Regulations, 2015

## **2.4. True-up of FY 2018-19**

## **2.5. Regulatory provisions**

2.5.1. The Hon'ble Commission in its regulation has stated the provisions on true-up of various costs under the regulations section 10 of Assam Electricity Regulatory Commission (Terms and Conditions for determination of Multi Year Tariff) Regulations, 2015 which has been followed while preparing this True Up Petition.



### 3. Norms of operations

#### 3.1. Regulatory provisions

3.1.1. The Hon'ble Commission had set norms of operations under Tariff Regulations 2015 Section 48 and 51 for Thermal Generating Stations and Hydro Generating Stations respectively which has been followed for preparing this petition.

3.1.2. The actual performance vis-a-vis norms of operations set is discussed below:

#### 3.2. Snapshot of plant wise performance for FY 2018-19

3.2.1. The following table shows the operating performance parameters of Namrup thermal power station for FY 2018-19.

Table 1: Operating Performance for FY 2018-19 of NTPS

NTPS	Approved as per order of March 2018	Actual
Gross Energy in MU	539.42	314.37
Aux. Power Cons. (%)	4.50%	6.75%
Net Energy in MU	515.15	293.17
Availability (%)	50.00%	44.72%
PLF (%) for incentive	50.00%	35.22%
Gross Station Heat Rate on GCV (kcal/ kWh)	3900	4323
Wt. Avg. Price of Gas (Rs./1000 SCM)	5365.24	6240.19

3.2.2. The following table shows the operating performance parameters of gas based Lakwa thermal power station for FY 2018-19

Table 2: Operating Performance for FY 2018-19 of LTPS

LTPS	Approved as per order of March 2018	Actual
Gross Energy in MU	538.75	472.09
Aux. Power Cons. (%)	5.50%	10.30%
Net Energy in MU	509.12	423.49
Availability (%)	50.00%	54.30%
PLF (%) for incentive	50.00%	51.54%
Gross Station Heat Rate on GCV (kcal/ kWh)	3200 for Closed cycle 3900 for Open cycle	2812
Wt. Avg. Price of Gas	6849.83	8011.06



<b>LTPS</b>	<b>Approved as per order of March 2018</b>	<b>Actual</b>
(Rs./1000 SCM)		

3.2.3. The following table shows the operating performance parameters of Karbi Langpi hydro electric power station for FY 2018-19.

*Table 3: Operating Performance for FY 2018-19 of KLHEP*

<b>KLHEP</b>	<b>Approved as per order of March 2018</b>	<b>Actual</b>
Gross Energy in MU	353.51	369.288
Aux. Power Cons. (%)	0.50%	0.50%
Net Energy in MU	351.74	367.44
Availability (%)	85.00%	87.39%
PLF (%)	44.50%	42.16%

3.2.4. The following table shows the operating performance parameters of Lakwa Replacement Power Project for FY 2018-19.

*Table 4: Operating Performance for FY 2018-19 of LRPP*

<b>LRPP</b>	<b>Approved as per order of March 2018</b>	<b>Actual</b>
Gross Energy in MU	508.03	429.98
Aux. Power Cons. (%)	3.50%	3.01%
Net Energy in MU	490.25	417.03
Availability (%)	85.00%	80.60%
PLF (%) for incentive	90.00%	75.92%
Gross Station Heat Rate on GCV (kcal/ kWh)	2000	2120
Wt. Avg. Price of Gas (Rs./1000 SCM)	6849.53	8011.06

3.2.5. The performance parameter certificate showing plant wise availability, generation, auxiliary consumption etc. issued by SLDC is attached as Annexure No. 4.

### 3.3. Normative Annual Plant Availability Factor (NAPAF)

3.3.1. NAPAF for NTPS: As per Regulation 49.1 of the MYT Regulations, 2015 the Normative Plant Availability factor for recovery of full fixed charges, is 50% for FY 2018-19 for NTPS.

3.3.2. We submit that NTPS faced Force Majeure conditions in the form of grid disturbance and auto transformer constraints. We submit that as per Tariff Regulations, 2015, Force Majeure is any event or circumstance, which is not within the reasonable control of, and is not due to an act of omission or commission of that party. As per the regulation, the shutdown or the interruption of the grid is also a Force Majeure condition.

3.3.3. We submit that in FY 2018-19 APGCL has lost the opportunity to generate 67.78 MU of electricity due to Grid unavailability and Grid disturbance. The month on month generation loss due to the two factors is shown below:

Table 5: Generation loss of NTPS due to Grid unavailability and Grid disturbance in FY 2018-19

MU lost for NTPS in 2018-19	MU lost due to grid disturbance	MU lost due to Auto transformer constraints
Apr-18	-	10.19
May-18	0	6.001
Jun-18	0.345	0.963
Jul-18	0.244	1.213
Aug-18	0.253	2.485
Sep-18	0.03	6.293
Oct-18	0.121	13.6201
Nov-18	0	5.048
Dec-18	0	6.491
Jan-19	0	9.79
Feb-19	0.011	4.348
Mar-19	0.022	0.312
<b>Total</b>	<b>1.03</b>	<b>66.76</b>
<b>Grand total</b>		<b>67.78</b>

3.3.4. APGCL has lost 1.03 MU due to breakdown of various transmission lines and other grid disturbance from time to time as shown above.

3.3.5. APGCL has in total lost 66.76 MU in FY 2018-19 due to evacuation constraints faced due to issues with the auto transformers used for evacuation of power from NTPS.

3.3.6. Both of the above reasons for loss of generation are uncontrollable events for APGCL. The Tariff Regulations 2015 define the event pertaining to grid interruption as a Force Majeure Event as follows:

“Force Majeure Event” means, with respect to any party, any event or circumstance, which is not within the reasonable control of, and is not due to an act of omission or commission



of, that party and which, by the exercise of reasonable care and diligence, could not have been prevented, and without limiting the generality of the foregoing, would include the following events:

- a. acts of God, including but not limited to lightning, storm, action of the elements, earthquakes, flood, torrential rains, drought and natural disaster;
- b. strikes, lockouts, go-slow, bandh or other industrial disturbances not instigated by any party;
- c. acts of public enemy, wars (declared or undeclared), blockades, insurrections, riots, revolution, sabotage, vandalism and civil disturbance;
- d. unavoidable accident, including but not limited to fire, explosion, radioactive contamination and toxic dangerous chemical contamination;
- e. any shutdown or interruption of the grid, which is required or directed by the State or Central Government or by the Commission or the Assam State Load Despatch Centre; and
- f. any shut down or interruption, which is required to avoid serious and immediate risks of a significant plant or equipment failure.

3.3.7. In view of the above, APGCL has claimed availability lost due to uncontrollable factors. The summary of the approved and actual availability claimed for FY 2018-19 are shown in the table below.

*Table 6: Availability for 2018-19 of NTPS*

<b>NTPS</b>	<b>Approved as per order of March 2018</b>	<b>Availability achieved</b>	<b>Availability lost due to uncontrollable factors</b>	<b>Total Availability claimed for FY 2018-19</b>
Plant Availability Factor (%)	50.00%	44.72%	8.14%	44.72%

3.3.8. The certificate for Generation Loss of NTPS due to Grid Restrictions and Auto Transformer Constraints is attached in Annexure 5

3.3.9. NAPAF for LTPS: As per Regulation 49.1 of the MYT Regulations, 2015 the Normative Plant Availability factor for recovery of full fixed charges, is 50% for FY 2018-19 for LTPS. The approved and actual numbers are shown in the table below.

*Table 7: Availability for 2018-19 of LTPS*

<b>LTPS</b>	<b>Approved as per order of March 2018</b>	<b>Actual</b>
Plant Availability Factor (%)	50.00%	54.30%





3.3.10. NAPAF for KLHEP: Further, Regulation 51, as amended in the first Amendment to the MYT Regulations, 2015 dated November 8, 2017 specifies normative PAF for KLHEP as 85% for FY 2018-19. The approved and actual numbers are shown in the table below.

Table 8: Availability for 2018-19 of KLHEP

KLHEP	Approved as per order of March 2018	Actual
Plant Availability Factor (%)	85.00%	87.39%

3.3.11. NAPAF for LRPP: As per Regulation 49.1 of the Tariff Regulations, 2015 the Normative Plant Availability factor for recovery of full fixed charges, is 85% for new plants commissioned on or after 1st April 2016. The Hon'ble Commission had approved the same. The approved and estimated numbers are shown in the table below.

Table 9: Availability for 2018-19 of LRPP

LRPP	Approved as per order of March 2018	Actual
Plant Availability Factor (%)	85.00%	80.60%

3.3.12. The availability was lower than the normative PAF as the unit required stabilization after commissioning in the initial months.

3.3.13. The Hon'ble Commission has provided stabilisation period for coal and gas based power plants under Tariff Regulations 2015. The regulation is reproduced below for ready reference.

**“49.6 Stabilization period and availability levels:**

In relation to a unit, stabilization period shall be reckoned commencing from the date of Commercial operation of that unit as follows, namely:

Particulars	PAF (%)	Stabilization period
<b>I</b> Coal-based thermal generating stations	65	180 days
<b>ii</b> Gas turbine/ combined cycle generating stations	65	90 days

3.3.14. Thus, APGCL requests the Hon'ble Commission to consider the following NAPAF considering stabilization period for LRPP

Particulars	NAPAF Considering Stabilization Period as per Regulations		Actual PAF achieved in FY2018-19
	Days	PAF	
<b>Initial 90 Days</b>	90.00	65%	
<b>Rest</b>	275.00	85%	
<b>Weighted Average for the Year</b>	<b>365.00</b>	<b>80.07%</b>	<b>80.60%</b>



3.3.15. Hence, APGCL requests the Hon'ble Commission to provide similar stabilisation period of 90 days for Gas engine based thermal power plants as APGCL also faced stabilisation issues for LRPP.

3.3.16. Again, APGCL requests the Hon'ble Commission to invoke "Power to remove difficulties" under Regulation 115 of Tariff Regulations 2015 while providing treatment for the same.

### 3.4. Normative Annual Plant Load Factor (NAPLF)

3.4.1. NAPLF for NTPS and LTPS: As per Regulation 49.2 as amended in the first Amendment to the MYT Regulations, 2015 the Normative Plant Load factor is 50% for FY 2018-19 for both NTPS and LTPS. The approved and actual numbers are shown in the table below.

Table 10: Plant Load Factor for 2018-19 of NTPS

NTPS	Approved as per order of March 2018	Actual
Plant Load Factor (%)	50.00%	35.22%

Table 11: Plant Load Factor for 2018-19 of LTPS

LTPS	Approved as per order of March 2018	Actual
Plant Load Factor (%)	50.00%	51.54%

3.4.2. NAPLF for KLHEP: Further, Regulation 51, as amended in the first Amendment to the MYT Regulations, 2015 dated November 8, 2017 specifies normative PLF for KLHEP as 44.5% for FY 2018-19. The approved and actual numbers are shown in the table below.

Table 12: Plant Load Factor for 2018-19 of KLHEP

KLHEP	Approved as per order of March 2018	Actual
Plant Load Factor (%)	44.50%	42.16%

3.4.3. NAPLF for LRPP: As per Regulation 49.2 of the Tariff Regulations, 2015 the Normative Plant Load factor, is 90% for new plants commissioned on or after 1st April 2016. The Hon'ble Commission had approved the same. The approved and estimated numbers are shown in the table below.

Table 13: Plant Load Factor for 2018-19 of LRPP

LRPP	Approved as per order of March 2018	Actual
Plant Load Factor (%)	90.00%	75.92%



3.4.4. The NAPLF for LRPP is less than the normative NAPLF for incentive as the plant required stabilization in the initial months post COD.

### 3.5. Gross Station Heat Rate (SHR)

3.5.1. SHR for NTPS: As per Regulation 49.4(i), as amended in the first Amendment to the MYT Regulations, 2015 the Normative Station Heat Rate, is 3900 kCal/kWh for FY 2018-19 for NTPS in Partial combined cycle mode of operation.

3.5.2. We submit that the SHR of NTPS is higher than the approved SHR in FY 2018-19 due to part loading of units resulting due to lower gas supply and evacuation constraints and old nature of the plant equipments and machinery.

3.5.3. The approved and actual numbers are shown in the table below.

Table 14: SHR for 2018-19 of NTPS

NTPS	Approved as per order of March 2018	Actual
Station Heat Rate (kCal/kWh)	3900	4323

3.5.4. SHR for LTPS: As per Regulation 49.4(i) as amended in the first Amendment to the MYT Regulations, 2015 the Normative Station Heat Rate for FY 2018-19 for LTPS, is 3200 kCal/kWh in closed cycle mode of operation.

3.5.5. We submit that LTPS was completely on close cycle mode of operation during 2018-19

3.5.6. The actual SHR is lower than the approved SHR for LTPS for FY 2018-19 as shown below.

Table 15: SHR for 2018-19 of LTPS

LTPS	Approved as per order of March 2018	Actual
Station Heat Rate (kCal/kWh)	3200 for Closed cycle 3900 for Open cycle	2812

3.5.7. SHR for LRPP: The Hon'ble Commission had approved the Gross Station Heat Rate for LRPP at 2,150 kCal/kWh in the Tariff Order dated March 01, 2019 for LRPP.

3.5.8. The actual SHR is lower than the approved SHR for LRPP for FY 2018-19 as shown below.

Table 16: SHR for 2018-19 of LRPP

LRPP	Approved as per Order of March 2019	Actual
Station Heat Rate (kCal/kWh)	2,150	2120



3.5.9. APGCL prays to AERC to approve the actual SHR numbers.

### 3.6. Auxiliary Energy Consumption

3.6.1. Auxiliary consumption for NTPS: As per Regulation 49.3(i) as amended in the first Amendment to the MYT Regulations, 2015 the Normative Auxiliary energy consumption, is 4.50% for FY 2018-19 for NTPS.

3.6.2. We submit that the auxiliary consumption of NTPS is higher than the approved auxiliary consumption in FY 2018-19 due to part loading of units. In view of the above, APGCL prays to the Hon'ble Commission to approve the actual auxiliary consumption as it has increased due to uncontrollable factors.

3.6.3. The approved and actual numbers are shown in the table below.

*Table 17: Auxiliary energy consumption for 2018-19 of NTPS*

NTPS	Approved as per order of March 2018	Actual
Auxiliary energy consumption (%)	4.50%	6.75%

3.6.4. Auxiliary consumption for LTPS: As per Regulation 49.3(i) as amended in the first Amendment to the MYT Regulations, 2015 the Normative Auxiliary energy consumption, is 5.50% for FY 2018-19 for LTPS.

3.6.5. We submit that the Auxiliary consumption of LTPS is higher than the approved values due to low gas pressure in supply of gas. Due to low gas pressure in supply, the usage of gas compressors has increased resulting in high auxiliary consumption of LTPS. The auxiliary consumption of LTPS is also higher than the approved auxiliary consumption in FY 2018-19 due to part loading of units. Further the lower gas supply constraints simultaneous operations of all 3 GTs most of the time. As the WHRU is designed to run with 3 HRSGs, non-availability of one HRSG increases the percentage of APC as gross power generation reduces. However, same number of auxiliaries have to be run to operate the WHRU.

3.6.6. The approved and actual numbers are shown in the table below.

*Table 18: Auxiliary energy consumption for 2018-19 of LTPS*

LTPS	Approved as per order of March 2018	Actual
Auxiliary energy consumption (%)	5.50%	10.30%



3.6.7. Auxiliary consumption for KLHEP: As per Regulation 51.1 as amended in the first Amendment to the MYT Regulations, 2015 the Normative Auxiliary energy consumption, is 0.5% for FY 2018-19 for KLHEP. The approved and actual numbers are shown in the table below.

*Table 19: Auxiliary energy consumption for 2018-19 of KLHEP*

<b>KLHEP</b>	<b>Approved as per order of March 2018</b>	<b>Actual</b>
Auxiliary energy consumption (%)	0.50%	0.50%

3.6.8. Auxiliary consumption for LRPP: As per Regulation 49.3(ii) of the Tariff Regulations, 2015 the Normative Auxiliary energy consumption, is 3.50% for gas engine based generating station in open cycle mode of operation with gas booster compressor.

3.6.9. The approved and actual numbers are shown in the below table

*Table 20: Auxiliary energy consumption for 2018-19 of KLHEP*

<b>LRPP</b>	<b>Approved as per order of March 2018</b>	<b>Actual</b>
Auxiliary energy consumption (%)	3.50%	3.01%

3.6.10. APGCL prays to AERC to approve the actual auxiliary consumption numbers.

## 4. Fixed Cost of the Plant

### 4.1. Annual fixed cost for FY 2018-19

4.1.1. The fixed cost of APGCL's power plants has been approved by AERC via MYT order in Case No. 39, 40, 41, 42, 43 and 44 of 2016 dated 31<sup>st</sup> March 2017, subsequently via Revised ARR order in Case No. 18 of 2017 and 29 of 2017 dated 19<sup>th</sup> March 2018 and subsequently via APR order in Case No. 14 of 2018 dated 1<sup>st</sup> March 2019 for NTPS, LTPS and KLHEP and APR order in Case No. 18 of 2018 dated 01 March 2019 for LRPP

4.1.2. As per regulation 43.1 of the AERC Tariff regulations, 2015 the following components of fixed cost have been considered for True-up of the tariff for the power plant:

- (a) Return on Equity
- (b) Interest on Long Term Loan
- (c) Depreciation
- (d) Operation and Maintenance Expenses
- (e) Interest on Working Capital
- (f) Less: Non-Tariff Income

4.1.3. For the computation of the fixed components, the Petitioner has considered the principles provided in the AERC Regulations, 2015. These components have been discussed plant wise in detail in the following sections of the petition.

### 4.2. Return on Equity (ROE)

4.2.1. The Hon'ble Commission in its regulation 34 of the AERC Regulations, 2015 has considered the pre-tax return on equity at 15.50% of equity capital.

4.2.2. The Petitioner has determined the Return on Equity (RoE) at a rate of 15.50% in accordance with the AERC Regulations, 2015. The Petitioner submits that there has been no addition in Equity in FY 2018-19 for NTPS, LTPS and KLHEP. However there has been additional capitalization in LRPP in FY2018-19. Further, it is submitted that the actual tax paid is being claimed separately.

#### 4.2.3. Additional Capital Expenditure for LRPP

4.2.3.1. The Petitioner had incurred the following additional Capital Expenditure for LRPP in FY2018-19 post COD of the plant.

Table 21: Additional Capital Expenditure incurred in FY2018-19 Post COD for LRPP

Particulars	Approved Additional Capitalization as per Order of March 2019	Expenditure incurred in FY2018-19
Expenditure Post COD in Rs.	22.34	12.21



Particulars	Approved Additional Capitalization as per Order of March 2019	Expenditure incurred in FY2018-19
Crore		
Grant Portion of the Additional Capitalization in Rs. Crore	11.43	6.02

4.2.3.2. The above expenditure includes Foreign Exchange Risk Variation. As per As per regulation 29.1 (a) of MYT Regulation 2015, any loss or gain on account of Foreign exchange risk variation will form part of the capital cost for the plant. The loss on account of Foreign exchange risk variation is as shown below.

Table 22: FERV loss for LRPP

Particulars	Euro to INR conversion considered during bidding	Euro payment done in FY2018-19	INR amount considered during bidding @68.66	Actual INR amount paid	FERV loss post COD in FY18-19
	1	2	3 = 2 x 68.88	4	5 = 4-3
FERV loss in Rs. Crore	1 Euro = 68.66 INR	Euro 10.01 Lakhs	INR 6.87 Crore	INR 8.06 crore	1.19 Crores

4.2.3.3. We submit that the expenditure undertaken post COD of LRPP is within the original scope of work and these were either works deferred for execution or undischarged liabilities recognized to be payable at a future date. Hence, APGCL prays to the Hon'ble Commission to approve the additional capitalization planned in FY 2018-19.

4.2.3.4. APGCL has considered the balance fund source of Additional Capital Expenditure in the normative allowed debt-equity ratio of 70:30 for FY2018-19 as approved by the Commission in its order of March 2019

4.2.3.5. Further, the balance of additional capital expenditure has been claimed in the APR of FY2019-20 and Revised ARR of FY2020-21 as some of the planned expenditure were deferred.

4.2.3.6. The Petitioner also submits that there was an error in the Gross Fixed Asset for LRPP as per audited accounts of FY2018-19. An amount of approximately INR 12.62 Crores was erroneously capitalized in accounts. The same has been considered while computing the Return on Equity, Depreciation and Interest on Loan for LRPP.

4.2.4. The Plant wise Return in Equity has been shown below:



Table 23: Computation of Plant wise Return in Equity for 2018-19

		Rs. Cr	
Station	Particulars	Approved as per order of March 2018	True up Petition for FY 2018-19
NTPS	Opening Equity	55	55
	Closing Equity	55	55
	Rate of Return	15.50%	15.50%
	<b>Return on Equity</b>	<b>8.53</b>	<b>8.53</b>
LTPS	Opening Equity	143.08	143.08
	Closing Equity	143.08	143.08
	Rate of Return	15.50%	15.50%
	<b>Return on Equity</b>	<b>22.18</b>	<b>22.18</b>
KLHEP	Opening Equity	68.65	68.65
	Closing Equity	68.65	68.65
	Rate of Return	15.50%	15.50%
	<b>Return on Equity</b>	<b>10.64</b>	<b>10.64</b>
LRPP	Opening Equity	10.71	12.98
	Closing Equity	10.71	14.84
	Rate of Return	0.16	0.16
	<b>Return on Equity</b>	<b>1.53</b>	<b>2.16</b>

4.2.5. APGCL prays to the Hon'ble Commission to approve the plant wise Return on Equity as shown above.

### 4.3. Interest on Loan Capital

4.3.1. As per Regulation 35 of the Tariff Regulations, 2015, the Hon'ble Commission will consider interest on Loan capital on normative basis with repayment equal to depreciation allowed for that year and rate of interest will be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year.

4.3.2. In view of the above, the Petitioner has computed the Interest on long term Loan on normative basis for FY 2018-19. The Petitioner has considered normative loan portfolio and the repayment shown is considered equal to the depreciation for FY 2018-19. The interest rate has been considered as the weighted average rate of actual interest rate applicable to APGCL at the beginning of FY 2018-19.

4.3.3. The finance charges are shown separately plant wise for FY 2018-19. The table below summarizes the interest on loan and finance charges considered for True-up of FY 2018-19.

Table 24: Computation of Plant wise Interest and finance charges for 2018-19

Rs. Cr





Station	Particulars	Approved as per order of March 2018	True up Petition for FY 2018-19
NTPS	Net Normative Opening Loan	8.3	0.79
	Addition of normative loan during the year	4.71	1.48
	Normative Repayment during the year	1.74	1.50
	Net Normative Closing Loan	11.27	0.77
	Avg. Normative Loan	9.785	0.78
	Interest Rate	8.13%	10.07%
	Interest on Loan Capital	0.80	0.08
	<u>Add:</u> Bank Charges	0	0.02
	<b>Net Interest on Loan Capital</b>	<b>0.80</b>	<b>0.10</b>
LTPS	Net Normative Opening Loan	9.44	4.65
	Addition of normative loan during the year	10.19	0.37
	Normative Repayment during the year	15.41	11.25
	Net Normative Closing Loan	4.22	0.00
	Avg. Normative Loan	6.83	2.33
	Interest Rate	8.13%	10.07%
	Interest on Loan Capital	0.55	0.23
	<u>Add:</u> Bank Charges	0	0.02
	<b>Net Interest on Loan Capital</b>	<b>0.55</b>	<b>0.25</b>
KLHEP	Net Normative Opening Loan	244.08	237.85
	Addition of normative loan during the year	10.33	0.16
	Normative Repayment during the year	22.3	21.14
	Net Normative Closing Loan	232.11	216.88
	Avg. Normative Loan	238.095	227.36
	Interest Rate	8.13%	10.07%
	Interest on Loan Capital	19.36	22.90
	<u>Add:</u> Bank Charges	0	0.02
	<b>Net Interest on Loan Capital</b>	<b>19.36</b>	<b>22.92</b>
LRPP	Net Normative Opening Loan	25	30.28
	Addition of normative loan during the year	0	4.34
	Normative Repayment during the year	1.05	2.27
	Net Normative Closing Loan	23.95	32.35



Station	Particulars	Approved as per order of March 2018	True up Petition for FY 2018-19
	Avg. Normative Loan	24.475	31.31
	Interest Rate	10.00%	10.07%
	Interest on Loan Capital	2.25	3.15
	<u>Add: Bank Charges</u>	0	0.00
	<b>Net Interest on Loan Capital</b>	<b>2.25</b>	<b>3.15</b>
	<b>Total</b>	<b>22.95</b>	<b>26.42</b>

4.3.4. APGCL prays to the Hon'ble Commission to approve the Total interest and finance charges as shown above.

#### 4.4. Depreciation

4.4.1. The Hon'ble Commission in its Tariff Regulations, 2015 has considered the principle as laid out in Regulation 33.

4.4.2. In view of the above, the Petitioner has computed the Depreciation considering Capital Cost of the asset admitted by the Commission with 10% salvage value. Also, depreciation on grants has been subtracted. The table below summarizes the plant wise Depreciation considered for True-up of FY 2018-19

Table 25: Depreciation for 2018-19 of NTPS

Particulars	FY 2018-19
Opening GFA	189.02
Addition during the year	1.48
Closing	190.50
Average GFA	189.76
Rate of Depreciation	0.85%
<b>Total Depreciation</b>	<b>1.62</b>
Grant	13.16
Additions during the year	0.00
Closing grant	13.16
Average grant	13.16
Rate of Depreciation	0.85%
Depreciation on grants	0.11
<b>Net Depreciation</b>	<b>1.50</b>

Rs. Cr

Table 26: Depreciation for 2018-19 of LTPS

Rs. Cr



Particulars	FY 2018-19
Opening GFA	478.51
Addition during the year	0.37
Closing	478.88
Average GFA	478.69
Rate of Depreciation	2.72%
<b>Total Depreciation</b>	<b>13.04</b>
Grant	65.50
Additions during the year	0.00
Closing grant	65.50
Average grant	65.50
Rate of Depreciation	2.72%
Depreciation on grants	1.78
<b>Net Depreciation</b>	<b>11.25</b>

Table 27: Depreciation for 2018-19 of KLHEP

Rs. Cr

Particulars	FY 2018-19
Opening GFA	514.41
Addition during the year	0.16
Closing	514.57
Average GFA	514.49
Rate of Depreciation	4.60%
<b>Total Depreciation</b>	<b>23.65</b>
Grant	54.66
Additions during the year	0.00
Closing grant	54.66
Average grant	54.66
Rate of Depreciation	4.60%
Depreciation on grants	2.51
<b>Net Depreciation</b>	<b>21.14</b>

Table 28: Depreciation for 2018-19 of LRPP

Rs. Cr

Particulars	FY 2018-19
Opening GFA	0.00
Addition during the year	258.01
Closing	258.01
Average GFA	129.01

Particulars	FY 2018-19
Rate of Depreciation	9.17%
<b>Total Depreciation</b>	<b>11.83</b>
Grant	0.00
Additions during the year	208.56
Closing grant	208.56
Average grant	104.28
Rate of Depreciation	9.17%
Depreciation on grants	9.56
<b>Net Depreciation</b>	<b>2.27</b>

Table 29: Summary of Depreciation claimed for FY 2018-19

Rs. Cr

Station	Particulars	Approved as per order of March 2018	True up Petition for FY 2018-19
<b>NTPS</b>	Depreciation	1.86	1.62
	<u>Less:</u> Depreciation on assets funded by Grants	0.13	0.11
	<b>Net Depreciation</b>	<b>1.74</b>	<b>1.50</b>
<b>LTPS</b>	Depreciation	17.83	13.04
	<u>Less:</u> Depreciation on assets funded by Grants	2.42	1.78
	<b>Net Depreciation</b>	<b>15.41</b>	<b>11.25</b>
<b>KLHEP</b>	Depreciation	24.92	23.65
	<u>Less:</u> Depreciation on assets funded by Grants	2.61	2.51
	<b>Net Depreciation</b>	<b>22.30</b>	<b>21.14</b>
<b>LRPP</b>	Depreciation	8.70	11.83
	<u>Less:</u> Depreciation on assets funded by Grants	7.65	9.56
	<b>Net Depreciation</b>	<b>1.05</b>	<b>2.27</b>
<b>Total Depreciation claimed</b>		<b>40.50</b>	<b>36.16</b>

4.4.3. APGCL prays to the Hon'ble Commission to approve the plant wise Depreciation for FY 2018-19 as shown above.



## 4.5. Interest on Working Capital

4.5.1. As per Regulation 37 of the Tariff Regulations, 2015, the interest on working capital will be considered on normative basis.

4.5.2. As per the above regulations, the Petitioner has claimed normative interest on working capital. However, as APGCL does not have liquid fuel stock facility, it has not considered working capital on storage of liquid fuel. The rate of interest has been considered as shown equal to the interest rate equivalent to State Bank of India base rate as on 1<sup>st</sup> April of the respective year plus 350 basis points, which  $8.70\% + 3.50\% = 12.20\%$ . The plant wise interest on working capital considered is shown in the table below:

Table 30: Summary of Interest on working capital claimed for FY 2018-19  
Rs. Cr

Station	Particulars	Approved as per order of March 2018	True up Petition for FY 2018-19
NTPS	Fuel Cost for one month	8.39	7.93
	O&M Expenses for one month	3.7	3.36
	Maintenance Spares-30% of O&M	13.31	12.10
	Receivables for two months	26.13	24.07
	Total Working Capital Requirement	51.53	47.46
	Rate of interest	12.60%	12.20%
	<b>Interest on Working capital</b>	<b>6.49</b>	<b>5.79</b>
LTPS	Fuel Cost for one month	8.41	9.68
	O&M Expenses for one month	4.02	2.48
	Maintenance Spares-30% of O&M	14.46	8.93
	Receivables for two months	31.12	28.90
	Total Working Capital Requirement	58.01	50.00
	Rate of interest	12.60%	12.20%
	<b>Interest on Working capital</b>	<b>7.31</b>	<b>6.10</b>
KLHEP	O&M Expenses for one month	2.21	2.06
	Maintenance Spares-30% of O&M	3.98	7.43
	Receivables for two months	17.21	12.56
	Total Working Capital Requirement	23.4	22.05
	Rate of interest	12.60%	12.20%
	<b>Interest on Working capital</b>	<b>2.9</b>	<b>2.7</b>
LRPP	Fuel Cost for one month	6.11	6.65
	O&M Expenses for one month	1.58	1.55
	Maintenance Spares-30% of O&M	5.68	5.59
	Receivables for two months	16.82	18.54
	Total Working Capital Requirement	30.18	32.33
	Rate of interest	12.60%	12.20%
	<b>Interest on Working capital</b>	<b>3.80</b>	<b>3.94</b>
<b>Total interest on Working capital</b>		<b>20.55</b>	<b>18.52</b>



4.5.3. APGCL prays to the Hon'ble Commission to approve the plant wise Interest on Working capital for FY 2018-19 as shown above.

#### 4.6. Operation and Maintenance Expenses (O&M Expenses)

4.6.1. As per Regulation of the Tariff Regulations, 2015 does not provide for separate approval of Employee expenses, A&G expenses and R&M expenses.

4.6.2. Considering the hybrid escalation factor comprising of WPI and CPI for the last three years, the AERC approved numbers for FY 2018-19 have been escalated to arrive at the new normative numbers of O&M for FY 2018-19.

4.6.3. Against this new normative O&M numbers, the actual O&M expenses and APGCL's claim for O&M expenses for FY 2018-19 are as shown in the table below.

Table 31: Operation and Maintenance claimed for FY 2018-19

Station	Approved in March 2018	Calculated as per Regulations on numbers approved for True Up of FY17-18 and as per APR for FY18-19	As per audited accounts for FY 2018-19 (including ROP)	Amount considered for True up Petition for FY 2018-19 (excluding Special R&M and impact of Revision of Pay)
NTPS	42.74	42.57	49.51	40.32
LTPS	46.30	46.11	38.53	29.78
KLHEP	23.85	23.75	29.27	24.76
LRPP	18.92	17.56	18.63	18.63
<b>Total</b>	<b>131.81</b>	<b>129.99</b>	<b>135.95</b>	<b>113.49</b>

4.6.4. As per Regulation 2.1(49) of the Tariff Regulations, 2015, Operation and maintenance expense include manpower, repairs, spares, consumables, insurance and overheads but excludes fuel expenses and water charges.

4.6.5. For KLHEP, as per CAG Comments in para 2, there was an accounting error of Rs. 5.01 Crores, the same has been subtracted while claiming R&M expenses under O&M.

4.6.6. In view of the above, APGCL has also provided Station-wise details of head-wise O&M expenses claimed for FY 2018-19

Table 32: Station-wise details of head-wise O&M expenses claimed for FY 2018-19

Station	Employee Cost	R&M	A&G	Total
NTPS	31.87	4.84	3.61	40.32
LTPS	18.83	5.93	5.01	29.78
KLHEP	15.12	5.57	4.07	24.76
LRPP	14.63	3.57	0.43	18.63
<b>Total</b>	<b>80.46</b>	<b>19.92</b>	<b>13.12</b>	<b>113.49</b>

Rs. Cr



4.6.7. The Petitioner submits that increase in Revision of Pay and Special R&M are being claimed separately as per the Tariff Regulations 2015, as follows:

Table 33: Revision of pay and payment of arrears for FY 2018-19

Rs. Cr

Station	Approved as per order of March 2018	Approved in Order for March 2019	Amount appeared in Annual Accounts for FY 2018-19	Amount claimed for True-Up
NTPS	1.62	8.35	9.19	9.19
LTPS	1.89	9.87	8.75	8.75
KLHEP	2.71	4.15	4.51	4.51
LRPP	0.00	0.00	0.00	0.00
<b>Total</b>	<b>6.22</b>	<b>22.37</b>	<b>22.45</b>	<b>22.45</b>

4.6.8. APGCL prays to the Hon'ble Commission to approve the plant wise O&M expenses for FY 2018-19 as shown above.

#### 4.7. Non-Tariff income

4.7.1. As per Regulation 47 of the Tariff Regulations, 2015, the non-tariff income shall be deducted from the Annual Fixed Cost in determining the Annual Fixed Cost of the Generation Company.

4.7.2. In view of the above regulations, the details of non-tariff income for FY 2018-19 are shown in the table below

Table 34: Station-wise details of Non tariff income for FY 2018-19

Rs. Cr

Station	Approved as per order of March 2018	As per audited accounts for FY 2018-19	True up Petition for FY 2018-19
NTPS	5.83	17.83	17.83
LTPS	7.84	24.00	24.00
KLHEP	4.46	13.65	13.65
LRPP	0.00	0.00	0.00
<b>Total</b>	<b>18.14</b>	<b>55.48</b>	<b>55.48</b>

4.7.3. APGCL prays to the Hon'ble Commission to approve the plant wise Non tariff income for FY 2018-19 as shown above.



## 4.8. Total Fixed Cost

4.8.1. The recovery of Annual fixed charges is to be done as per regulation 53.1 of the Tariff Regulations, 2015.

4.8.2. Based on the above, the Annual fixed charges for FY 2018-19 has been computed. The Hon'ble Commission is requested to approve the fixed charges as discussed in the table below:

Table 35: Annual Fixed charges for 2018-19 of NTPS

Rs. Cr

Particulars	Approved as per order of March 2018	Amount appeared in Annual Accounts 18-19	Amount claimed for True-Up
Operation & Maintenance Expenditure	42.74	49.51	40.32
Employee Expenses		41.06	31.87
R&M Expenses		4.84	4.84
A&G Expenses		3.61	3.61
Interest & Finance Charges	0.80	19.57	0.10
Interest on working Capital	6.49	0.00	5.79
Depreciation	1.74	1.62	1.50
Return on Equity	8.53	0.00	8.53
<u>Less: Other Income</u>	5.83	17.83	17.83
<b>Total Fixed Charges</b>	<b>54.46</b>	<b>52.86</b>	<b>38.41</b>

Table 36: Annual Fixed charges for 2018-19 of LTPS

Rs. Cr

Particulars	Approved as per order of March 2018	Amount appeared in Annual Accounts FY18-19	Amount claimed for True-Up
Operation & Maintenance Expenditure	46.30	38.53	29.78
Employee Expenses	0.00	27.59	18.83
R&M Expenses	0.00	5.93	5.93
A&G Expenses	0.00	5.01	5.01
Interest & Finance Charges	0.55	29.20	0.25
Interest on working Capital	7.31	0.00	6.10
Depreciation	15.41	13.04	11.25
Return on Equity	22.18	0.00	22.18
<u>Less: Other Income</u>	7.84	24.00	24.00
<b>Total Fixed Charges</b>	<b>83.91</b>	<b>56.77</b>	<b>45.57</b>





Table 37: Annual Fixed charges for 2018-19 of KLHEP

Rs. Cr

Particulars	Approved as per order of March 2018	Amount appeared in Annual Accounts 18-19	Amount claimed for True-Up
Operation & Maintenance Expenditure	23.85	29.27	24.76
Employee Expenses	0.00	19.63	15.12
R&M Expenses	0.00	5.57	5.57
A&G Expenses	0.00	4.07	4.07
Interest & Finance Charges	19.36	11.30	22.92
Interest on working Capital	2.95	0.00	2.69
Depreciation	22.30	23.65	21.14
Return on Equity	10.64	0.00	10.64
<u>Less: Other Income</u>	4.46	13.65	13.65
<b>Total Fixed Charges</b>	<b>74.63</b>	<b>50.56</b>	<b>68.49</b>

Table 38: Annual Fixed charges for 2018-19 of LRPP

Rs. Cr

Particulars	Approved as per order of March 2018	Amount appeared in Annual Accounts 18-19	Amount claimed for True-Up
Operation & Maintenance Expenditure	18.92	18.63	18.63
Employee Expenses	0.00	14.63	14.63
R&M Expenses	0.00	3.57	3.57
A&G Expenses	0.00	0.43	0.43
Interest & Finance Charges	2.25	2.47	3.15
Interest on working Capital	3.80	0.00	3.94
Depreciation	1.05	11.83	2.27
Return on Equity	1.53	0.00	2.16
<u>Less: Other Income</u>	0.00	0.00	0.00
<b>Total Fixed Charges</b>	<b>27.55</b>	<b>32.94</b>	<b>30.16</b>

4.8.3. The Petitioner prays to the Hon'ble Commission to approve the plant wise fixed costs for FY 2018-19 as discussed in the tables above.



## 5. Energy Charges

### 5.1. Fuel Price and Calorific Value

5.1.1. As per Regulation 11 of the Tariff Regulations 2015, 'Fuel Price' and 'Calorific Value of Fuel' are uncontrollable items. The actual values of 'Fuel Price' and 'Calorific Value of Fuel' are shown in the table below:

Table 39: Actual Plant wise GCV and Price for FY 2018-19

Station	Wt. Avg. Gross Calorific Value of Gas (kcal/SCM)	Wt. Avg. Price of Gas (Rs./1000 SCM)
NTPS	8,909.60	6,240.19
LTPS	9,154.40	8,011.06
LRPP	9,154.40	8,011.06

5.1.2. The month wise true copies of actual Fuel Bills raised by APGCL's suppliers for FY 2018-19 were already submitted to AERC by APGCL in its quarterly FPA Reports. The Petitioner prays to the Hon'ble Commission to approve the actual Price of Gas and GCV for NTPS, LTPS and LRPP for FY 2018-19 as shown in the table above.

### 5.2. Fuel cost

5.2.1. The table below shows the plant wise approved fuel cost and the actual total fuel cost incurred for FY 2018-19

Table 40: Fuel cost for NTPS for FY 2018-19

Particulars	Unit	Approved as per order of March 2018	FY 2018-19 Actual
Gross Generation	MU	539.42	314.37
Heat Rate	kcal/kWh	3,900	4,323
GCV of gas	kcal/SCM	9,057	8,910
Overall Heat	G. cal.	21,03,738	13,59,078
Gas consumption	M. SCM	232.28	152.54
Price of Gas	Rs./ 1000 SCM	5,365.24	6,240.19
Total cost of Gas	Rs. Crore	<b>124.63</b>	<b>95.19</b>

Table 41: Fuel cost for LTPS for FY 2018-19

Particulars	Unit	Approved as per order of March 2018	FY 2018-19 Actual
Gross Generation	MU	538.75	472.09
Heat Rate	kcal/kWh	3,200	2,812
GCV of gas	kcal/SCM	9,491	9,154



Particulars	Unit	Approved as per order of March 2018	FY 2018-19 Actual
Overall Heat	G. cal.	17,24,000	13,27,420
Gas consumption	M. SCM	181.65	145.00
Price of Gas	Rs./1000 SCM	6,849.83	8,011.06
Total cost of Gas	Rs. Crore	<b>124.43</b>	<b>116.16</b>

Table 42: Fuel cost for LRPP for FY 2018-19

Particulars	Unit	Approved as per order of March 2018	FY 2018-19 Actual
Gross Generation	MU	508.03	429.98
Heat Rate	kcal/kWh	2,000	2,120
GCV of gas	kcal/SCM	9,491	9,154
Overall Heat	G. cal.	10,16,060	9,11,516
Gas consumption	M. SCM	107.06	99.57
Price of Gas	Rs./1000 SCM	6,849.53	8,011.06
Total cost of Gas	Rs. Crore	<b>73.33</b>	<b>79.77</b>

5.2.2. The Petitioner prays to the Hon'ble Commission to approve the actual Fuel cost Price for NTPS, LTPS and LRPP for FY 2018-19 as shown in the table above.

### 5.3. Incentives

5.3.1. Incentive for LTPS: As per regulation 54 of the Tariff Regulations 2015, incentive is payable for actual energy generation in excess of ex-bus energy corresponding to target PLF.

5.3.2. The target PLF of LTPS was 50% for claiming incentive as per the Tariff Regulations 2015. In April 2019, two 15 MW units of LTPS was decommissioned. Thus the installed capacity of LTPS considered is 127.2 MW upto 25 Apr 2018, and 97.2 MW after that. The actual PLF has been considered with installed capacity of 127.2 MW upto 25 Apr 2018 (25 days), and 97.2 MW after that (340 days) for claiming incentive.

5.3.3. In view of the above, the Petitioner claims the incentive at a rate of 50 paise for LTPS as shown in the table below.

Table 43: Incentive claim for LTPS for FY 2018-19

Sl. No.	Station	Installed Capacity (MW)	Target PLF for allowing incentive (%)	Gross Generation with target PLF (MU)	Approved aux. consumption (%)	Net generation with target PLF (MU)	Actual PLF	Gross Generation (Actual) (MU)	Actual aux. consumption (%)	Net Generation (Actual) (MU)	Ex-bus energy eligible for incentive	Incentive Rs Crore
1	2	3	4	5	6	7	8	9	10	12= (10+11-6)	13= 12 x 50 paise	
1	LTPS	- 127.2 MW upto April 2018 - 97.2 MW from May 2018 onwards	50%	434.74	5.50%	410.83	51.54%	472.09	10.30%	423.49	12.66	0.63

5.3.4. The Petitioner prays to the Hon'ble Commission to approve the Incentive claim for LTPS for FY 2018-19 as shown in the table above.

5.3.5. Secondary charge for KLHEP: As per regulation 55.6 of the Tariff Regulations 2015, for a hydro power station if the actual saleable energy in a year exceeds Design energy the Energy Charge for such energy is billed equal to the lowest variable charges of the central sector thermal power generating stations in the north east region.

5.3.6. The net generation of KLHEP in FY 2018-19 was lower than the design energy and hence no Secondary Charge Incentive has been claimed for KLHEP.

5.3.7. As per regulation 55.2 of the Tariff Regulations 2015, incentive payable to hydro power plants for achieving higher availability than normative availability is inclusive of the Annual fixed cost.

5.3.8. As per the formula in the above regulation, incentive is payable to hydro power plants if actual availability is higher than normative availability. The same is being claimed as shown in the table below.

Table 44: Incentive claim for KLHEP for FY 2018-19

Sl. No	Station	Actual AFC for FY 2018-19	Actual availability achieved for 365 days	Normative availability	Incentive in Rs Cr for Availability claimed as per actual AFC for 365 days
1	2	3	4	5 = 3 x 0.5 x (5-6) /6	
1	KLHEP	74.30	87%	85%	1.04

5.3.9. APGCL submits that the above incentive is being claimed for KLHEP in FY 2018-19 as shown above.

5.3.10. The Petitioner prays to the Hon'ble Commission to approve the Secondary charge and Incentives for LTPS and KLHEP for FY 2018-19 as shown in the tables above.

## 6. Other Expenses

6.1.1. APGCL has incurred various other expenses in FY 2018-19, which are discussed in detail below

### 6.2. Actual Tax paid

6.2.1. As per regulation 36 of the Tariff Regulations 2015, income tax as will be reimbursed per actual income tax paid, based on the documentary evidence submitted at the time of truing up.

6.2.2. In view of the above, the Petitioner has claimed the tax on income as shown in the table below. The tax on income has been apportioned plant wise based on the plant wise revenue from sale of power received in FY 2018-19. The copy of the ITR-6 and Tax Challans documents are attached as Annexure No. 3 and Annexure No. 4 respectively.

6.2.3. An amount of INR 4,28,12,549 has been paid as TDS as per ITR-6. The remaining tax payable has been paid as per Tax Challan and ITR-6 for FY2018-19.

*Table 45: Plant wise Tax on income claimed for FY 2018-19*

*Rs. Cr*

Station	Tax on income claimed for FY 2018-19
NTPS	1.66
LTPS	2.28
KLHEP	1.30
LRPP	1.30
<b>Total</b>	<b>6.54</b>

6.2.4. The Petitioner prays to the Hon'ble Commission to approve the plant wise tax on income for FY 2018-19 as shown in the table above.



### 6.3. Prior period items

6.3.1. As per regulation 36 of the Tariff Regulations 2015, the Hon'ble Commission may allow Prior period income / expenses subject to prudence check.

6.3.2. APGCL has recorded prior period expenses through net prior period items for FY 2018-19 as shown below as per the Audited statements of accounts. The item wise details of prior period income & expenses and amounts claimed by APGCL are provided in the table below.

Table 46: Prior period income and expenses as per Annual Accounts for FY 2018-19

Rs. Cr

Particulars	Annual Accounts	Claimed for True Up	Remarks
Prior Period Income includes:-			
Withdrawal of excess booking of Repair & maintenance for overhauling of U#3 of LTPS	5.85	-	APGCL in its Para 7.5.2 , Page 56 of the Petition for True-up for FY 2017-18, APR for FY 2018-19 and MYT for FY 2019-20 to FY 2021-22 has specifically excluded the same for True up of FY 2017-18. Moreover the Hon'ble Commission allowed O&M expenses on normative basis for the FY 2017-18. Hence the same is not claimed in prior period income
Sub total (A)	5.85	-	

Particulars	Annual Accounts	Claimed for True Up	Remarks
(b) Prior period expense includes:-			
Reclassification of A&G expenditure as per comments of Statutory Auditor	0.01	-	The Hon'ble Commission allowed O&M expenses on normative basis for the FY 2017-18. Hence the same is not claimed in prior period expense
Sub total (B)	0.01	0.00	
Net Prior Period (B-A)	-5.84	0.00	



6.3.3. Based on the above submission, the Petitioner has not claimed any Prior period income / expenses for FY2018-19.

#### 6.4. Impact of ROP

6.4.1. The Hon'ble Commission via its order dated 19<sup>th</sup> March 2018 and Order dated 1<sup>st</sup> March 2019 has provisionally approved impact of Revision of Pay for FY 2018-19. The revision of pay on MSHEP has not been considered.

6.4.2. The plant wise provisionally approved and actual impact of Revision of Pay for FY 2018-19 has been shown below.

Table 47: Impact of Revision of Pay for FY 2018-19

Rs. Cr

Station	Approved as per order of March 2018	Approved as per Order of 2019	Amount appeared in Annual Accounts in FY2018-19	Amount claimed for True-Up
NTPS	1.62	8.35	9.19	9.19
LTPS	1.89	9.87	8.75	8.75
KLHEP	2.71	4.15	4.51	4.51
LRPP	0.00	0	0.00	0.00
<b>Total</b>	<b>6.22</b>	<b>22.37</b>	<b>22.45</b>	<b>22.45</b>

6.4.3. APGCL prays to the Hon'ble Commission to approve the impact of Revision of Pay for FY 2018-19 as shown in the table above.

#### 6.5. Special R&M

6.5.1. As per regulation 30.5 (iii) of the Tariff Regulations 2015, special R&M expenditure is allowed for efficient operation of the stations.

6.5.2. APGCL's expenditure under Special R&M was done for the following.

Rs. Cr

Work Name	Total Amount Approved	Appeared in Annual Accounts FY 2018-19	Claim in FY 2018-19	Remarks
Major Overhauling of KLHEP - Unit 1	25.9	0	0	As per the W.O. the delivery schedule was 12 months from receipt of advance. The fund was received from GoA on 23.03.2018. The advance payment was done on 13.04.2018. Hence the completion date was 12.04.2019.  But due to peak season the



Work Name	Total Amount Approved	Appeared in Annual Accounts FY 2018-19	Claim in FY 2018-19	Remarks
				overhauling could not be carried out in April 2019. Hence the Major Overhauling is scheduled in January 2020.  Thus, No claim since the amount already received from GoA.

6.5.3. Thus no Special R&M works could be undertaken in FY 2018-19.

6.5.4. In view of the above regulations, the approved and actual number for Special R&M for FY 2018-19 are shown in the table below.

Table 48: Plant wise Special R&M for FY 2018-19

Rs. Cr

Station	Approved as per order of March 2018	Amount claimed for True-Up
NTPS	0.00	0.00
LTPS	0.00	0.00
KLHEP	25.90	0.00
LRPP	0.00	0.00
<b>Total</b>	<b>25.90</b>	<b>0.00</b>

6.5.5. APGCL prays to the Hon'ble Commission to approve the plant wise Special R&M for FY 2018-19 as shown in the table above.

## 6.6. Total Other expenses

6.6.1. The plant wise total of Other expenses for FY 2018-19 are as shown in the tables below.

Table 49: Other expenses for NTPS for FY 2018-19

Rs. Cr

Other expenses for NTPS	Approved as per order of March 2018	Amount appeared in Annual Accounts for FY 2018-19	Amount claimed for True Up
Income taxes	0.00	1.59	1.66
Prior period items	0.00	0.00	0.00
Impact of ROP	1.62	9.19	9.19
Special R&M	0.00	0.00	0.00
<b>Total</b>	<b>1.62</b>	<b>10.78</b>	<b>10.85</b>





Table 50: Other expenses for LTPS for FY 2018-19  
Rs. Cr

Other expenses for LTPS	Approved as per order of March 2018	Amount appeared in Annual Accounts for FY 2018-19	Amount claimed for True Up
Income taxes	0.00	2.18	2.28
Prior period items	0.00	-5.84	0.00
Impact of ROP	1.89	8.75	8.75
Special R&M	0.00	0.00	0.00
<b>Total</b>	<b>1.89</b>	<b>5.09</b>	<b>11.03</b>

Table 51: Other expenses for KLHEP for FY 2018-19  
Rs. Cr

Other expenses for KLHEP	Approved as per order of March 2018	Amount appeared in Annual Accounts for FY 2018-19	Amount claimed for True Up
Income taxes	0.00	1.24	1.30
Prior period items	0.00	0.00	0.00
Impact of ROP	2.71	4.51	4.51
Special R&M	25.90	0.00	0.00
<b>Total</b>	<b>28.61</b>	<b>5.75</b>	<b>5.81</b>

Table 52: Other expenses for LRPP for FY 2018-19  
Rs. Cr

Other expenses for LRPP	Approved as per order of March 2018	Amount appeared in Annual Accounts for FY 2018-19	Amount claimed for True Up
Income taxes	0.00	1.24	1.30
Prior period items	0.00	0.00	0.00
Impact of ROP	0.00	0.00	0.00
Special R&M	0.00	0.00	0.00
<b>Total</b>	<b>0.00</b>	<b>1.24</b>	<b>1.30</b>

6.6.2. The Petitioner prays to the Hon'ble Commission to approve the plant wise Other expenses for FY 2018-19 as discussed in the tables above.

## 7. Summary of submissions for True-up of FY 2018-19

### 7.1. Net Annual Revenue Requirement

7.1.1. The plant wise Net Annual Revenue Requirements for FY 2018-19 are as shown in the tables below.

Table 53: Net Annual Revenue Requirements for NTPS for FY 2018-19

True-up for FY 2018-19 For NTPS				
Sl. No	Particulars	Approved as per order of March 2018	Amount appeared in Annual Accounts 18-19	Amount claimed for True-Up
<b>I</b>	<b>POWER GENERATION (MU)</b>			
	Gross Generation	539.42	314.37	314.37
	Net Generation	515.15	293.17	293.17
	Auxiliary Consumption Loss %	4.50%	6.75%	6.75%
<b>I</b>	<b>Fixed Charges</b>			
	Operation & Maintenance Expenditure	42.74	40.32	40.32
	Employee Expenses	0	31.87	31.87
	R&M Expenses	0	4.84	4.84
	A&G Expenses	0	3.61	3.61
	Interest & Finance Charges	0.80	19.57	0.10
	Interest on working Capital	6.49	0.00	5.79
	Depreciation	1.74	1.62	1.50
	Return on Equity	8.528	0	8.53
	<u>Less: Other Income</u>	5.83	17.83	17.83
	<b>Total Fixed Charges</b>	<b>54.46</b>	<b>43.67</b>	<b>38.41</b>
<b>II</b>	<b>Fuel Cost</b>	<b>124.63</b>	<b>95.19</b>	<b>95.19</b>
	Other expenses			
	Income taxes	-	1.59	1.66
	Prior period items	-	0.00	0.00
	Impact of ROP	1.62	9.19	9.19
	Special R&M	0	0	0
<b>III</b>	<b>Total Other expenses</b>	<b>1.62</b>	<b>10.78</b>	<b>10.85</b>
<b>IV</b>	<b>Total Revenue Requirement</b>	<b>180.70</b>	<b>149.64</b>	<b>144.45</b>
<b>V</b>	<b>Incentive for generation for FY 2018-19</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>V</b>	<b>Total Cost</b>	<b>180.70</b>	<b>149.64</b>	<b>144.45</b>



<b>True-up for FY 2018-19 For NTPS</b>				
<b>Sl. No</b>	<b>Particulars</b>	<b>Approved as per order of March 2018</b>	<b>Amount appeared in Annual Accounts 18-19</b>	<b>Amount claimed for True-Up</b>
<b>I</b>				
<b>VII</b>	<b>Revenue from Sale of Power</b>	<b>180.70</b>	<b>130.15</b>	<b>130.15</b>
<b>VIII</b>	<b>Revenue Gap (+) / Surplus(-)</b>	<b>0.00</b>	<b>19.49</b>	<b>14.30</b>
	<b>Net Allowable Fixed Charges for Effective Capacity</b>	<b>46.69</b>		
	<b>Net Allowable Fuel Charges</b>	<b>124.63</b>		
	<b>Net Allowable ARR</b>	<b>171.32</b>		

Table 54: Net Annual Revenue Requirements for LTPS for FY 2018-19

Rs. Cr

<b>True-up for FY 2018-19 For LTPS</b>				
<b>Sl. No</b>	<b>Particulars</b>	<b>Approved as per order of March 2018</b>	<b>Amount appeared in Annual Accounts 18-19</b>	<b>Amount claimed for True-Up</b>
<b>I</b>	<b>POWER GENERATION (MU)</b>			
	Gross Generation	538.75	472.09	472.09
	Net Generation	509.12	423.49	423.49
	Auxiliary Consumption Loss %	5.50%	10.30%	10.30%
<b>I</b>	<b>Fixed Charges</b>			
	Operation & Maintenance Expenditure	46.30	29.78	29.78
	Employee Expenses		18.83	18.83
	R&M Expenses		5.93	5.93
	A&G Expenses		5.01	5.01
	Interest & Finance Charges	0.55	29.20	0.25
	Interest on working Capital	7.31	0.00	6.10
	Depreciation	15.41	13.04	11.25
	Return on Equity	22.18	0.00	22.18
	<u>Less: Other Income</u>	7.84	24.00	24.00
	<b>Total Fixed Charges</b>	<b>83.91</b>	<b>48.02</b>	<b>45.57</b>
<b>II</b>	<b>Fuel Cost</b>	<b>124.43</b>	<b>116.16</b>	<b>116.16</b>



<b>True-up for FY 2018-19 For LTPS</b>				
<b>Sl. No</b>	<b>Particulars</b>	<b>Approved as per order of March 2018</b>	<b>Amount appeared in Annual Accounts 18-19</b>	<b>Amount claimed for True-Up</b>
	Other expenses			
	Income taxes	-	2.18	2.28
	Prior period items	-	-5.84	0.00
	Impact of ROP	1.89	8.75	8.75
	Special R&M	0	0	0
<b>III</b>	<b>Total Other expenses</b>	<b>1.89</b>	<b>5.09</b>	<b>11.03</b>
<b>IV</b>	<b>Total Revenue Requirement</b>	<b>210.23</b>	<b>169.27</b>	<b>172.77</b>
<b>V</b>	<b>Incentive for generation for FY 2018-19</b>	<b>0.00</b>	<b>0.00</b>	<b>0.63</b>
<b>VI</b>	<b>Total Cost</b>	<b>210.23</b>	<b>169.27</b>	<b>173.40</b>
<b>VII</b>	<b>Revenue from Sale of Power</b>	<b>210.23</b>	<b>178.86</b>	<b>178.86</b>
<b>VIII</b>	<b>Revenue Gap (+) / Surplus(-)</b>	<b>0.00</b>	<b>-9.58</b>	<b>-5.46</b>
	<b>Net Allowable Fixed Charges for Effective Capacity</b>	<b>54.44</b>		
	<b>Net Allowable Fuel Charges</b>	<b>124.43</b>		
	<b>Net Allowable ARR</b>	<b>178.87</b>		

Table 55: Net Annual Revenue Requirements for KLHEP for FY 2018-19

Rs. Cr

<b>True-up for FY 2018-19 for KLHEP</b>				
<b>Sl. No</b>	<b>Particulars</b>	<b>Approved as per order of March 2018</b>	<b>Amount appeared in Annual Accounts 18-19</b>	<b>Amount claimed for True-Up</b>
<b>I</b>	<b>POWER GENERATION (MU)</b>			
	Gross Generation	353.51	369.29	369.29
	Net Generation	351.74	367.44	367.44
	Auxiliary Consumption Loss %	0.5%	0.5%	0.50%
<b>I</b>	<b>Fixed Charges</b>			
	Operation & Maintenance Expenditure	23.85	24.76	24.76
	Employee Expenses		15.12	15.12
	R&M Expenses		5.57	5.57



<b>True-up for FY 2018-19 for KLHEP</b>				
<b>Sl. No</b>	<b>Particulars</b>	<b>Approved as per order of March 2018</b>	<b>Amount appeared in Annual Accounts 18-19</b>	<b>Amount claimed for True-Up</b>
	A&G Expenses		4.07	4.07
	Interest & Finance Charges	19.36	11.30	22.92
	Interest on working Capital	2.95	0.00	2.69
	Depreciation	22.30	23.65	21.14
	Return on Equity	10.64	0.00	10.64
	<u>Less: Other Income</u>	4.46	13.65	13.65
	<b>Total Fixed Charges</b>	<b>74.63</b>	<b>46.05</b>	<b>68.49</b>
<b>II</b>	<b>Fuel Cost</b>	-	-	-
	Other expenses			
	Income taxes	-	1.24	1.30
	Prior period items	-	0.00	-
	Impact of ROP	2.71	4.51	4.51
	Special R&M	25.90	-	-
<b>III</b>	<b>Total Other expenses</b>	<b>28.61</b>	<b>5.76</b>	<b>5.81</b>
<b>IV</b>	<b>Total Revenue Requirement</b>	<b>103.24</b>	<b>51.81</b>	<b>74.30</b>
<b>V</b>	<b>Incentive for generation for FY 2018-19</b>	0.00	0.00	1.04
<b>V I</b>	<b>Incentive for Secondary Energy generation</b>	0.00	0.00	0.00
<b>VII</b>	<b>Total Cost</b>	<b>103.24</b>	<b>51.81</b>	<b>75.35</b>
<b>VIII</b>	<b>Revenue from Sale of Power</b>	<b>103.24</b>	<b>101.94</b>	<b>101.94</b>
<b>IX</b>	<b>Revenue Gap (+) / Surplus(-)</b>	<b>0.00</b>	<b>-50.13</b>	<b>-26.59</b>
	<b>Net Allowable Capacity Charges</b>	<b>51.62</b>		
	<b>Net Allowable Energy Charges</b>	<b>46.78</b>		
	<b>Net Allowable ARR</b>	<b>98.40</b>		

Table 56: Net Annual Revenue Requirements for LRPP for FY 2018-19

Rs. Cr

True-up for FY 2018-19 For LRPP				
Sl. No	Particulars	Approved as per order of March 2018	Amount appeared in Annual Accounts 18-19	Amount claimed for True-Up
<b>I</b>	<b>POWER GENERATION (MU)</b>			
	Gross Generation	508.03	429.98	429.98
	Net Generation	490.25	417.03	417.03
	Auxiliary Consumption Loss %	3.50%	3.01%	3.01%
<b>I</b>	<b>Fixed Charges</b>			
	Operation & Maintenance Expenditure	18.92	18.63	18.63
	Employee Expenses		14.63	14.63
	R&M Expenses		3.57	3.57
	A&G Expenses		0.43	0.43
	Interest & Finance Charges	2.25	2.47	3.15
	Interest on working Capital	3.80	0.00	3.94
	Depreciation	1.05	11.83	2.27
	Return on Equity	1.53	0.00	2.16
	Less: Other Income	0.00	0.00	0.00
	<b>Total Fixed Charges</b>	<b>27.55</b>	<b>32.94</b>	<b>30.16</b>
<b>II</b>	<b>Fuel Cost</b>	<b>73.33</b>	<b>79.77</b>	<b>79.77</b>
	Other expenses			
	Income taxes	-	1.24	1.30
	Prior period items	-	0.00	0.00
	Impact of ROP	0	0.00	0.00
	Special R&M	0	0.00	0.00
<b>III</b>	<b>Total Other expenses</b>	<b>0.00</b>	<b>1.24</b>	<b>1.30</b>
<b>IV</b>	<b>Total Revenue Requirement</b>	<b>100.89</b>	<b>113.94</b>	<b>111.22</b>
<b>V</b>	<b>Incentive for generation for FY 2018-19</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>V</b>	<b>Total Cost</b>	<b>100.89</b>	<b>113.94</b>	<b>111.22</b>
<b>VII</b>	<b>Revenue from Sale of Power</b>	<b>100.89</b>	<b>101.75</b>	<b>101.75</b>
<b>VIII</b>	<b>Revenue Gap (+) / Surplus(-)</b>	<b>0.00</b>	<b>12.20</b>	<b>9.47</b>
	<b>Net Allowable Fixed Charge</b>	<b>27.55</b>		



<b>True-up for FY 2018-19 For LRPP</b>				
<b>Sl. No</b>	<b>Particulars</b>	<b>Approved as per order of March 2018</b>	<b>Amount appeared in Annual Accounts 18-19</b>	<b>Amount claimed for True-Up</b>
	<b>Net Allowable Fuel Charge</b>	<b>73.33</b>		
	<b>Net Allowable ARR</b>	<b>100.89</b>		

## 7.2. Summary

7.2.1. The summary of the True-up for FY 2018-19 For APGCL is as shown below.

*Table 57: True-up for FY 2018-19 for APGCL (in Crores)*

<b>True-up for FY 2018-19 for APGCL</b>				
<b>Sl. No</b>	<b>Particulars</b>	<b>Approved as per order of March 2018</b>	<b>Amount appeared in Annual Accounts 18-19</b>	<b>Amount claimed for True-Up</b>
<b>I</b>	<b>POWER GENERATION (MU)</b>			
	Gross Generation	1939.71	1585.73	1585.73
	Net Generation	1866.26	1501.13	1501.13
	Auxiliary Consumption Loss %	3.79%	5.34%	5.34%
<b>I</b>	<b>Fixed Charges</b>			
	Operation & Maintenance Expenditure	131.81	113.49	113.49
	Employee Expenses		80.46	80.46
	R&M Expenses		19.92	19.92
	A&G Expenses		13.12	13.12
	Interest & Finance Charges	22.95	62.53	26.42
	Interest on working Capital	20.55	0.00	18.52
	Depreciation	40.50	50.13	36.16
	Return on Equity	42.88	0.00	43.51
	Less: Other Income	18.13	55.48	55.48
	<b>Total Fixed Charges</b>	<b>240.55</b>	<b>170.68</b>	<b>182.63</b>
<b>II</b>	<b>Fuel Cost</b>	<b>322.39</b>	<b>291.12</b>	<b>291.12</b>



<b>True-up for FY 2018-19 for APGCL</b>				
<b>Sl. No</b>	<b>Particulars</b>	<b>Approved as per order of March 2018</b>	<b>Amount appeared in Annual Accounts 18-19</b>	<b>Amount claimed for True-Up</b>
	Other expenses			
	Income taxes	0.00	6.25	6.54
	Prior period items	0.00	-5.84	0.00
	Impact of ROP	6.22	22.45	22.45
	Special R&M	25.90	0.00	0.00
<b>III</b>	<b>Total Other expenses</b>	<b>32.12</b>	<b>22.87</b>	<b>28.99</b>
<b>IV</b>	<b>Total Revenue Requirement</b>	<b>595.06</b>	<b>484.67</b>	<b>502.73</b>
<b>V</b>	<b>Add: Incentive for generation for FY 2018-19</b>	<b>0.00</b>	<b>0.00</b>	<b>1.68</b>
<b>VI</b>	<b>Add: Incentive for Secondary Energy generation</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>VII</b>	<b>Total Cost</b>	<b>595.06</b>	<b>484.67</b>	<b>504.41</b>
<b>VIII</b>	<b>Revenue from Sale of Power</b>	<b>595.06</b>	<b>512.69</b>	<b>512.69</b>
<b>X</b>	<b>Revenue Gap (+) / Surplus(-)</b>	<b>0.00</b>	<b>-28.03</b>	<b>-8.28</b>
	<b>Net Allowable Fixed / Capacity Charge</b>	<b>180.30</b>		
	<b>Net Allowable Fuel / Energy Charge</b>	<b>369.17</b>		
	<b>Net Allowable ARR</b>	<b>549.47</b>		

7.2.2. The Petitioner prays to the Hon'ble Commission to approve the plant wise Net Annual Revenue Requirement for FY 2018-19 as discussed in the tables above.



### 7.3. Revenue from sale of power

7.3.1. The plant wise Revenue from Sale of Power for FY 2018-19 are as shown in the tables below.

Table 58: Plant wise Revenue from Sale of Power for FY 2018-19

Rs. Cr

Particulars	Fixed/Capacity charges	Variable charges	Total Revenue appeared in Accounts FY 2018-19	Approved as per order of March 2018	Approved as per order of March 2019	Total Revenue claimed in True up for FY 2018-19
NTPS	46.68	83.47	130.15	180.70	136.48	130.15
LTPS	54.48	124.38	178.86	210.23	175.13	178.86
LRPP	25.68	76.06	101.75	100.89	96.03	101.75
KLHEP	53.07	48.87	101.94	103.24	103.3	101.94
MSHEP	0.00	1.89	1.89	0.00		0.00
Cumulative Revenue Gap towards Trueup for FY 2016-17 , Tariff Order dated 19-03-2018	17.52	0.00	17.52	0.00		0.00
<b>Total</b>	<b>197.43</b>	<b>334.67</b>	<b>532.10</b>	<b>595.06</b>	<b>510.94</b>	<b>512.69</b>

7.3.2. The above claimed revenue does not include Rs. 17.52 Crore received as cumulative revenue gap towards True Up for FY2016-17 vide tariff order dated 19.03.2018.

7.3.3. The Petitioner prays to the Hon'ble Commission to approve the plant wise Sale of Power for FY 2018-19 as discussed in the table above.

### 7.4. Adjustment of Revenue Gap / Surplus

7.4.1. The plant wise Revenue Gap / Surplus and also for APGCL has a whole are shown in the table below.

Table 59: Revenue Gap / Surplus amount for NTPS for FY 2018-19

Rs. Cr

Particulars	Amount claimed for True-Up
Total Cost	144.45
Revenue from Sale of Power	130.15
<b>Revenue Gap (+) / Surplus(-)</b>	<b>14.30</b>



Table 60: Revenue Gap / Surplus amount for LTPS for FY 2018-19

Rs. Cr

Particulars	Amount claimed for True-Up
Total Cost	173.40
Revenue from Sale of Power	178.86
<b>Revenue Gap (+) / Surplus(-)</b>	<b>-5.46</b>

Table 61: Revenue Gap / Surplus amount for KLHEP for FY 2018-19

Rs. Cr

Particulars	Amount claimed for True-Up
Total Cost	75.35
Revenue from Sale of Power	101.94
<b>Revenue Gap (+) / Surplus(-)</b>	<b>-26.59</b>

Table 62: Revenue Gap / Surplus amount for LRPP for FY 2018-19

Rs. Cr

Particulars	Amount claimed for True-Up
Total Cost	111.22
Revenue from Sale of Power	101.75
<b>Revenue Gap (+) / Surplus(-)</b>	<b>9.47</b>

Table 63: Revenue Gap / Surplus amount for APGCL for FY 2018-19

Rs. Cr

Particulars	Amount claimed for True-Up
Total Cost	504.41
Revenue from Sale of Power	512.69
<b>Revenue Gap (+) / Surplus(-)</b>	<b>-8.28</b>

7.4.2. As per Regulation 10.6, the Hon'ble Commission shall allow carrying cost for the trued up amount at SBI base rate as on 1<sup>st</sup> April of the respective year plus 350 basis points.

7.4.3. In view of the above, APGCL has claimed the carrying cost for APGCL as a whole. The Total True-up Claim including carrying cost is shown in the table below

*Table 64: Total True-up Claim including carrying cost for APGCL for FY 2018-19*

*Rs. Cr*

<b>True-up Claim</b>	<b>FY 2018-19</b>
Revenue Gap for 2018-19	-8.28
Carrying cost for True-up of FY 2018-19 (SBI Base Rate + 3.5%)	-1.01
<b>Total True-up Claim including carrying cost</b>	<b>-9.29</b>

7.4.4. We submit that the CAG Comments on Accounts for FY2018-19 has been attached in Annexure 2.

7.4.5. The Petitioner prays to the Hon'ble Commission to approve the Total True-up Claim including carrying cost for FY 2018-19 as discussed in the table above

REVISED CAPITAL INVESTMENT PLAN FOR FY 2019-20  
TO  
FY 2020-21 for NTPS, LTPS and KLHEP  
To  
ASSAM ELECTRICITY REGULATORY COMMISSION



Prepared by  
ASSAM POWER GENERATION CORPORATION LTD  
Bijulee Bhawan, Paltanbazar  
Guwahati – 781 001

## 8. Revised Capital Investment Plan for FY 2019-20 to FY 2020-21 for NTPS, LTPS and KLHEP

### 8.1. Regulatory provisions

- 8.1.1. The Hon'ble Commission in its Tariff regulations 2018 has stated the following on Capital Investment Plan for generating companies for the control period from FY 2019-20 to FY 2021-22. The same is reproduced below for ready reference:

*"6 Capital Investment Plan*

*6.1 The Generating Company, Transmission Licensee, SLDC Business and Distribution Licensee shall submit a Capital Investment Plan for the entire Control Period, as part of the MYT Petition as per the timeline specified in this Regulation and accompanied by the Fee required for processing of Investment plan, as specified in AERC (Payment of Fee) Regulations, 2015. .*

*6.2 The Capital Investment Plan for a generating company shall be based on planned generation capacity growth and shall contain among other things the following (i) generation forecasts; (ii) future performance targets; (iii) proposed efficiency improvement measures; (iv) saving in operating costs; (v) Plan for reduction in per unit/per MW cost of generation (vi) financial statements (which include balance sheet, profit and loss statement and cash flow statement) - current and projected (at least for the control period duration) along with basis of projections; (vii) any other new measure to be initiated by the Generating Company e.g. IT initiatives, third party energy audit, safety initiatives etc."*

*6.2.....*

*6.3.....*

*6.4.....*

*6.5.....*

*6.6.....*

*6.7.....*

*6.8.....*

*6.9.....*

*6.10.....*

*6.11.....*

*6.12 In the normal course, the Commission shall not revisit the approved capital investment plan during the control period. However, during the annual performance review and true-up, the Commission shall monitor the year wise progress of the actual capital expenditure incurred by the generating company or the licensee vis-à-vis the approved capital expenditure and in case of significant difference between the actual expenditure viz-a-viz the approved expenditure, the Commission may true up the capital expenditure, subject to prudence check, as a part of annual true up exercise or without an application to this effect by the generation company/licensee. The generating company and the licensee shall submit the scheme-wise actual capital expenditure incurred along with the annual performance review and true-up filing.*

*6.13 In case during execution of the project, the Capital Expenditure is estimated to cross 110% of the approved limit, the Licensee or company will need to take prior approval of the Commission before moving ahead with that expenditure.*

*6.14 In case during the annual performance review, large variations are observed in the actual cumulative capital expenditure incurred up to the current year starting from first year of the control period as against the approved capital expenditure, the Commission may revisit the costs incidental to the actual capital expenditure in the current year and remaining years of the control period.*



*Provided that the actual capital expenditure incurred shall be only for the schemes as per the approved capital investment plan.*

*Provided that if the actual capital expenditure incurred is more than the approved capital expenditure (whether at the time of MYT Order or separate approval before investment), the Commission may take appropriate decision at the time true-up of the cost incidental to such variations.*

8.1.2. In accordance with the regulatory requirements, APGCL is submitting a revised Repair & Maintenance Plan for APGCL for the Control Period FY 2019-20 to FY 2020-21 for approval from the Hon'ble Commission.

## **9. Capital Expenditure – Existing Projects**

### **9.1. RENOVATION & MODERNISATION (R&M) OF EXISTING PLANTS**

9.1.1. APGCL hereby petitions for a REVISED R&M Plan for its Existing Plants to the Hon'ble Commission.



## 9.2. Revised R&M Plan of Namrup Thermal Power Project

9.2.1. The following R&M Plan is proposed for Namrup Thermal Power Station for the Period FY 2019-20 to 2020-21:

Table 65: R&M plan proposed for Namrup TPS for FY 2019-20 to FY 2021-22

S. No	NTPS Approved Schemes	Approved by Commission		Revised		Remarks
		FY19-20 (in Lacs)	FY20-21(in Lacs)	FY19-20 (in Lacs)	FY20-21(in Lacs)	
<b>A</b>	<b>Electro-mechanical works of NTPS</b>					
<b>1</b>	Procurement, Installation & Commissioning of 33 KV SF6 circuit breaker at NTPS switchyard for WHP & 2 MVA auxiliary power supply Transformer.	16	–	31.32	0.00	The amount has been revised considering latest quotes and estimates
<b>2</b>	Procurement, Installation & Commissioning of 66 KV SF6 circuit breaker for NTPS switchyard (for breaker No. 4 and both the 66 KV Nazira feeder).	25.5	–			
<b>3</b>	Procurement & Replacement of 66 KV isolator sets for units and lines.	10	–	8.72	0.00	The amount has been revised considering latest quotes and estimates
<b>4</b>	Procurement of Medium Pressure Regulator. Make: FAIRCHILD, USA, Pressure Range: 0-150 psi	2	–	8.99	0.00	The amount has been revised considering latest quotes and estimates
<b>5</b>	Procurement of Precision Hydrogen Regulator. Make: HARRIS CALORIFIC CO.LTD, USA, Pressure:0-100 psi	4	–			
<b>6</b>	Procurement of Precision Hydrogen Regulator. Make: HARRIS CALORIFIC CO. LTD, USA,Pressure:0-50 psi	3.5	–			
<b>7</b>	New pipe line of water supply for North colony	15	0	14.79	0.00	The amount has been revised considering latest quotes and estimates
<b>8</b>	Re-wiring of the quarters.	9	9	9.18	9.00	The amount has been revised considering latest quotes and estimates
<b>9</b>	Sump Pump for DM plant (Submersible)	6	0	6.16	0.00	The amount has been revised considering latest quotes and estimates
<b>10</b>	High mast (30 m height, 400 W)	24	24	24.08	24.00	The amount has been revised considering latest quotes and estimates

S. No	NTPS Approved Schemes	Approved by Commission		Revised		Remarks
		FY19-20 (in Lacs)	FY20-21(in Lacs)	FY19-20 (in Lacs)	FY20-21(in Lacs)	
11	LED Street light	3.8	3.8	3.80	3.80	
12	Multifunction/Mult i-parameter Calibration Test Bench	–	20	0.00	20.00	
13	C.W. Pump for colony water supply. (60 HP)	8	8	8.40	8.00	The amount has been revised considering latest quotes and estimates
14	DG set for GM office and two nos for Guest House (VVIP & old) 63 KVA	15	15	0.00	15.00	
15	Construction of Overhead tank (100000 lit capacity) for 24 hrs. water supply for Civil colony & WHP colony	0	16	0.00	16.00	
18	Spectrophoto meter	8	–	21.69		The amount has been revised considering latest quotes and estimates
19	Electronic Balance	2.4	–			
20	Portable Dissolved Oxygen Kit	1.8	–			
21	Turbidity Meter	2	–			
22	pH Meter	3	–			
23	Conductivity meter	3.6	–			
<b>B.</b>	<b>CIVIL Works in NTPS</b>					
1	Repairing of residential quarter of Type-III, Type-C, Type-IV at NTPS (Phase-II), Type-C (3 nos.) Type-III (5 nos.), Type-IV (4 nos.) - Approved for FY21-22	–	–	22.22	0.00	The amount has been changed to 22.22 L. The quarters were increased as Type-III (6 nos.), Type-C (4 nos.) and Type-III (4 nos.). Improvement of the residential buildings for extending the



S. No	NTPS Approved Schemes	Approved by Commission		Revised		Remarks
		FY19-20 (in Lacs)	FY20-21(in Lacs)	FY19-20 (in Lacs)	FY20-21(in Lacs)	
						service life of the buildings and better amenities for the occupants. So, it was taken up during FY 19-20
2	Repairing of Dikrong path at NTPS, Namrup	9.88	–	9.97	0.00	Revised based on Estimates
3	Repairing of Dikari path at NTPS, Namrup	9.9	–	9.66	0.00	Revised based on Estimates
4	Repairing of Manas path at NTPS, Namrup	9.63	–	9.55	0.00	Revised based on Estimates
5	Repairing of 9 (nine) nos. residential quarter Type-B at NTPS (Phase-II)	–	19.13	19.21	0.00	The amount has been changed to 19.21 L. Improvement of the residential buildings for extending the service life of the buildings and better amenities for the occupants. So, the proposal was taken up during FY 19-20
6	Repairing of connecting road between Dihing and Disang Path, NTPS	–	9.97	–	9.97	
7	Repairing of Dikhou Path at NTPS.	–	9.75	–	9.75	
8	Repairing of Champabati Path at NTPS.	–	9.91	–	9.91	
	<b>Total</b>	<b>192.01</b>	<b>144.56</b>	<b>207.74</b>	<b>125.43</b>	

### 9.3. Revised R&M Plan of Lakwa Thermal Power Project

9.3.1. The following R&M Plan is proposed for Lakwa Thermal Power Station for the Period FY 2019-20 to 2020-21:

Table 66: R&M plan proposed for Lakwa TPS for FY 2019-20 to FY 2021-22

LTPS		Approved by Commission		Revised		Remarks
Approved Schemes		FY19-20 (in Lacs)	FY20-21(in Lacs)	FY19-20 (in Lacs)	FY20-21(in Lacs)	
A	<b>Electro-mechanical works of LTPS</b>					
1	Procurement of field instruments of Gas Turbine units of LTPS	50.00	60.00	50.00	60.00	
2	Procurement of field instruments of Gas Turbine units of LTPS of Gas Compressor units of LTPS	40.00	50.00	40.00	50.00	
3	Procurement of Vacuum Circuit Breaker for 3.3 KV panel in Ph-II power house	30.00	—	33.00	0.00	
4	11 Kv Generator PT (For metering & protection)	1.00	—			
5	11 Kv Generator PT (For metering & protection)	1.00	—			
6	12 KV Generator L.A.	1.00	—			
7	Procurement of materials required for complete Renovation of DM Plant under WHRP, LTPS	0.00	0.00	128.00	0.00	Due to none commissioning of Bulk Acid Storage Tank and Bulk Caustic Storage Tank, acid and caustic are being fed manually to the Acid measuring Tanks caustic dilution tank. Because acid fumes continuously comes out of the tank, there is a corrosive atmosphere in the entire DM Plant and auto valves and actuators are seen heavily rusted and not operating even manually. Due to corrosion, all MSRL piping gets heavily rusted and there are instances of leakages from MSRL piping almost in the entire plant. And also PLC commissioning of the plant was not done. Hence, new materials will be required for PLC commissioning of the plant and for smoother operation of the DM Plant as well as WHRP and LRPP, complete commissioning of DM Plant will be required.

LTPS	Approved Schemes	Approved by Commission		Revised		Remarks
		FY19-20 (in Lacs)	FY20-21 (in Lacs)	FY19-20 (in Lacs)	FY20-21 (in Lacs)	
8	Procurement, Repairing & Restoration of HRSG Unit No.1. at LTPS, APGCL, based on RLA study	0.00	0.00	179.00	0.00	<p>RLA Study is mandatory for Boiler Pressure Parts after 1,00,000 hours of operation and study on steam turbine Generator also need to be carried out after 15 to 20 years of operation.</p> <p>As per Indian Boiler Regulation norms (IBR 391A) for Boiler, the critical components which are subject to wear and tear or are exposed to high temperature &amp; pressure zone (creep) needs to be examined through Non Destructive Tests (NDT) &amp; Destructive Tests (DT) and RLA study of Boiler, Turbine and Generator in Thermal Power Station after one lakh hours of operation to improve plant availability factor and ensure better operations, better Safety &amp; integrity of the plant components. RLA studies provide very useful information to the plant officials, thereby assisting in taking decisions for Running, Repairing and Replacement will reduce frequent failure of boiler tube and other pressure parts. On 09/02/2018, the Steam Turbine Generator (STG) of WHP, LTPS, tripped due to low main Steam Temperature at 18:15 hrs. But after tripping, the diverter damper of HRSG #1 was not closed for nearly 03 hours while the related Gas Turbine (GT) unit was running on full load of 20 MW. As the GT unit was running in full load condition during that period, maximum HRSG#1 exhaust temperature at chimney was around 380°C (normal temperature at HRSG#1 Exhaust should be around 120°C). As the HRSG unit was exposed to high temperature for nearly 03 hrs, the HRSG unit has been apparently affected. By keeping in mind of any probable interior damage of HRSG unit No.1, it was proposed to conduct RLA study of the HRSG Unit and based on its report the repairing of the Unit be initiated. It is to be worth mentioned that, due to outage of HRSG #1 APGCL is facing a shortfall of 10 MW to 11 MW per day.</p>
9	Procurement of On-line Effluent and Emission Monitoring System at Lakwa Thermal Power Station (LTPS)	0.00	0.00	245.07	0.00	<p>The Central Pollution Control Board (CPCB), Delhi insists APGCL to implement On-line Effluent and Emission Monitoring System at Lakwa Thermal Power Station (LTPS) of APGCL as the</p>



LTPS		Approved by Commission		Revised		Remarks
Approved Schemes	FY19-20 (in Lacs)	FY20-21 (in Lacs)	FY19-20 (in Lacs)	FY20-21 (in Lacs)		
						<p>thermal power plants are identified as one of the 17 categories of highly polluting industries which have been discharging environmental pollutants directly or indirectly into the ambient air and water, having potential threat to cause adverse effect on the water and air quality.</p> <p>The Chairman of Central Pollution Control Board, CPCB Delhi convened a meeting on 19/04/2017 where he cautioned that non-compliant plant should stop generating power till the On-line Effluent and Emission Monitoring System is installed and connected to the CPCB server. CPCB has also cautioned that such non-compliant thermal power plants shall have to face legal action and prosecution under violation of the National Green Tribunal Act, 2010. In this context, due to financial constrain APGCL has placed implementation of On-line Effluent and Emission Monitoring System at Lakwa Thermal Power Station (LTPS) as supplementary demand to GoA in the year 2017-18 vide no. APGCL/CGM(G)/AP/2017-18/20/PT XXVI/86 dtd: 18-01-2018. Administrative approval for the said scheme has not been received.</p> <p>Now, "Closer Order" passed by the Central Pollution control Board (CPCB) dated: 30-07-2018 has been received from the Bhartari Law Chamber, New Delhi and as per Section 5 of the Environment (Protection) Act, 1986 (29 of 1986), CPCB directed Lakwa Thermal Power Station not to operate the Plant without installation of complete Online Continuous Emission &amp; Effluent Monitoring System (OCEMS) and providing connectivity to CPCB server.</p>
10	Up gradation of Generator Control & protection panel of 3 x 20 MW, Ph-II units (1 unit in first phase) - (Approved for FY21-22)	-	-	0.00	150.00	This scheme was approved to be undertaken in FY2021-22 but has been preponed for FY2020-21
11	Procurement of 05 sites of 132 KV isolators for replacing the old existing isolators in phase-II power house switchyard.	-	50.00	0.00	50.00	



LTPS		Approved by Commission		Revised		Remarks
Approved Schemes	FY19-20 (in Lacs)	FY20-21 (in Lacs)	FY19-20 (in Lacs)	FY20-21 (in Lacs)		
12	Procurement of Inlet Air Filter for GT's	22.00	24.00	0.00	24.20	Based on revised estimate
13	Procurement of spares for Gas Turbines	40.00	44.00	0.00	44.00	
14	Procurement of new EOT Crane in GC #9	–	25.00	0.00	25.00	
15	Procurement of New Air Drying system in GC #9 WHRP (Waste Heat Replacement Project)	–	10.00	0.00	10.00	
16	Gas chromatography with mitering at LTPS			0.00	200.00	Required for better accuracy of measurement of gas consumption
17	AVR for GT#6			0.00	60.00	The unit 6 existing analog AVR of LTPS has become old and obsolete. There is no technical support for it from OEM (Le. BHEL) regarding technology and spares. So for smooth and reliable operation of the generator and to avoid any prolong outage of the GT owing to unavailability of AVR spares, it is propose to replace the existing BHEL make analog AVR with new digital AVR. The digital AVR has their advantages such as ease of trouble shooting of the problems, microprocessor based programming, dual channel, more effective control due to digitization of the AVR etc. It may be mentioned here that 2 (two) nos. BHELmake have been already replaced with new DAVR of make ABB ltd. for the generator of GT7 & 5 in the year 2011 & 2014 respectively. The operation and performance of these DAVR is found to be quite satisfactory. So, it is now propose to procure a new DAVR of make ABB limited to replace the analog of GT Unit # 6. The communication protocol also needs to be procured from MIS ABB so that in event of crash of operating system we can restore the same without any hindrance.
18	Overhauling of Gas Compressor #6 & #7			0.00	300.00	The Phase-II Power House running with some very old 4RDS-Dresser Rand Gas Compressors unit no.6.7 and 8. The process for major overhauling works of the Gas



LTPS		Approved by Commission		Revised		Remarks
Approved Schemes	FY19-20 (in Lacs)	FY20-21 (in Lacs)	FY19-20 (in Lacs)	FY20-21 (in Lacs)		
						Compressor no. 8 is already going on and the rest of 2 nos. (unit 6 & 7) compressors overhauling will also be required due to facing frequent maintenance related problems. The Dresser Rand Gas Compressor has been using for feeding of pressurised gas to its BHEL.GE.FRAME-V.20MW Gas Turbines since around 1994 and in future due to its old age and other reasons there are chances for increase in maintenance related problems. Already different maintenance works were also done to attend such problems which consumed many shut down periods. To minimise such shut down periods of the unit we were discussed the matter with OEM, Dresser Rand also. After discussion with them, they suggested to go for Overhauling of the unit and also to resolve foundation related issues.
19	Overhauling of Diesel Engine of GT #5, #6 & #7			0.00	62.00	Cummins Starting-Diesel Engine of Frame-V, BHEL., GE., 20MW Gas Turbine unit no.5.6 & 7 of Phasc-II Power House started facing different maintenance related problems for different reasons from last few years. Different maintenance related work to attend different problems were also done during these period. As the Starting Diesel Engine has been used by GT#5.6&7 since 1994 so due to its old age. To minimize such problems we were discussed to OEM. CUMMINS. therefore they sent a service engineer from their end to look into the matter and they suggested for overhauling the Starting Diesel Engines.
	<b>WHRP (Waste Heat Replacement Project)</b>					
20	Raw Water Pump.	–	10.00	0.00	10.00	
21	Cooling Tower makeup pump motor	–	6.00	0.00	6.00	
22	Cooling Tower makeup pump.	–	10.00	0.00	10.00	

LTPS		Approved by Commission		Revised		Remarks
Approved Schemes	FY19-20 (in Lacs)	FY20-21 (in Lacs)	FY19-20 (in Lacs)	FY20-21 (in Lacs)		
23	Raw Water Pump.	–	20.00	0.00	20.00	
24	Gland Steam Control Valve	–	5.00	0.00	5.00	
25	Field packs of Cooling Tower of WHRP			0.00	100.00	<p>The Cooling Tower at WHRP, LTPS of make Paharpur Cooling Towers Ltd., (model: 84836-5.0-06) had been in continuous operation since the commissioning of the WHRP, i.e., from 2012. Due to continuous operation of the Cooling tower the fill Packs of the cooling tower have got damaged resulting in non proper Cooling of Condenser Cooling Water. As a result of which, low Vacuum is observed in the Condenser which affects the MW Generation of the STG. Hence inspection of the Cooling Tower was carried out by personnel of the OEM. i.e. M/S Paharpur. After carrying out the necessary inspection the OEM had submitted its Inspection Report to LTPS. As per the Inspection Report, the Fill Packs in the Cooling Tower were found to be in damaged condition at various locations in almost all the cells. Apart from the fill packs, a few Drift Eliminators are found damaged. Also. spray nozzles at some locations are found choked, end caps of a few branch pipes found opened out, etc. According to the recommendation of the OEM, some corrective actions are required to be taken so that the Cooling Tower can be operated optimally and safely. Some of these corrective measures required are:</p> <ol style="list-style-type: none"> <li>1. Damaged Fill Packs (100%) to be replaced.</li> <li>2. Damaged Nozzles to be replaced.</li> <li>3. A certain quantity of blades and spacers of the Drift Eliminator (20-25%) to be kept ready as spare as during the replacement of the Fill Packs, some Eliminators might get damaged.</li> <li>4. All Spray Nozzles, PVC Branch Pipes and Adaptor Arm to be cleaned, etc.</li> </ol>

LTPS Approved Schemes		Approved by Commission		Revised		Remarks
		FY19-20 (in Lacs)	FY20-21(in Lacs)	FY19-20 (in Lacs)	FY20-21(in Lacs)	
26	JOP Motor (DC)	–	10.00	0.00	10.00	
<b>B. CIVIL Works in LTPS</b>						
1	Upgradation & renovation of water supply system (treatment plant and pipe lines) at RWSS & DWSS at LTPS colony	20.00	20.00	20.00	20.00	
2	Modification of drainage system inside LTPS colony and plant area	30.00	–	30.00	0.00	
3	Renovation of boundary wall of LTPS colony (Residential)	20.00	20.00	20.00	20.00	
4	Renovation of boundary wall of LTPS plant area.	20.00	20.00	20.00	20.00	
5	Repairing of residential quarter inside LTPS colony	20.00	20.00	20.00	20.00	
6	Construction of one no. of Type III/IV residential milt storied building at LTPS residential area.	-	170.00	0.00	170.00	
7	Beautification of LTPS colony and plant area.	15.00	10.00	0.00	10.00	
8	Renovation and beautification of LTPS guest house.	15.00	10.00	0.00	10.00	
9	Procurement of Gym equipment.	5.00	5.00	0.00	5.00	
<b>Total</b>		<b>330.00</b>	<b>599.00</b>	<b>785.07</b>	<b>1471.20</b>	



## 9.4. Revised R&M Plan of KLHEP

9.4.1. The following R&M Plan is proposed for Karbi Langpi Hydro Electric Power Station for the Period 2019-20 to 2020-21

Table 67: R&M plan proposed for KLHEP for FY 2019-20 to FY 2021-22

KLHEP Approved Schemes	Approved by Commission		Revised		Remarks	
	FY19-20 (in Lacs)	FY20- 21(in Lacs)	FY19-20 (in Lacs)	FY20- 21(in Lacs)		
<b>A Electro-mechanical works of KLHEP</b>						
1	Procurement of Testing Equipment for KLHEP & MSHEP	100.00	–	100.00		
2	Replacement of LT Panels of KLHEP	–	100.00		170.30	Previously Panel for Lighting System in and around KLHEP Power House premises was not included in the estimate.
3	Procurement of 220 KV switchgear materials for replacement of existing old system. (CT, transformer, isolators etc.)	–	600.00		902.13	2 Sets of 220 KV SF-6 Circuit Breakers and 6 Nos. of 220 KV Current Transformer added to previous estimate as tandelta value of the said equipment not satisfactory
4	Refurbishment of 2 Nos. of Penstock Protection Butterfly valves supplied by BHEL at 2x50 MW KLHEP	0.00	0.00	406.85		The butterfly valve of both the units were supplied by M/s BHEL in the year 1983-84. The above valves were commissioned in the year 2006, require major overhauling as the opening and closing mechanism of both the penstock butterfly bales are not functioning. Till date the overhauling of the said valves has not been carried out. The refurbishment of both the penstock butterfly valves have become mandatory to carry out the Major Overhauling of the main units. The matter was placed before the Board to carry out the work which allowed to carry out the work through own source of fund of APGCL as the said job was very essential.
5	Procurement of new crane with loading capacity of 20 Ton Capacity for the O&M works of KLHEP and MSHEP	0.00	0.00	0.00	148.64	There is a 12.5 tonnes coles crane manufactured in the year 1983 at KLHEP station which is the only source of lifting / moving of all the heavy equipment but

KLHEP	Approved Schemes	Approved by Commission		Revised		Remarks
		FY19-20 (in Lacs)	FY20-21(in Lacs)	FY19-20 (in Lacs)	FY20-21(in Lacs)	
						due to its lesser capacity and unavailability of spares it becomes very difficult during loading and unloading works at power house site. So, a new mobile crane with 360 base rotational and lifting capacity of 20 ton is required for the smooth functioning of the KLHEP and MSHEP. This will also help to take up capital overhauling maintenance works and other maintenance works of the units of KLHEP and MSHEP.
6	Procurement of new 3-phase, 750 KVA, 100/0.43KV transformer required for the running 50 MW unit auxiliaries of 2x50 MW KLHEP	0.00	0.00	0.00	16.00	Currently, APGCL has two nos. of UAT for Unit 1 and 2 which is exclusively required for auxiliary supplies of each unit. These UATs are connected separately to the unit in generating condition i.e. UAT-1 of Unit 1 cannot be connected to Unit-2 for load generation and vice versa. In case of failure of an UAT in line with running unit and when the other unit is in stand still, we have to connect our auxiliaries to SRT power which is not desirable as the SRT power is connected to MSHEP and other APDCL Substations/DTR(S). Therefore for smooth running of KLHEP units, one 750 KVA transformer is necessary.
<b>B</b>	<b>CIVIL Works in KLHEP</b>					
1	Renovation and Modernisation of water supply providing Deep Tube Well at Power House site of KLHEP	15.00	–	15.00	0.00	
2	Slope Protection work at left bank downstream of Hatidubi Dam, KLHEP	0.00	0.00	65.00	0.00	The slope adjacent to the approach road near Hatidubi Dam site is severely prone to frequent landslides. For smooth functioning of the project, the said work was taken up on an urgent basis as a remedial measure against landslide.



KLHEP	Approved Schemes	Approved by Commission		Revised		Remarks
		FY19-20 (in Lacs)	FY20-21(in Lacs)	FY19-20 (in Lacs)	FY20-21(in Lacs)	
3	Construction of Masonary Drain at Amtereng Hatidubi Road at Chainage 2.00 km	–	3.00	–	3.00	
4	Construction of Masonary Drain at Amtereng Hatidubi Road at Chainage 5.00 km	–	5.00	–	5.00	
5	Protection work of Landslide area at left bank of Downstream of KLHEP Hatidubi Dam	–	30.00	–	30.00	
<b>Total</b>		<b>115.00</b>	<b>738.00</b>	<b>586.85</b>	<b>1275.07</b>	

## 10. Asset valuation and ERP implementation

### 10.1. Asset valuation

10.1.1. The Hon'ble Commission had approved the Asset Valuation Expenses for APGCL in its order dated 1<sup>st</sup> March 2019.

10.1.2. The contract for Asset Valuation is under final stage of signing. The work is expected to begin in January 2020 and hence the cost has been apportioned between FY2019-20 and FY2020-21

10.1.3. The approved and projected cost has been shown below in the table

Table 68: Financial impact of Asset valuation

Rs. Cr

Asset valuation	Approved by Commission (in Crores)						Revised (in Crores)					
	FY 2019-2020			FY 2020-2021			FY 2019-2020			FY 2020-2021		
	Equity	Loan	Grant	Equity	Loan	Grant	Equity	Loan	Grant	Equity	Loan	Grant
	-	0.43	3.85					0.13	1.16		0.30	2.70

## 10.2. ERP implementation and consultancy

- 10.2.1. The Commission had approved the ERP Implementation and Consultancy costs for FY2019-20 to FY2020-21 in its order dated 1<sup>st</sup> March 2019
- 10.2.2. As part of the ongoing ERP implementation, the works have been divided into 4 lots. The total estimated budget has been re-assessed after signing of Contract for Lot 1 at INR 43.4 Crores (approx.).
- 10.2.3. At present, Lot 1 implementation is carried out by M/s Accenture Solutions Pvt. Ltd. The contract was signed on 31st July 2019 for Lot 1 at contract price at INR 27.50 Crore and actual implementation work at APGCL site began on 14.10.2019.
- 10.2.4. The actual cost of the remaining lots will be known only after signing of the contracts for the same and they will be claimed during True Up for the respective years.
- 10.2.5. We had earlier considered the ERP consultancy to be completed within FY2018-19. ERP implementation work is ongoing and expected to be completed by March 2021.
- 10.2.6. Thus, it has been decided that consultancy services would be required till project completion. Hence the cost has been estimated and apportioned in FY2019-20 and FY2020-21 respectively.
- 10.2.7. The actual revised contract with the consultant is yet to be signed and will be claimed during True Up for the respective years.
- 10.2.8. The total financial impact is shown in the table below:

*Table 69: Financial impact of Asset valuation and ERP implementation*

Rs. Cr

ERP implementation and consultancy	Approved by Commission (in Crores)						Revised (in Crores)					
	FY 2019-2020			FY 2020-2021			FY 2019-2020			FY 2020-2021		
	Equity	Loan	Grant	Equity	Loan	Grant	Equity	Loan	Grant	Equity	Loan	Grant
	-	1.79	19.28		0.34	3.71		8.05	0.89		19.23	2.14

## 10.3. Disaster Management Training

- 10.3.1. The Government of Assam has mandated disaster management training of all APGCL employees.
- 10.3.2. The estimated impact of the training cost has been shown below:



Disaster Management Training	Approved by Commission (in Crores)						Revised (in Crores)					
	FY 2019-2020			FY 2020-2021			FY 2019-2020			FY 2020-2021		
	Equity	Loan	Grant	Equity	Loan	Grant	Equity	Loan	Grant	Equity	Loan	Grant
								0.02				

10.3.3. The financial impact of ERP implementation, Asset valuation and Disaster Management Training services is shown in the table below.

*Table 70: Financial impact of ERP implementation, Asset Valuation and Disaster Management Training plant wise*

*Rs. Cr*

Asset valuation, ERP and Disaster Management Training	FY 2019-2020			FY 2020-21		
	Equity	Loan	Grant	Equity	Loan	Grant
NTPS	-	2.18	0.54	-	5.18	1.28
LTPS	-	2.60	0.65	-	6.20	1.53
KLHEP	-	3.42	0.86	-	8.15	2.02
<b>Total</b>	-	<b>8.20</b>	<b>2.05</b>	-	<b>19.53</b>	<b>4.83</b>

1.1.1 The financial impact of ERP implementation, Asset valuation services and Disaster Management Training are capitalized station wise in the FY2019-20 and FY2020-21 as shown above.

## 11. SUMMARY OF THE REVISED CAPITAL EXPENDITURE PLAN

### 11.1. Proposed Capex

11.1.1. As per the proposals given in the above sections for existing projects, total proposed year wise revised capital expenditure during the period from 2019-20 to 2020-21 of APGCL is as given below:

Table 71: Summary of capital expenditure plan for FY 2019-20 to FY 2020-21  
Rs. Cr

Existing Projects	FY2019-20 (in Crores)			FY2020-21 (in Crores)		
	Equity	Loan	Grant	Equity	Loan	Grant
<b>NTPS</b>	0.00	2.08	0.00	0.00	1.25	0.00
<b>LTPS</b>	0.00	7.85	0.00	0.00	14.71	0.00
<b>KLHEP</b>	4.07	1.80	0.00	0.00	12.75	0.00
Other Projects						
<b>Asset Valuation</b>		0.13	1.16		0.30	2.70
<b>ERP Implementation and Infrastructure Development of APGCL</b>		8.05	0.89		19.23	2.14
<b>Disaster Management Training at APGCL</b>		0.02				
<b>Total</b>	<b>4.07</b>	<b>19.93</b>	<b>2.05</b>	<b>0.00</b>	<b>48.25</b>	<b>4.83</b>



## 12. Revised Maintenance Plan for FY2019-20 and FY2020-21

### 12.1. Maintenance Schedule for the FY 2019-20 to 2020-21

12.1.1. The revised Maintenance Schedule of the existing plants is shown below. Only The Major Overhauling works planned for the stations have been shown in the tables.

### 12.2. Major Overhauling of NTPS

12.2.1. No Major Overhauling of the units have been planned for NTPS in FY2019-20 and FY2020-21

### 12.3. Major Overhauling of LTPS

12.3.1. A planned maintenance of Unit 7 of LTPS has been planned in FY2020-21 in the month of December for 30 days. The same has been shown below:

Table 72: Maintenance Schedule for FY 2020-21 for LTPS

		2020-21											
LTPS	Unit	April	May	June	July	August	September	October	November	December	January	February	March
		7	Major Overhauling									30 days	

## 12.4. Major Overhauling of KLHEP

12.4.1. A planned maintenance of Unit 1 of KLHEP has been planned in FY2019-20 from 20th January 2020 till 18th April 2020 for 90 days.

12.4.2. A Planned maintenance of Unit II of KLHEP has been planned in FY2020-21 from 1st January 2021 till 10th March 2021 for 69 days.

12.4.3. The same has been shown below:

Table 73: Maintenance Schedule for FY 2019-20 for KLHEP

		2019-20											
KLHEP	Unit	April	May	June	July	August	September	October	November	December	January	February	March
		1	Major Overhauling										12

Table 74: Maintenance Schedule for FY 2020-21 for KLHEP

		2019-20											
KLHEP	Unit	April	May	June	July	August	September	October	November	December	January	February	March
		1	Major Overhauling	18									
2	Major Overhauling										31	28	10



## **12.5. Major Overhauling of LRPP**

12.5.1. No major overhauling works has been planned for LRPP in FY2019-20 and FY2020-21

The Hon'ble Commission is requested to approve the above Revised Major Overhauling plan for the power plants.



APPEAL FOR ANNUAL PERFORMANCE REVIEW FOR  
FY 2019-20

To

ASSAM ELECTRICITY REGULATORY COMMISSION



Prepared by  
ASSAM POWER GENERATION CORPORATION LTD  
Bijulee Bhawan, Paltanbazar  
Guwahati – 781 001

## AFFIDAVIT – ANNUAL PERFORMANCE REVIEW

BEFORE THE ASSAM STATE ELECTRICITY REGULATORY  
COMMISSION, GUWAHATI.

Petition No. –

Case No.  
(to be filed by the Office)

IN THE MATTER OF

Filing of Annual Performance Review of the FY 2019-20

AND

IN THE MATTER OF

Assam Power Generation Corporation Limited  
Bijulee Bhawan, Paltanbazar,  
Guwahati-781 001.

Petitioner

I, Sri Ramendra Choudhury, son of Late Nagendra Choudhury, age 59 years, residing at Six Mile, Guwahati-781022, do solemnly affirm and say as follows:

I am the General Manager (HQ) of Assam Power Generation Corporation Limited, the petitioner in the above matter and am duly authorized by the said Petitioner to make this affidavit for and on behalf of the Assam Power Generation Corporation Limited.

The Statement made in the Petition based on information received from official records and I believe them to reflect truly and no material has been concealed from the statements so made or documents or supporting data etc. attached.

Solemnly affirm at Guwahati on 29<sup>th</sup> November 2019 that the contents of this affidavit are true to my knowledge, no part of it is false or no material has been concealed therefore and misleading material included therein.

Place: Guwahati

Date: 29<sup>th</sup> November 2019

Deponent



(Ramendra Choudhury)  
General Manager (HQ),  
Assam Power Generation Corporation Ltd.



## PRAYER – ANNUAL PERFORMANCE REVIEW

**BEFORE THE HON'BLE ASSAM ELECTRICITY REGULATORY COMMISSION**

FILINGNO .....

CASENO.....

**IN THE MATTER OF:**

Petition for Annual Performance Review of the FY 2019-20

**AND IN THE MATTER OF:**

Assam Power Generation Corporation Limited incorporated under the provisions of the Companies Act, 1956 and having its registered office in the State of Assam

**THE HUMBLE APPLICANT ABOVE NAMED MOST RESPECTFULLY SHEWETH:**

- i. That the Assam Power Generation Corporation Limited, hereinafter named as APGCL, is a successor corporate entity, formed in pursuant to the notification of the Government of Assam, notified under sub-sections (1), (2), (5), (6) and (7) of Section 131 and Section 133 of the Electricity Act 2003(Central Act 36 of 2003), for the purpose of transfer and vesting of functions, properties, interests, rights, obligations and liabilities, along with the transfer of Personnel of the Board to the successor corporate entities.
- ii. That the APGCL is a company Incorporated with the main object of generation of electricity in the state of Assam.
- iii. That the APGCL is a generating company under the provisions laid down in Section 14 Proviso 5, read with Section 131 (2) of the Electricity Act 2003.
- iv. That the APGCL submitted petitions for ARR for the FYs 2019-20 to 2021-22 and Determination of Tariff for the FY 2019-20 to the AERC on 30/11/2018.
- v. That the AERC, after completion of the due process, issued Tariff Order for the FY 2019-20 on 01/03/2019 with effectuation date from 01/04/2019.
- vi. That APGCL is now submitting the Petition for Annual Performance Review for the FY 2019-20 as per the relevant Regulations.

Place: Guwahati

Date: 29<sup>th</sup> November' 2019

**Deponent**



**(R. Choudhury)**

**General Manager (HQ),**

**Assam Power Generation Corporation Ltd.**



### 13. Present status of NTPS, LTPS, KLHEP and LRPP

Table 75: Present Status of NTPS Units

Unit No.	Installed Capacity (MW)	Maximum Operating Capacity (MW)	Present Status
2 (GT)	21	16	The maximum operating capacity of the units has been affected by vibration problems and generation has come down to 16 MW and 18 MW respectively. Further, there is cooling problem in the generator transformer of Unit-3, which is affecting its maximum operating capacity.  Other than the technical problems, the units are facing erratic gas supply problem as well.
3 (GT)	21	18	
4 (GT)	11	5	The unit is preferred to keep under forced shutdown in case of unavailability of gas due to its high heat rate. As such, this unit is under shutdown for most of the time in view of low gas supply condition being faced by NTPS. Further, the unit cannot be operated at its full load capacity even when sufficient gas is available to run the unit, as it is facing high exhaust temperature problem (Oil & Air seals). This problem has not been solved due to lack of spare parts. In view of the upcoming NRPP, spares for the unit have not been procured.
5 (ST)	24	10	In addition to the problem of low gas pressure, the unit suffers from technical problems like HP heater problem, which is not in operating condition and repairing is not being done due to high cost involvement. There is also condenser vacuum problem which is inherent to this unit. Further, there is super heater tubes problem due to ageing of the unit. Because of these problems the average operating load of the unit is restricted. <b>Presently, the unit is not in operation due to shortage of manpower because of the test commissioning activities of NRPP.</b>
6 (WHRU with GTs 2 & 3)	22.5	10	The unit can be run at average operating load of 10 MW depending on the load on the mother units. This unit cannot be run at full load due to technical problems.

Table 76: Present Status of LTPS Units

Unit No.	Installed Capacity (MW)	Maximum Operating Capacity (MW)	Present Status
Ph-II 5 (GT)	20	20	The Unit is in operating condition and generates power depending on the availability of gas.  Major Overhauling of the unit had been proposed in the <b>FY 2019-20 but now it has been deferred.</b>



Unit No.	Installed Capacity (MW)	Maximum Operating Capacity (MW)	Present Status	
			Main Constraint-Erratic Gas Supply.	
6 (GT)	20	20	The Unit is in operating condition and generates power depending on the availability of gas.  <b>Hot Gas Path Inspection FY 2019-20.</b> Main Constraint-Erratic Gas Supply.	
7 (GT)	20	20	The Unit is in operating condition and generates power depending on the availability of gas.  Major Overhauling of the unit has been proposed in the <b>FY 2020-21 under special Repair &amp; Maintenance.</b>  Main Constraint-Erratic Gas Supply.  EMD-I: The channel one of DAVR of GT#& is proposed to be rectified soon in the third week of March'19 to avoid any loss.	
Ph-III	8 (WHRU with GTs 5, 6 & 7)	37.2	20	The unit is in operating condition and generating power depending on the generation of the mother units. The unit is presently operating with two numbers of HRSGs only due to the force shut down of HRSG#1 of Unit 5(GT#5) on 9/02/2018 caused by overheating because of high exhaust temperature.

Table 77: Present Status of KLHEP Units

Unit No.	Installed Capacity (MW)	Present Status
1	50	The unit is in operating condition and generating power as per availability of water.  <b>Major Overhauling</b> of the unit was earlier proposed in Jan'19-Mar'19. However, due to delay in fund approval from GOA the work could not be carried out as per schedule. Later, due to the arrival of peak season it was decided to carry out the work in the lean season. The work will now be carried out in Jan'20-Apr'20 for 90 days. The work is already approved by the Hon'ble Commission in principle in their Tariff Order dated 19-03-2018.
2	50	The unit is in operating condition and generating power as per availability of water.  <b>Major Overhauling</b> for the unit is proposed in the FY 2020-21 under special Repair & Maintenance.

Unit No.	Installed Capacity (MW)	Present Status
<p>Moreover, the overhauling of the two butterfly valves is also going to be carried out during the overhauling of unit-1 of KLHEP from 20-01-2020 to 18-04-2020. During this period there will be no power generation by the station. This will impact the Plant Availability Factor of the station in the FY 2019-20.</p>		

*Table 78: Present Status of LRPP Unit*

Unit No.	Installed Capacity (MW)	Remarks
1	9.965	<p>The unit is running successfully and generating power depends on the availability and quality of gas.  <b>Main Constraint : Erratic Gas Supply.</b></p>
2	9.965	
3	9.965	
4	9.965	
5	9.965	
6	9.965	
7	9.965	

## 14. Annual Performance Review of FY 2019-20

### 14.1. Regulatory provisions

14.1.1. The Hon'ble Commission in its regulation has stated the following on Annual Performance Review of various costs under the Assam Electricity Regulatory Commission (Terms and Conditions for determination of Multi Year Tariff) Regulations, 2018. The same is reproduced below for ready reference:

*"9 Annual Performance Review and True Up*

*9.1 Where the aggregate revenue requirement and expected revenue from tariff and charges of a Generating Company or Transmission Licensee or Distribution Licensee or SLDC is covered under a Multi-Year Tariff framework, then such Generating Company or Transmission Licensee or Distribution Licensee or SLDC, as the case may be, shall be subject to an annual performance review and true up during the Control Period in accordance with this Regulation.*

*9.2 The Generating company, Transmission Licensee and the Distribution Licensee shall file an application for annual performance review of current year, true-up of previous year and tariff for the ensuing year not less than 120 days before the close of each year of the control period..*

*Provided that the Generating Company or Transmission Licensee or Distribution Licensee or SLDC, as the case may be, submit to the Commission information in such form as may be stipulated by the Commission, together with the Accounting Statements, extracts of books of account and such other details as the Commission may require to assess the reasons for and extent of any variation in financial performance from the approved forecast of Aggregate Revenue Requirement and actual revenue from tariff and charges.*

*Provided that the Petition for Truing Up shall be accompanied by Audited Annual Accounts, duly certified by the Statutory Auditor and CAG.*

*Provided that the information sought by the Commission shall be submitted in the formats as prescribed by the Commission.*

*9.3 The scope of the Annual Performance review and True up shall be a comparison of the actual performance of the Generating Company or Transmission Licensee or SLDC or Distribution Licensee with the approved forecast of Aggregate Revenue Requirement and expected revenue from tariff and charges and shall comprise the following:*

*a).....*

*b) Annual Performance Review: a comparison of the performance targets estimated to be achieved for the current financial year(based on 6 months actual data) with the approved forecast for that financial year including adjusting trajectories of uncontrollable if needed.*

*c) Categorisation of variations in performance with reference to approved forecast into factors within the control of the applicant (controllable items) and those caused by factors beyond the control of the applicant (un-controllable items)*

*Provided such categorization of the controllable and uncontrollable items shall be done in accordance with Regulation 10of this regulation.*



## 15. Norms of operations

### 15.1. Regulatory provisions

15.1.1. The Hon'ble Commission had set norms of operations under Regulation 46 of Tariff Regulations 2018.

15.1.2. The 7 months actual and 5 months estimated performance vis-a-vis norms of operations set is discussed below:

### 15.2. Snapshot of plant wise performance for FY 2019-20

15.2.1. The generation from Namrup thermal power station is expected to reduce as multiple units will be decommissioned after commissioning of NRPP. The revised expected commissioning date of GT Unit of NRPP is 1<sup>st</sup> January 2020 and that of the whole plant is 1<sup>st</sup> March 2020. It is expected that only two units totalling 43.5 MW of Namrup thermal power station will run post commissioning of NRPP.

15.2.2. The following table shows the operating performance parameters of Namrup thermal power station for FY 2019-20.

Table 79: Operating Performance for FY 2019-20 of NTPS

NTPS	Approved as per order of March 2019	April - Oct (actual)	Nov-March (estimated)	Estimated total
Gross Energy in MU	173.73	135.22	86.03	221.24
Aux. Power Cons. (%)	4.50%	6.99%	4.50%	6.02%
Net Energy in MU	165.91	125.77	82.15	207.92
Availability (%)	50.00%	30.53%	40.67%	34.76%
PLF (%) for incentive	50.00%	25.77%	40.67%	31.98%
Gross Station Heat Rate on GCV (kcal/ kWh)	3900	4962	3900	4520
Wt. Avg. Price of Gas (Rs./1000 SCM)	6076.99	6901.34	6008.03	6454.69
* 1) GSHR and Gas Price Available till September Only				

15.2.3. The following table shows the operating performance parameters of Lakwa thermal power station for FY 2019-20.

Table 80: Operating Performance for FY 2019-20 of LTPS

LTPS + WHRU	Approved as per Order of March 2019	April - Oct (actual)	Nov-March (estimated)	Estimated total
Gross Energy in MU	425.74	219.60	177.29	396.89
Aux. Power Cons. (%)	5.50%	11.03%	5.50%	8.56%
Net Energy in MU	402.32	195.38	167.54	362.92
Availability (%)	50.00%	46.67%	50.00%	48.06%
PLF (%) for incentive	66.00%	41.41%	50.00%	44.99%
Gross Station Heat Rate on GCV (kcal/ kWh)	3200	4012	3200	3673
Wt. Avg. Price of Gas (Rs./1000 SCM)	7758.11	9442.74	8439.57	8941.16
* GSHR and Gas Price Available till September Only				

15.2.4. The following table shows the operating performance parameters of Karbi Langpi hydro electric power station for FY 2019-20.

Table 81: Operating Performance for FY 2019-20 of KLHEP

KLHEP	Approved as per Order of March 2019	April - Oct (actual)	Nov-March (estimated)	Estimated total
Gross Energy in MU	390.00	300.46	46.00	346.46
Aux. Power Cons. (%)	0.50%	0.50%	0.50%	0.50%
Net Energy in MU	388.05	298.96	45.77	344.73
Availability (%)	85.00%	89.98%	52.52%	74.37%
PLF (%) for incentive	44.50%	58.50%	12.61%	39.38%

15.2.5. The following table shows the operating performance parameters of LRPP power station for FY 2019-20.

Table 82: Operating Performance for FY 2019-20 of LRPP

LRPP	Approved as per Order of March 2019	April - Oct (actual)	Nov-March (estimated)	Estimated total
Gross Energy in MU	520.82	307.87	212.95	520.82
Aux. Power Cons. (%)	3.50%	2.90%	3.50%	3.14%
Net Energy in MU	502.59	298.95	205.50	504.45
Availability (%)	85.00%	90.15%	85.00%	88.00%



LRPP	Approved as per Order of March 2019	April - Oct (actual)	Nov-March (estimated)	Estimated total
PLF (%)	90.00%	86.47%	90.00%	87.94%
Gross Station Heat Rate on GCV (kcal/ kWh)	2150	2158	2150	2155
Wt. Avg. Price of Gas (Rs./1000 SCM)	7758.11	9442.74	8439.57	8941.16
* GSHR and Gas Price Available till September Only				

### 15.3. Normative Annual Plant Availability Factor (NAPAF)

15.3.1. As per Regulation 47.1 of the MYT Regulations, 2018 the Normative Plant Availability factor for recovery of full fixed charges, is 50% for FY 2019-20 for NTPS. However due to the problem of low gas supply and frequent forced shutdown of the aged units/auxiliaries, normative Plant Availability factor may not be achieved. In view of the above, APGCL prays to the Hon'ble Commission to approve the revised estimated availability for FY 2019-20 as shown in the table below

Table 83: Availability for 2019-20 of NTPS

NTPS	Approved as per order of March 2019	April - Oct (actual)	Nov-March (estimated)	Estimated total
Plant Availability Factor (%)	50.00%	30.53%	40.67%	34.76%

15.3.2. As per Regulation 47.1 of the MYT Regulations, 2018 the Normative Plant Availability factor for recovery of full fixed charges, is 50% for FY 2019-20 for LTPS. It is expected that the normative numbers may not be achieved due to lower availability in the first 7 months of FY2019-20. The approved and estimated numbers are shown in the table below.

Table 84: Availability for 2019-20 of LTPS

LTPS	Approved as per Order of March 2019	April - Oct (actual)	Nov-March (estimated)	Estimated total
Plant Availability Factor (%)	50.00%	46.67%	50.00%	48.06%



15.3.3. Further, Regulation 49, of MYT Regulations, 2018 specifies normative PAF for KLHEP as 85% for FY 2019-20. Due to planned maintenance of KLHEP Unit 1, the normative availability may not be achieved for the year. The approved and estimated numbers are shown in the table below.

*Table 85: Availability for 2019-20 of KLHEP*

KLHEP	Approved as per Order of March 2019	April - Oct (actual)	Nov-March (estimated)	Estimated total
Plant Availability Factor (%)	85.00%	89.98%	52.52%	74.37%

15.3.4. The Hon'ble Commission had approved NAPAF of 85% for LRPP for FY 2019-20 in its order dated 1st March 2019. The approved and projected numbers are shown in the table below.

*Table 86: Availability for 2019-20 of LRPP*

LRPP	Approved as per Order of March 2019	April - Oct (actual)	Nov-March (estimated)	Estimated total
Plant Availability Factor (%)	85.00%	90.15%	85.00%	88.00%

APGCL prays to the Hon'ble Commission to approve the estimated NAPAF for the plants as shown above.

#### 15.4. Normative Annual Plant Load Factor (NAPLF)

15.4.1. As per Regulation 47.1 of the Tariff Regulations, 2018 the Normative Plant Load factor for NTPS is 50% for FY 2019-20. The Hon'ble Commission had also approved the same for NTPS in its order dated 1<sup>st</sup> March 2019. However, due to the lower gas supply, grid constraint and issues of aging and frequent forced shut downs the plant has not been able to achieve normative PLF. Further post commissioning of NRPP, the plant load factor of NTPS is expected to decrease due to low availability of gas. The actual and projected numbers are shown in the table below.

*Table 87: Plant Load Factor for 2019-20 of NTPS*

NTPS	Approved as per order of March 2019	April - Oct (actual)	Nov-March (estimated)	Estimated total
Plant Load Factor (%)	50.00%	25.77%	40.67%	31.98%



15.4.2. As per Regulation 47.1 of the Tariff Regulations, 2018 the Normative Plant Load factor for LTPS is 66% for FY 2019-20. The Hon'ble Commission had also approved the same for LTPS in its order dated 1<sup>st</sup> March 2019. However, as there is shortage of gas, PLF is considered same as that as normative Availability. The actual and projected numbers are shown in the table below.

*Table 88: Plant Load Factor for 2019-20 of LTPS*

LTPS	Approved as per Order of March 2019	April - Oct (actual)	Nov-March (estimated)	Estimated total
Plant Load Factor (%)	66.00%	41.41%	50.00%	44.99%

15.4.3. As per Regulation 49.1 of the Tariff Regulations, 2018, normative PLF for KLHEP as 44.5%. The Hon'ble Commission had also approved the same for FY2019-20 in its order dated 1<sup>st</sup> March 2019. However due to the planned maintenance of KLHEP Unit 1, the normative plant load factor may not be achieved during the year. The approved and estimated numbers are shown in the table below.

*Table 89: Plant Load Factor for 2019-20 of KLHEP*

KLHEP	Approved as per Order of March 2019	April - Oct (actual)	Nov-March (estimated)	Estimated total
Plant Load Factor (%)	44.50%	58.50%	12.61%	39.38%

15.4.4. The Hon'ble Commission had approved 90% as PLF for incentive for LRPP for FY19-20 in its order dated 1<sup>st</sup> March 2019. It had considered generation projection at PLF of 85% for FY2019-20. APGCL has projected the PLF at normative availability but will try to achieve the approved Plant Load Factor during the year. The actual and estimated numbers are shown in the table below.

*Table 90: Plant Load Factor for 2019-20 of LRPP*

LRPP	Approved as per Order of March 2019	April - Oct (actual)	Nov-March (estimated)	Estimated total
Plant Load Factor (%)	90.00%	86.47%	90.00%	87.94%

## 15.5. Gross Station Heat Rate (SHR)

15.5.1. As per Regulation 47.4, of the Tariff Regulations, 2018 the Normative Station Heat Rate, is 3900 kCal/kWh for FY 2019-20 for NTPS in Partial combined cycle mode of operation. The Hon'ble Commission had also approved the same for FY2019-20 in its order dated 1<sup>st</sup> March 2019

15.5.2. We submit that the SHR of NTPS is estimated to be higher than the approved SHR in FY 2019-20 due to part loading of units, lower gas supply and evacuation constraints and old nature of the plant equipments and machinery. In view of the above, APGCL prays to the Hon'ble Commission to approve the estimated SHR as it is expected to increase due to uncontrollable factors.

15.5.3. The approved and estimated numbers are shown in the table below.

*Table 91: SHR for 2019-20 of NTPS*

NTPS	Approved as per order of March 2019	April - Oct (actual)	Nov-March (estimated)	Estimated total
Station Heat Rate (kCal/kWh)	3900	4962	3900	4520

15.5.4. As per Regulation 47.4, of the Tariff Regulations, 2018 the Normative Station Heat Rate, is 3200 kCal/kWh for FY 2019-20 for LTPS in Partial combined cycle mode of operation. The Hon'ble Commission had also approved the same for FY2019-20 in its order dated 1<sup>st</sup> March 2019. The actual SHR of LTPS in the first 7 months have been higher than normative. There is an issue of accuracy of gas consumption data which is being taken up with the gas transporter. APGCL has considered the SHR at actuals for the first 7 months and normative for rest of the year. The issue is expected to be resolved during true –up for FY2019-20. The approved and estimated numbers are shown in the table below.

*Table 92: SHR for 2019-20 of LTPS*

LTPS	Approved as per Order of March 2019	April - Oct (actual)	Nov-March (estimated)	Estimated total
Station Heat Rate (kCal/kWh)	3200	4012	3200	3673

15.5.5. The Hon'ble Commission had approved SHR of 2,150 kCal/kWh for LRPP for FY2019-20 in its order dated 1st March 2019. The approved and estimated numbers are shown below:

*Table 93: SHR for 2019-20 of LRPP*

LRPP	Approved as per Order of March 2019	April - Oct (actual)	Nov-March (estimated)	Estimated total
Station Heat Rate (kCal/kWh)	2150	2158	2150	2155



## 15.6. Auxiliary Energy Consumption

15.6.1. As per Regulation 47.3 of the Tariff Regulations, 2018 the Normative Auxiliary energy consumption is 4.50% for FY 2019-20 for NTPS. The Hon'ble Commission had approved the same for FY2019-20 in its order dated 1<sup>st</sup> March 2019. We submit that the auxiliary consumption of NTPS is estimated to be higher than the approved auxiliary consumption in FY 2019-20 due to part loading of units. In view of the above, APGCL prays to the Hon'ble Commission to approve the estimated auxiliary consumption as it is expected to increase due to uncontrollable factors.

15.6.2. The approved and estimated numbers are shown in the table below.

*Table 94: Auxiliary energy consumption for 2019-20 of NTPS*

NTPS	Approved as per order of March 2019	April - Oct (actual)	Nov-March (estimated)	Estimated total
Auxiliary energy consumption (%)	4.50%	6.99%	4.50%	6.02%

15.6.3. As per Regulation 47.3 of the Tariff Regulations, 2018 the Normative Auxiliary energy consumption, is 5.50% for FY 2019-20 LTPS. The same has been approved by the Hon'ble Commission in its order dated 1<sup>st</sup> March 2019. The actual and projected numbers are shown in the table below.

15.6.4. We submit that the Auxiliary consumption of LTPS is expected to be higher than the approved values due to low gas pressure in supply of gas, the usage of gas compressors increases resulting in high auxiliary consumption of LTPS. As gas pressure in supply of gas is an uncontrollable factor for APGCL, we pray to the Hon'ble Commission to approve the estimated auxiliary consumption for FY 2019-20.

15.6.5. The approved and estimated numbers are shown in the table below.

*Table 95: Auxiliary energy consumption for 2019-20 of LTPS*

LTPS	Approved as per Order of March 2019	April - Oct (actual)	Nov-March (estimated)	Estimated total
Auxiliary energy consumption (%)	5.50%	11.03%	5.50%	8.56%

15.6.6. As per Regulation 49.1 of the Tariff Regulations, 2018 the Normative Auxiliary energy consumption, is 0.50% for KLHEP. The same has been approved by the Hon'ble Commission in its order dated 1<sup>st</sup> March 2019. The approved and actual numbers are shown in the table below.

*Table 96: Auxiliary energy consumption for 2019-20 of KLHEP*

KLHEP	Approved as per Order of March 2019	April - Oct (actual)	Nov-March (estimated)	Estimated total
Auxiliary energy consumption (%)	0.50%	0.50%	0.50%	0.50%

15.6.7. The Hon'ble Commission had approved Auxiliary Consumption of 3.5% for LRPP for FY2019-20 in its order dated 1<sup>st</sup> March 2019. The approved and actual numbers are shown in the table below:

*Table 97: Auxiliary energy consumption for 2019-20 of LRPP*

LRPP	Approved as per Order of March 2019	April - Oct (actual)	Nov-March (estimated)	Estimated total
Plant Availability Factor (%)	3.50%	2.90%	3.50%	3.14%

15.6.8. The performance parameter certificate showing plant wise availability, generation, auxiliary consumption etc. issued by SLDC is are attached as Annexure No. 5



## 16. Fixed Cost of the Plant

### 16.1. Annual fixed cost for FY 2019-20

- 16.1.1. The fixed cost of APGCL's power plants has been approved by AERC via MYT order in Case No. 14 of 2018 dated 1<sup>st</sup> March 2019 for NTPS, LTPS and KLHEP and MYT order in Case No. 18 of 2018 dated 01 March 2019 for LRPP.
- 16.1.2. As per regulation 42.1 of the AERC Tariff regulations, 2018 the following components have been considered for projecting of fixed cost for the power plants:
- (a) Return on Equity Capital
  - (b) Interest on Loan capital
  - (c) Depreciation
  - (d) Operation and Maintenance Expenses
  - (e) Interest on Working Capital
  - (f) Less: Non-Tariff Income
- 16.1.3. For the computation of the fixed components, the Petitioner has considered the principles provided in the Tariff Regulations, 2018. These components have been discussed in detail in the following sections of the petition.

### 16.2. Return on Equity (ROE)

- 16.2.1. The Hon'ble Commission in its regulation 33 of Tariff Regulations 2018 has considered the pre-tax return on equity at 15.5% of equity capital.
- 16.2.2. The Petitioner has determined the Return on Equity (RoE) at a rate of 15.5% in accordance with the AERC Regulations, 2018. The Petitioner submits that there has been no addition in Equity in FY 2019-20 for NTPS and LTPS. However there has been additional capitalization for KLHEP and LRPP in FY2019-20.
- 16.2.3. Additional Capital Expenditure for KLHEP (Refurbishment of 2 Nos. of Penstock Protection Butterfly valves supplied by BHEL at 2x50 MW KLHEP)
- 16.2.3.1. The butterfly valve of both the units of KLHEP were supplied by M/s BHEL in the year 1983-84. The above valves were commissioned in the year 2006, require major overhauling as the opening and closing mechanism of both the penstock butterfly valves are not functioning. Till date the overhauling of the said valves has not been carried out. The refurbishment of both the penstock butterfly valves have become mandatory to carry out the Major Overhauling of the main units. The matter was placed before the Board to carry out the work which allowed to carry out the work through own source of fund of APGCL as the said job was very essential.



16.2.3.2. Thus APGCL has undertaken the above said works from its own source of fund. The cost of the above works has been shown in the table below. The above work has been provided under the Revised Capital Investment Plan submitted as part of this petition.

Table 98: Additional Capital Expenditure incurred in FY2019-20 for KLHEP (in Crores)

Particulars	Expenditure for FY2019-20
Proposed Expenditure for Refurbishment of 2 Nos. of Penstock Protection Butterfly valves supplied by BHEL at 2x50 MW KLHEP	4.0685
Equity Portion of the above works to be capitalized	4.0685

#### 16.2.4. Additional Capital Expenditure for LRPP

16.2.4.1. The Petitioner had incurred the following additional Capital Expenditure for LRPP in FY2019-20.

Table 99: Additional Capital Expenditure incurred in FY2019-20 for LRPP

Particulars	Approved Additional Capitalization as per Order of March 2019	Expenditure incurred in FY2018-19	Expenditure incurred in FY2019-20
Expenditure Post COD in Rs. Crore	22.34	12.21	8.95
Grant Portion of the Additional Capitalization in Rs. Crore	11.43	6.02	7.40

16.2.4.2. The above expenditure for FY2019-20 includes Foreign Exchange Risk Variation (in addition to FERV claimed in True Up for FY2018-19). As per regulation 29.1 (a) of MYT Regulation 2015, any loss or gain on account of Foreign exchange risk variation will form part of the capital cost for the plant. The loss on account of Foreign exchange risk variation is as shown below.

Table 100: FERV loss for LRPP in FY2019-20

Particulars	Euro to INR conversion considered during bidding	Euro payment done in FY2019-20	INR amount considered during bidding @68.66	Actual INR amount paid	FERV loss in FY2019-20
	1	2	3 = 2 x 68.66	4	5 = 4-3
<b>FERV loss</b>	1 Euro = 68.66 INR	Euro 10.01	INR 6.87 Crore	INR 8.06	1.19



Particulars	Euro to INR conversion considered during bidding	Euro payment done in FY2019-20	INR amount considered during bidding @68.66	Actual INR amount paid	FERV loss in FY2019-20
	1	2	3 = 2 x 68.88	4	5 = 4-3
in Rs. Crore		Lakhs		crore	Crores

16.2.4.3. We submit that the expenditure undertaken post COD of LRPP is within the original scope of work and these were either works deferred for execution or undischarged liabilities recognized to be payable at a future date. Hence, APGCL prays to the Hon'ble Commission to approve the additional capitalization planned in FY 2019-20

16.2.4.4. APGCL has considered the balance fund source of Additional Capital Expenditure in the normative allowed debt-equity ratio of 70:30 for FY2019-20 as approved by the Commission in its order of March 2019

16.2.4.5. Further, APGCL is currently revising the capital expenditure plan for LRPP for the rest of FY2019-20 and FY2020-21. APGCL will be submitting the additional capital expenditure to be incurred for LRPP for balance of FY2019-20 and FY2020-21 during truing up of FY2019-20 and APR submission of FY2020-21 respectively.

16.2.5. The plant wise Return on Equity approved and claimed for FY2019-20 has been shown in the table below:

Table 101: Computation of Plant wise Return in Equity for 2019-20

Rs. Cr

Station	Particulars	Approved as per order of March 2019	Annual Performance Review Petition for FY 2019-20
NTPS	Opening Equity	55.00	55.00
	Closing Equity	55.00	55.00
	Rate of Return	15.50%	15.50%
	<b>Return on Equity</b>	<b>8.53</b>	<b>8.53</b>
LTPS	Opening Equity	143.08	143.08
	Closing Equity	143.08	143.08
	Rate of Return	15.50%	15.50%
	<b>Return on Equity</b>	<b>22.18</b>	<b>22.18</b>
KLHEP	Opening Equity	68.65	68.65
	Closing Equity	68.65	72.72
	Rate of Return	15.50%	15.50%
	<b>Return on Equity</b>	<b>10.64</b>	<b>10.96</b>
LRPP	Opening Equity	16.1	14.84
	Closing Equity	16.1	15.30



Station	Particulars	Approved as per order of March 2019	Annual Performance Review Petition for FY 2019-20
	Rate of Return	15.50%	15.50%
	<b>Return on Equity</b>	<b>2.50</b>	<b>2.34</b>

16.2.6. APGCL prays to the Hon'ble Commission to approve the plant wise Return on Equity as shown above.

### 16.3. Interest on Loan Capital

16.3.1. As per Regulation 34 of the Tariff Regulations, 2018, the Commission will consider interest on Loan capital on normative basis with repayment equal to depreciation allowed for that year and rate of interest will be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year.

16.3.2. In view of the above, the Petitioner has computed the Interest on long term Loan on normative basis for FY 2019-20. The Petitioner has considered normative loan portfolio and the repayment shown is considered equal to the depreciation for FY 2019-20. The interest rate has been considered as the expected weighted average rate of interest for FY 2019-20.

16.3.3. The finance charges are shown separately plant wise for FY 2019-20. The table below summarizes the interest on loan and finance charges considered for Annual Performance Review of FY 2019-20.

Table 102: Computation of Plant wise Interest and finance charges for 2019-20

Rs. Cr

Station	Particulars	Approved as per order of March 2019	Annual Performance Review Petition for FY 2019-20
NTPS	Net Normative Opening Loan	0.25	0.77
	Addition of normative loan during the year	4.75	4.25
	Normative Repayment during the year	1.74	1.56
	Net Normative Closing Loan	3.27	3.47
	Avg. Normative Loan	1.76	2.12
	Interest Rate	10.30%	10.18%
	Interest on Loan Capital	0.18	0.22
	Add: Bank Charges	0.00	0.00



Station	Particulars	Approved as per order of March 2019	Annual Performance Review Petition for FY 2019-20
	<b>Net Interest on Loan Capital</b>	<b>0.18</b>	<b>0.22</b>
LTPS	Net Normative Opening Loan	0	0.00
	Addition of normative loan during the year	16.10	10.45
	Normative Repayment during the year	15.3	11.55
	Net Normative Closing Loan	0.80	0.00
	Avg. Normative Loan	0.4	0.00
	Interest Rate	10.30%	10.18%
	Interest on Loan Capital	0.04	0.00
	Add: Bank Charges	0.00	0.00
	<b>Net Interest on Loan Capital</b>	<b>0.04</b>	<b>0.00</b>
KLHEP	Net Normative Opening Loan	219.70	216.88
	Addition of normative loan during the year	11.20	5.22
	Normative Repayment during the year	21.63	21.35
	Net Normative Closing Loan	209.28	200.74
	Avg. Normative Loan	214.49	208.81
	Interest Rate	10.30%	10.18%
	Interest on Loan Capital	22.09	21.25
	Add: Bank Charges	0.00	0.00
	<b>Net Interest on Loan Capital</b>	<b>22.09</b>	<b>21.25</b>
LRPP	Net Normative Opening Loan	34.80	32.35
	Addition of normative loan during the year	0.00	1.08
	Normative Repayment during the year	2.75	2.31
	Net Normative Closing Loan	32.05	31.12
	Avg. Normative Loan	33.43	31.74
	Interest Rate	10.30%	10.18%
	Interest on Loan Capital	3.44	3.23
	Add: Bank Charges	0.00	0.00
	<b>Net Interest on Loan Capital</b>	<b>3.44</b>	<b>3.23</b>
	<b>Total</b>	<b>25.76</b>	<b>24.69</b>

16.3.4. APGCL prays to the Hon'ble Commission to approve the Total interest and finance charges as shown above.



## 16.4. Depreciation

16.4.1. The Hon'ble Commission in its Tariff Regulations, 2018 has provided the principles for determination of depreciation.

16.4.2. In view of the above, the Petitioner has computed the Depreciation considering Capital Cost of the asset admitted by the Commission with 10% salvage value. Also, depreciation on grants has been subtracted. The table below summarizes the plant wise Depreciation considered for Annual Performance Review of FY 2019-20

Table 103: Depreciation for 2019-20 of NTPS

Rs. Cr

Particulars	FY 2019-20
Opening GFA	190.49
Addition during the year	4.80
Closing	195.29
Average GFA	192.89
Rate of Depreciation	0.87%
Total Depreciation	1.67
Grant	13.16
Additions during the year	0.54
Closing grant	13.70
Average grant	13.43
Rate of Depreciation	0.87%
Depreciation on grants	0.12
<b>Net Depreciation</b>	<b>1.56</b>

Table 104: Depreciation for 2019-20 of LTPS

Rs. Cr

Particulars	FY 2019-20
Opening GFA	482.52
Addition during the year	11.10
Closing	493.62
Average GFA	488.07
Rate of Depreciation	2.73%
Total Depreciation	13.35
Grant	65.50
Additions during the year	0.65
Closing grant	66.15



Particulars	FY 2019-20
Average grant	65.83
Rate of Depreciation	2.73%
Depreciation on grants	1.80
<b>Net Depreciation</b>	<b>11.55</b>

Table 105: Depreciation for 2019-20 of KLHEP

Rs. Cr

Particulars	FY 2019-20
Opening GFA	514.57
Addition during the year	10.15
Closing	524.72
Average GFA	519.64
Rate of Depreciation	4.60%
Total Depreciation	23.89
Grant	54.66
Additions during the year	0.86
Closing grant	55.52
Average grant	55.09
Rate of Depreciation	4.60%
Depreciation on grants	2.53
<b>Net Depreciation</b>	<b>21.35</b>

Table 106: Depreciation for 2019-20 of LRPP

Rs. Cr

Particulars	FY 2019-20
Opening GFA	258.01
Addition during the year	8.95
Closing	266.97
Average GFA	262.49
Rate of Depreciation	4.60%
Total Depreciation	12.07
Grant	208.56
Additions during the year	7.40
Closing grant	215.96
Average grant	212.26
Rate of Depreciation	4.60%



Particulars	FY 2019-20
Depreciation on grants	9.76
<b>Net Depreciation</b>	<b>2.31</b>

Table 107: Summary of Depreciation claimed for FY 2019-20

*Rs. Cr*

Station	Particulars	Approved as per order of March 2019	Annual Performance Review Petition for FY 2019-20
NTPS	Depreciation	1.9	1.67
	<u>Less:</u> Depreciation on assets funded by Grants	0.16	0.12
	Net Depreciation	1.74	1.56
LTPS	Depreciation	17.83	13.35
	<u>Less:</u> Depreciation on assets funded by Grants	2.53	1.80
	Net Depreciation	15.30	11.55
KLHEP	Depreciation	24.39	23.89
	<u>Less:</u> Depreciation on assets funded by Grants	2.76	2.53
	Net Depreciation	21.63	21.35
LRPP	Depreciation	13.6	12.07
	<u>Less:</u> Depreciation on assets funded by Grants	10.85	9.76
	Net Depreciation	2.75	2.31
<b>Total Depreciation claimed</b>		<b>41.42</b>	<b>36.77</b>

16.4.3. APGCL prays to the Hon'ble Commission to approve the plant wise Depreciation for FY 2019-20 as shown above.



## 16.5. Interest on Working Capital

16.5.1. As per Regulation 36 of the Tariff Regulations, 2018, the interest on working capital will be considered on normative basis.

16.5.2. As per the above regulations, the Petitioner has projected normative interest on working capital. However, as APGCL does not have liquid fuel stock facility, it has not considered working capital on storage of liquid fuel. The rate of interest has been considered equal to the normative interest rate of three hundred (300) basis points above the average State Bank of India MCLR (One Year Tenor) prevalent during the last available six months, which  $8.22\% + 3.00\% = 11.22\%$ .

Table 108: Summary of Interest on working capital claimed for FY 2019-20

*Rs. Cr*

Station	Particulars	Approved as per order of March 2019	Annual Performance Review Petition for FY 2019-20
NTPS	Fuel Cost for one month	4.23	6.06
	O&M Expenses for one month	1.57	3.34
	Maintenance Spares-30% of O&M	5.65	12.04
	Receivables for two months	12.21	20.12
	Total Working Capital Requirement	23.66	41.55
	Rate of interest	11.50%	11.22%
	<b>Interest on Working capital</b>	<b>2.72</b>	<b>4.66</b>
LTPS	Fuel Cost for one month	9.65	11.60
	O&M Expenses for one month	3.22	3.48
	Maintenance Spares-30% of O&M	11.58	12.52
	Receivables for two months	31.23	35.43
	Total Working Capital Requirement	55.68	63.03
	Rate of interest	11.50%	11.22%
	<b>Interest on Working capital</b>	<b>6.40</b>	<b>7.07</b>
KLHEP	O&M Expenses for one month	2.37	2.58
	Maintenance Spares-30% of O&M	4.27	9.28
	Receivables for two months	15.79	13.62
	Total Working Capital Requirement	22.43	25.48
	Rate of interest	11.50%	11.22%
	<b>Interest on Working capital</b>	<b>2.58</b>	<b>2.86</b>
LRPP	Fuel Cost for one month	<b>7.91</b>	<b>8.97</b>
	O&M Expenses for one month	1.67	1.89
	Maintenance Spares-30% of O&M	6.01	6.79
	Receivables for two months	21.32	23.80

Station	Particulars	Approved as per order of March 2019	Annual Performance Review Petition for FY 2019-20
	Total Working Capital Requirement	36.91	41.44
	Rate of interest	11.50%	11.22%
	<b>Interest on Working capital</b>	<b>4.24</b>	<b>4.65</b>
	<b>Total interest on Working capital</b>	<b>15.95</b>	<b>19.24</b>

16.5.3. APGCL prays to the Hon'ble Commission to approve the plant wise Interest on Working capital for FY 2019-20 as shown above.

## 16.6. Operation and Maintenance Expenses (O&M Expenses)

16.6.1. The Operation and maintenance expense are to be projected as per Regulation 50.1 of the Tariff Regulations, 2018.

16.6.2. The Hon'ble Commission in its tariff orders dated 1<sup>st</sup> March 2019 had approved the O&M expenses as per the Tariff Regulations 2018 for FY2019-20. The commission had approved the Impact of ROP on O&M Expenses as part of the APR Petition for 2018-19. Further the commission had computed and approved the O&M expenses for each plant based on the projected effective installed capacity for FY2019-20

16.6.3. As APGCL has petitioned for the approval of actual Impact of ROP in the True Up Petition for FY 2018-19. Thus it has computed the impact of ROP as well as revised Effective Capacity of NTPS for FY2019-20 on the Approved O&M expenses by Hon'ble Commission for FY2019-20 as shown in the table below:

	Approved in order of March 2019	Revised basis actual Effective Capacity for FY19-20	Impact of ROP considered by Commission in Order of March 2019	Impact of Actual ROP as claimed in True Up of FY18-19	Actual Net Effect of ROP on Effective Capacity for FY19-20	Revised Normative Expense for FY19-20 for effective Capacity
	1	2 = 1* Revised Projected Effective Capacity / Approved Effective Capacity	3	4	5 = (4-3)* revised projected effective capacity	6 = 2+5
NTPS	18.83	37.04	8.35	9.19	0.60	37.65
LTPS	38.62	38.62	9.87	8.75	-0.69	37.93
KLHEP	28.44	28.44	4.17	4.51	0.34	28.78
LRPP	20.04	20.04	0.00	0.00	0.00	20.04
<b>Total</b>	<b>105.93</b>	<b>124.14</b>	<b>0.00</b>	<b>0.00</b>	<b>0.25</b>	<b>124.39</b>



16.6.4. The actual O&M expenses and APGCL's claim for O&M expenses for FY 2019-20 are as shown in the table below

Table 109: Operation and Maintenance claimed for FY 2019-20

Rs. Cr

Station	Approved considering Effective Installed Capacity in order of March 2019	Revised Normative Expense for FY19-20 for effective Capacity	Amount considered for Annual Performance Review Petition for FY 2019-20
NTPS	18.83	37.65	40.12
LTPS	38.62	37.93	41.74
KLHEP	28.44	28.78	30.95
LRPP	20.04	20.04	22.62
<b>Total</b>	<b>105.93</b>	<b>124.39</b>	<b>135.44</b>

16.6.5. As per Regulation 2.1(50) of the Tariff Regulations, 2018, Operation and maintenance expense include manpower, repairs, spares, consumables, insurance and overheads but excludes fuel expenses and water charges.

16.6.6. In view of the above, APGCL has also provided Station-wise details of head-wise O&M expenses claimed for FY 2019-20.

Table 110: Station-wise details of head-wise O&M expenses claimed for FY 2019-20

Rs. Cr

Station	Employee Cost	R&M	A&G	Total estimated for FY 2019-20
NTPS	36.70	1.94	1.47	40.12
LTPS	30.11	8.00	3.63	41.74
KLHEP	22.93	4.21	3.81	30.95
LRPP	13.88	8.05	0.69	22.62
<b>Total</b>	<b>103.62</b>	<b>22.20</b>	<b>9.62</b>	<b>135.44</b>

16.6.7. APGCL prays to the Hon'ble Commission to approve the plant wise O&M expenses for FY 2019-20 as shown above.



## 16.7. Non Tariff income

16.7.1. As per Regulation 45 of the Tariff Regulations, 2018, the non-tariff income shall be deducted from the Annual Fixed Cost in determining the Annual Fixed Cost of the Generation Company.

16.7.2. The Non-tariff income has been estimated at normatively approved numbers by Hon'ble Commission in its order dated 1<sup>st</sup> March 2019. The same will be claimed at actuals during truing up for FY2019-20

16.7.3. The details of non-tariff income for FY 2019-20 are shown in the table below:

Table 111: Station-wise details of Non tariff income for FY 2019-20

Rs. Cr

Station	Approved as per order of March 2019	Annual Performance Review Petition for FY 2019-20
NTPS	7.13	7.13
LTPS	9.22	9.22
KLHEP	5.75	5.75
LRPP	0.00	0.00
<b>Total</b>	<b>22.09</b>	<b>22.09</b>

16.7.4. APGCL prays to the Hon'ble Commission to approve the plant wise Non tariff income for FY 2019-20 as shown above.

## 16.8. Total Fixed Cost

16.8.1. The recovery of Annual fixed charges is to be done as per regulation 51.1 of the Tariff Regulations, 2018.

16.8.2. Based on the above, the Annual fixed charges for FY 2019-20 has been computed. The Hon'ble Commission is requested to approve the fixed charges as discussed in the table below:

Table 112: Annual Fixed charges for 2019-20 of NTPS

Rs. Cr

Particulars	Approved as per order of March 2019	Amount estimated for Annual Performance Review
Operation & Maintenance Expenditure	18.83	40.12
Employee Expenses		36.70
R&M Expenses		1.94
A&G Expenses		1.47



Particulars	Approved as per order of March 2019	Amount estimated for Annual Performance Review
Interest & Finance Charges	0.18	0.22
Interest on working Capital	2.72	4.66
Depreciation	1.74	1.56
Return on Equity	8.53	8.53
<u>Less: Other Income</u>	7.13	7.13
<b>Total Fixed Charges</b>	<b>24.87</b>	<b>47.95</b>

Table 113: Annual Fixed charges for 2019-20 of LTPS

Rs. Cr

Particulars	Approved as per order of March 2019	Amount estimated for Annual Performance Review
Operation & Maintenance Expenditure	38.62	41.74
Employee Expenses	0.00	30.11
R&M Expenses	0.00	8.00
A&G Expenses	0.00	3.63
Interest & Finance Charges	0.04	0.00
Interest on working Capital	6.40	7.07
Depreciation	15.30	11.55
Return on Equity	22.18	22.18
<u>Less: Other Income</u>	9.22	9.22
<b>Total Fixed Charges</b>	<b>73.33</b>	<b>73.32</b>

Table 114: Annual Fixed charges for 2019-20 of KLHEP

Rs. Cr

Particulars	Approved as per order of March 2019	Amount estimated for Annual Performance Review
Operation & Maintenance Expenditure	28.44	30.95
Employee Expenses		22.93
R&M Expenses		4.21
A&G Expenses		3.81
Interest & Finance Charges	22.09	21.25
Interest on working Capital	2.58	2.86



Depreciation	21.63	21.35
Return on Equity	10.64	10.96
<u>Less: Other Income</u>	5.75	5.75
<b>Total Fixed Charges</b>	<b>79.64</b>	<b>81.62</b>

Table 115: Annual Fixed charges for 2019-20 of LRPP

Rs. Cr

Particulars	Approved as per order of March 2019	Amount estimated for Annual Performance Review
Operation & Maintenance Expenditure	20.04	22.62
Employee Expenses		13.88
R&M Expenses		8.05
A&G Expenses		0.69
Interest & Finance Charges	3.44	3.23
Interest on working Capital	4.24	4.65
Depreciation	2.75	2.31
Return on Equity	2.50	2.34
<u>Less: Other Income</u>	0.00	0.00
<b>Total Fixed Charges</b>	<b>32.98</b>	<b>35.15</b>

16.8.3. The Petitioner prays to the Hon'ble Commission to approve the plant wise fixed costs for FY 209-20 as discussed in the tables above.

## 17. Energy Charges

### 17.1. Fuel Price and Calorific Value

17.1.1. As per Regulation 11 of the Tariff Regulations 2018, 'Fuel Price' and 'Calorific Value of Fuel' are uncontrollable items. The actual values of 'Fuel Price' and 'Calorific Value of Fuel' are shown in the table below:

Table 116: Actual Plant wise GCV and Price for FY 2019-20

Station	Wt. Avg. Gross Calorific Value of Gas (kcal/SCM)	Wt. Avg. Price of Gas (Rs./1000 SCM) April - Sept (actual)	Wt. Avg. Price of Gas (Rs./1000 SCM) Oct -March (estimated)	Wt. Avg. Price of Gas (Rs./1000 SCM)
	NTPS	9,147	6,901	6,008
LTPS	9,419	9,443	8,440	8,941
LRPP	9,419	9,443	8,440	8,941

17.1.2. The month wise true copies of actual Fuel Bills raised by APGCL's suppliers for FY 2019-20 upto September 2019 will be submitted to AERC by APGCL by 1<sup>st</sup> week of December 2019. The actual Price for October 2019 has been considered to project the price from Oct-March. The Petitioner prays to the Hon'ble Commission to approve the Price of Gas and GCV for NTPS, LTPS and LRPP for FY 2019-20 as shown in the table above.

### 17.2. Fuel cost

17.2.1. The Commission, in the Tariff Orders dated 1<sup>st</sup> March 2019 had approved the Fuel Cost of Rs. 257.3 Crore for FY 2019-20 for NTPS, LTPS and LRPP. The table below shows the plant wise approved fuel cost, the actual total fuel cost incurred and the fuel cost on normative parameters for FY 2019-20. The average price of fuel and GSHR for April to September has been considered for the month of October – March.

Table 117: Fuel cost for NTPS for FY 2019-20

Particulars	Unit	Approved as per order of March 2019	April - Oct (actual)	Nov -March (estimated)	FY 2019-20 estimated
		Gross Generation	MU	173.73	135.22
Heat Rate	kcal/kWh	3900.00	4962.39	3900.00	4519.73
GCV of gas	kcal/SCM	8893.61	9147.27	9147.27	9147.27
Overall Heat	G. cal.	677547.00	670995.10	335499.57	999951.97
Gas consumption	M. SCM	76.18	73.35	36.68	109.32
Price of Gas	Rs./1000 SCM	6076.99	6901.34	6008.03	6454.69



Particulars	Unit	Approved as per order of March 2019	April - Oct (actual)	Nov -March (estimated)	FY 2019-20 estimated
Total cost of Gas	Rs. Crore	46.30	50.62	22.04	72.66

Table 118: Fuel cost for LTPS for FY 2019-20

Particulars	Unit	Approved as per order of March 2019	April - Oct (actual)	Nov - March (estimated)	FY 2019-20 estimated
Gross Generation	MU	425.74	219.60	177.29	396.89
Heat Rate	kcal/kWh	3200.00	4011.67	3200.00	3673.47
GCV of gas	kcal/SCM	9126.42	9419.27	9419.27	9419.27
Overall Heat	G. cal.	1362368.00	880950.90	567336.96	1457964.49
Gas consumption	M. SCM	149.28	93.53	60.23	154.79
Price of Gas	Rs./1000 SCM	7758.11	9442.74	8439.57	8941.16
Total cost of Gas	Rs. Crore	115.81	88.31	50.83	139.15

Table 119: Fuel cost for LRPP for FY 2019-20

Particulars	Unit	Approved as per order of March 2019	April - Oct (actual)	Nov -March (estimated)	FY 2019-20 estimated
Gross Generation	MU	520.82	307.87	212.95	520.82
Heat Rate	kcal/kWh	2150.00	2157.95	2150.00	2154.64
GCV of gas	kcal/SCM	9126.42	9419.27	9419.27	9419.27
Overall Heat	G. cal.	1119763.00	664363.93	457847.88	1122179.54
Gas consumption	M. SCM	122.69	70.53	48.61	119.14
Price of Gas	Rs./1000 SCM	7758.11	9442.74	8439.57	8941.16
Total cost of Gas	Rs. Crore	95.19	66.60	41.02	107.62

17.2.2. The Petitioner prays to the Hon'ble Commission to approve the estimated Fuel cost Price for NTPS, LTPS and LRPP for FY 2019-20 as shown in the table above.



### 17.3. Incentives

17.3.1. Incentives for FY 2019-20 will be claimed during True-up of FY 2019-20.

## 18. Other expenses

### 18.1. Special R&M

18.1.1. The Hon'ble Commission in its order dated 1<sup>st</sup> March 2019, had approved Special R&M for Unit 6 of LTPS, Unit 5 of LTPS, Unit II of KLHEP. The status of the approved and actual special R&M being conducted in FY2019-20 has been shown in the table below:

Work Name	Total Amount Approved	Appeared in Annual Accounts FY 2019-20	Claim in FY 2019-20	Remarks
Overhauling of Unit-6 of NTPS	4.00	0.00	0.00	The overhauling could not be undertaken in FY2019-20. The overhauling schedule will be revised post commissioning of NRPP.
Overhauling LTPS - Unit 5 in FY2020-21	10.00	0.00	0.00	LTPS, APGCL has been using HRSG with 20 MW BHEL, GE, Frame - V Gas Turbines to produce power in combined cycle since 2012. As the HRSG of the unit GT#5 is under shut down since 08/02/2018, for the purpose of maximizing generation, optimizing the utilization of limited available Natural Gas and to minimize heat rate and mainly to run the plant in combined Cycle Mode, Preference was given to Gas Turbines whose HRSG were in available condition. And so it was assumed that GT#7 will reach next MI running hours earlier than GT#5 though the MI of GT#7 was done around 8 months later on 03/12/2014 at running hours of 82889 hrs than GT#5. MI of GT#5 was completed on 24/02/2014 after at Running Hour of 80914.5 RH and so the MI of GT#5 was shifted to GT#7. In the above context the Major Overhauling work was interchanged from GT#5 to GT#7. GT#5 will get preference in producing power only after completion of restoration work of its HRSG. As on 9th Oct 2019 running hour of GT#5 and GT#7 reached 116735 RH and 119081 RH. From Calculation it is seen that its remains only 12179.5 RH and 11808 RH for next MI of GT#5 and



Work Name	Total Amount Approved	Appeared in Annual Accounts FY 2019-20	Claim in FY 2019-20	Remarks
				GT#7 respectively
Capital Overhauling of 50MW Francis type Fuji make Generator Turbine Unit-II - KLHEP	15.00	0.00	0.00	As major overhauling works of KLHEP Unit 1 has been shifted from FY2018-19 to FY2019-20, the proposed Capital Overhauling of Unit II of KLHEP has been shifted to FY2020-21 and beyond.
Major Overhauling of KLHEP - Unit 1	0.00	0.00	0.00	<p>The Special R&amp;M activity was approved for FY2018-19. As per the W.O. the delivery schedule was 12 months from receipt of advance. The fund was received from GoA on 23.03.2018. The advance payment was done on 13.04.2018. Hence the completion date was 12.04.2019.</p> <p>But due to peak season the overhauling could not be carried out in April 2019. Hence the Major Overhauling is scheduled in January 2020.</p> <p>Thus, No claim since the amount already received from GoA</p>

Table 120: Plant wise Special R&M for FY 2019-20

Rs. Cr

Station	Approved as per order of March 2019	Amount claimed for APR
NTPS	4.00	0.00
LTPS	10.00	0.00
KLHEP	15.00	0.00
LRPP	0.00	0.00
<b>Total</b>	<b>29.00</b>	<b>0.00</b>

18.1.2. APGCL prays to the Hon'ble Commission to approve the above mentioned Special R&M activities for FY2019-20

## 18.2. Capacity building

18.2.1. The Hon'ble Commission had approved expenses pertaining to Capacity Building of APGCL employees.

18.2.2. In FY2019-20 (April – Oct), APGCL has already incurred INR 37 Lakhs on Capacity Building. Further estimated amount of INR 8 Lakhs is expected to be incurred on Capacity Building. However APGCL is claiming the normative Capacity Building expenses for FY2019-20 with the rest of the expenditure being claimed under O&M expenses.

18.2.3. The approved and claimed expenses have been shown in the table below:

Table 121: Expenses under Capacity building

Rs. Cr

Station	Approved as per order of March 2019	Amount claimed for APR
NTPS	0.10	0.10
LTPS	0.10	0.10
KLHEP	0.10	0.10
LRPP	0.00	0.00
<b>Total</b>	<b>0.30</b>	<b>0.30</b>

18.2.4. APGCL prays to the Hon'ble Commission to approve the above mentioned capacity building expenses for FY2019-20.

## 18.3. Total Other expenses

18.3.1. The plant wise Other expenses for FY 2019-20 are as shown in the tables below.

Table 122: Other expenses for NTPS for FY 2019-20

Rs. Cr

Other expenses for NTPS	Approved as per order of March 2019	Estimated for APR
Special R&M	4.00	-
Capacity Building	0.10	0.10
<b>Total</b>	<b>4.10</b>	<b>0.10</b>

Table 123: Other expenses for LTPS for FY 2019-20

Rs. Cr

Other expenses for LTPS	Approved as per order of March 2019	Estimated for APR
Special R&M	10.00	-
Capacity Building	0.10	0.10
<b>Total</b>	<b>10.10</b>	<b>0.10</b>

Table 124: Other expenses for KLHEP for FY 2019-20

Rs. Cr

Other expenses for KLHEP	Approved as per order of March 2019	Estimated for APR
Special R&M	15.00	-
Capacity Building	0.10	0.10
<b>Total</b>	<b>15.10</b>	<b>0.10</b>

Table 125: Other expenses for LRPP for FY 2019-20

Rs. Cr

Other expenses for LRPP	Approved as per order of March 2019	Estimated for APR
Special R&M	-	-
Capacity Building	-	-
<b>Total</b>	<b>0.00</b>	<b>0.00</b>

18.3.2. Other expenses like actual tax paid and prior period items for FY 2019-20 will be claimed in True-up of FY 2019-20.

## 19. Summary of submissions for Annual Performance Review of FY 2019-20

### 19.1. Net Annual Revenue Requirement

19.1.1. The plant wise Net Annual Revenue Requirements for FY 2019-20 are as shown in the tables below.

Table 126: Net Annual Revenue Requirements for NTPS for FY 2019-20

Rs. Cr

APR for FY 2019-20 For NTPS			
Sl. No	Particulars	Approved as per order of March 2019	Amount claimed for APR
<b>I</b>	<b>POWER GENERATION (MU)</b>		
	Gross Generation	173.73	221.24
	Net Generation	165.91	207.92
	Auxiliary Consumption, Loss %	4.50%	6.02%
<b>I</b>	<b>Fixed Charges</b>		
	Operation & Maintenance Expenditure	18.83	40.12
	Employee Expenses		36.70
	R&M Expenses		1.94
	A&G Expenses		1.47
	Interest & Finance Charges	0.18	0.22
	Interest on working Capital	2.72	4.66
	Depreciation	0.63	1.56
	Return on Equity	3.1	8.53
	<u>Less: Other Income</u>	7.13	7.13
	<b>Total Fixed Charges</b>	<b>18.33</b>	<b>47.95</b>
<b>II</b>	<b>Fuel Cost</b>	<b>46.30</b>	<b>72.66</b>
	Other expenses		
	Special R&M	4.00	0.00
	Capacity Building	0.10	0.10
<b>III</b>	<b>Total Other expenses</b>	<b>4.10</b>	<b>0.10</b>
<b>IV</b>	<b>Total Revenue Requirement</b>	<b>68.73</b>	<b>120.71</b>



<b>APR for FY 2019-20 For NTPS</b>			
<b>Sl. No</b>	<b>Particulars</b>	<b>Approved as per order of March 2019</b>	<b>Amount claimed for APR</b>
<b>VII</b>	<b>Total Cost</b>	<b>68.73</b>	<b>120.71</b>
<b>VIII</b>	<b>Revenue from Sale of Power</b>	<b>68.73</b>	<b>83.62</b>
<b>IX</b>	<b>Revenue Gap (+) / Surplus(-)</b>	<b>0.00</b>	<b>37.08</b>

Table 127: Net Annual Revenue Requirements for LTPS for FY 2019-20

Rs. Cr

<b>APR for FY 2019-20 For LTPS</b>			
<b>Sl. No</b>	<b>Particulars</b>	<b>Approved as per order of March 2019</b>	<b>Amount claimed for APR</b>
<b>I</b>	<b>POWER GENERATION (MU)</b>		
	Gross Generation	425.74	396.89
	Net Generation	402.32	362.92
	Auxiliary Consumption, Loss %	5.50%	8.56%
<b>I</b>	<b>Fixed Charges</b>		
	Operation & Maintenance Expenditure	38.62	41.74
	Employee Expenses		30.11
	R&M Expenses		8.00
	A&G Expenses		3.63
	Interest & Finance Charges	0.04	0.00
	Interest on working Capital	6.40	7.07
	Depreciation	10.46	11.55
	Return on Equity	15.16	22.18
	<u>Less: Other Income</u>	9.22	9.22
	<b>Total Fixed Charges</b>	<b>61.47</b>	<b>73.32</b>
<b>II</b>	<b>Fuel Cost</b>	<b>115.81</b>	<b>139.15</b>
	Other expenses		
	Special R&M	10.00	0.00
	Capacity Building	0.10	0.10
<b>III</b>	<b>Total Other expenses</b>	<b>10.10</b>	<b>0.10</b>



<b>APR for FY 2019-20 For LTPS</b>			
<b>Sl. No</b>	<b>Particulars</b>	<b>Approved as per order of March 2019</b>	<b>Amount claimed for APR</b>
<b>IV</b>	<b>Total Revenue Requirement</b>	<b>187.38</b>	<b>212.57</b>
<b>VII</b>	<b>Total Cost</b>	<b>187.38</b>	<b>212.57</b>
<b>VIII</b>	<b>Revenue from Sale of Power</b>	<b>187.38</b>	<b>184.34</b>
<b>IX</b>	<b>Revenue Gap (+) / Surplus(-)</b>	<b>0.00</b>	<b>28.24</b>

Table 128: Net Annual Revenue Requirements for KLHEP for FY 2019-20

<b>APR for FY 2019-20 For KLHEP</b>			
<b>Sl. No</b>	<b>Particulars</b>	<b>Approved as per order of March 2019</b>	<b>Amount claimed for APR</b>
<b>I</b>	<b>POWER GENERATION (MU)</b>		
	Gross Generation	390.00	346.46
	Net Generation	388.05	344.73
	Auxiliary Consumption, Loss %	0.5%	0.5%
<b>I</b>	<b>Fixed Charges</b>		
	Operation & Maintenance Expenditure	28.44	30.95
	Employee Expenses		22.93
	R&M Expenses		4.21
	A&G Expenses		3.81
	Interest & Finance Charges	22.09	21.25
	Interest on working Capital	2.58	2.86
	Depreciation	21.63	21.35
	Return on Equity	10.64	10.96
	Less: Other Income	5.75	5.75
	<b>Total Fixed Charges</b>	<b>79.64</b>	<b>81.62</b>
<b>II</b>	<b>Fuel Cost</b>	<b>0.00</b>	<b>0.00</b>
	Other expenses		
	Special R&M	15.00	0.00
	Capacity Building	0.10	0.10
<b>III</b>	<b>Total Other expenses</b>	<b>15.10</b>	<b>0.10</b>
<b>IV</b>	<b>Total Revenue Requirement</b>	<b>94.74</b>	<b>81.72</b>
<b>VII</b>	<b>Total Cost</b>	<b>94.74</b>	<b>81.72</b>



<b>APR for FY 2019-20 For KLHEP</b>			
<b>Sl. No</b>	<b>Particulars</b>	<b>Approved as per order of March 2019</b>	<b>Amount claimed for APR</b>
<b>VIII</b>	<b>Revenue from Sale of Power</b>	<b>94.74</b>	<b>83.65</b>
<b>IX</b>	<b>Revenue Gap (+) / Surplus(-)</b>	<b>0.00</b>	<b>-1.93</b>

Rs. Cr

Table 129: Net Annual Revenue Requirements for LRPP for FY 2019-20

Rs. Cr

<b>APR for FY 2019-20 For LRPP</b>			
<b>Sl. No</b>	<b>Particulars</b>	<b>Approved as per order of March 2019</b>	<b>Amount claimed for APR</b>
<b>I</b>	<b>POWER GENERATION (MU)</b>		
	Gross Generation	520.82	520.82
	Net Generation	502.59	504.45
	Auxiliary Consumption, Loss %	3.50%	3.14%
<b>I</b>	<b>Fixed Charges</b>		
	Operation & Maintenance Expenditure	20.04	22.62
	Employee Expenses		13.88
	R&M Expenses		8.05
	A&G Expenses		0.69
	Interest & Finance Charges	3.44	3.23
	Interest on working Capital	4.24	4.65
	Depreciation	2.75	2.31
	Return on Equity	2.50	2.34
	<u>Less: Other Income</u>	0.00	0.00
	<b>Total Fixed Charges</b>	<b>32.98</b>	<b>35.15</b>
<b>II</b>	<b>Fuel Cost</b>	<b>95.19</b>	<b>107.62</b>
	Other expenses		
	Special R&M	0.00	0.00
	Capacity Building	-	-
<b>III</b>	<b>Total Other expenses</b>	<b>0.00</b>	<b>0.00</b>
<b>IV</b>	<b>Total Revenue Requirement</b>	<b>128.17</b>	<b>142.77</b>





<b>APR for FY 2019-20 For LRPP</b>			
<b>Sl. No</b>	<b>Particulars</b>	<b>Approved as per order of March 2019</b>	<b>Amount claimed for APR</b>
<b>VII</b>	<b>Total Cost</b>	<b>128.17</b>	<b>142.77</b>
<b>VIII</b>	<b>Revenue from Sale of Power</b>	<b>128.17</b>	<b>137.21</b>
<b>IX</b>	<b>Revenue Gap (+) / Surplus(-)</b>	<b>0.00</b>	<b>5.56</b>



## 19.2. Summary

19.2.1. The summary of the APR for FY 2019-20 For APGCL is as shown below.

Table 130: APR for FY 2019-20 for APGCL

Rs. Cr

<b>APR for FY 2019-20 For APGCL</b>			
<b>Sl. No</b>	<b>Particulars</b>	<b>Approved as per order of March 2019</b>	<b>Amount claimed for APR</b>
<b>I</b>	<b>POWER GENERATION (MU)</b>		
	Gross Generation	1510.29	1485.42
	Net Generation	1458.88	1420.03
	Auxiliary Consumption, Loss %	3.40%	4.40%
<b>I</b>	<b>Fixed Charges</b>		
	Operation & Maintenance Expenditure	105.93	135.44
	Employee Expenses		103.62
	R&M Expenses		22.20
	A&G Expenses		9.62
	Interest & Finance Charges	25.76	24.69
	Interest on working Capital	15.95	19.24
	Depreciation	35.47	36.77
	Return on Equity	31.40	43.99
	Less: Other Income	22.10	22.09
	<b>Total Fixed Charges</b>	<b>192.40</b>	<b>238.03</b>
<b>II</b>	<b>Fuel Cost</b>	<b>257.30</b>	<b>319.43</b>
	Other expenses		
	Special R&M	29.00	0.00
	Capacity Building	0.30	0.30
<b>III</b>	<b>Total Other expenses</b>	<b>29.30</b>	<b>0.30</b>
<b>IV</b>	<b>Total Revenue Requirement</b>	<b>479.00</b>	<b>557.77</b>
<b>VII</b>	<b>Total Cost</b>	<b>479.00</b>	<b>557.77</b>
<b>VIII</b>	<b>Revenue from Sale of Power</b>	<b>479.01</b>	<b>488.82</b>
<b>IX</b>	<b>Revenue Gap (+) / Surplus(-)</b>	<b>-0.01</b>	<b>68.95</b>

Table 131: Net Annual Revenue Requirements for APGCL for FY 2019-20

Rs. Cr

Particulars	Approved as per order of March 2019	Amount estimated for Annual Performance Review
Total Fixed Charges	191	238
Fuel Cost	257	319
Total Other expenses	29.30	0.30
<b>Total Revenue Requirement</b>	<b>477.34</b>	<b>557.51</b>

19.2.2. We submit that since the figures for the FY 2019-20 are estimated and are subject to True-up, APGCL has not considered gap in the tariff for FY 2019-20. The same shall be considered at the time of True-up petition of FY 2019-20.

19.2.3. The Petitioner prays to the Hon'ble Commission to approve the plant wise Net Annual Revenue Requirement and for APGCL as a whole for FY 2019-20 as discussed in the tables above.

**APPEAL FOR REVISED AGGREGATE REVENUE  
REQUIREMENT FOR FY 2020-21 NTPS  
&  
DETERMINATION OF TARIFF FOR FY 2020-21  
To  
ASSAM ELECTRICITY REGULATORY COMMISSION**



Prepared by  
**ASSAM POWER GENERATION CORPORATION LTD**  
Bijulee Bhawan, Paltanbazar  
Guwahati – 781 001



## AFFIDAVIT – NTPS

BEFORE THE ASSAM STATE ELECTRICITY REGULATORY  
COMMISSION, GUWAHATI.

Petition No. –

Case No.  
(to be filed by the Office)

IN THE MATTER OF

Filing of Petition for Revised Aggregate Revenue Requirement and Determination of Tariff  
for the FY 2020-21

AND

IN THE MATTER OF

Namrup Thermal Power Station,  
Assam Power Generation Corporation Limited,  
Namrup-786622

Petitioner

I, Sri Ramendra Choudhury, son of Late Nagendra Choudhury, age 59 years, residing at Six  
Mile, Guwahati-781022, do solemnly affirm and say as follows:

I am the General Manager (HQ) of Assam Power Generation Corporation Limited, the  
petitioner in the above matter and am duly authorized by the said Petitioner to make this  
affidavit for and on behalf of the Assam Power Generation Corporation Limited.

The Statement made in the Petition based on information received from official records and  
I believe them to reflect truly and no material has been concealed from the statements so  
made or documents or supporting data etc. attached.

Solemnly affirm at Guwahati on 29<sup>th</sup> November 2019 that the contents of this affidavit are  
true to my knowledge, no part of it is false or no material has been concealed therefore and  
misleading material included therein.

Place: Guwahati

Date: 29<sup>th</sup> November 2019

Deponent



(Ramendra Choudhury)  
General Manager (HQ),

Assam Power Generation Corporation Ltd.



## PRAYER – NTPS

**BEFORE THE HON'BLE ASSAM ELECTRICITY REGULATORY COMMISSION**

FILINGNO .....

CASENO.....

**IN THE MATTER OF:**

Petition for Submission of Revised Aggregate Revenue Requirement and Determination of Tariff for the FY 2020-21

**AND IN THE MATTER OF:**

Namrup Thermal Power Station (hereinafter referred to as "NTPS") of Assam Power Generation Corporation Limited (hereinafter referred to as "APGCL") incorporated under the provisions of the Companies Act, 1956 and having its registered office in the State of Assam

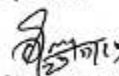
**THE HUMBLE APPLICANT ABOVE NAMED MOST RESPECTFULLY SHEWETH:**

- 1 That the APGCL is a successor corporate entity of former ASEB, formed in pursuant to the notification of the Government of Assam, notified under sub-sections (1), (2), (5), (6) and (7) of Section 131 and Section 133 of the Electricity Act 2003(Central Act 36 of 2003), for the purpose of transfer and vesting of functions, properties, interests, rights, obligations and liabilities, along with the transfer of Personnel of the Board to the successor corporate entities.
- 2 That the APGCL is a company incorporated with the main object of generation of electricity in the state of Assam.
- 3 That the APGCL is a generating company under the provisions laid down in Section 14 Proviso 5, read with Section 131 (2) of the Electricity Act 2003.
- 4 That the NTPS is an operating gas based thermal Power Station under the APGCL in the district of Dibrugarh, Assam.
- 5 That the Hon'ble Commission notified the AERC (Terms and Conditions for determination of Multi Year Tariff) Regulations, 2018 on 28th June, 2018.
- 6 That as per the Hon'ble Commission's this new MYT Regulations of 2018 the licensee filed for approval of the for Aggregate Revenue Requirement of NTPS for the MYT Period from FY 2019-20 to FY 2021-2022 and Determination of Tariff for the FY 2019-20 on 30/11/2018.
- 7 That the AERC, after completion of the due process, issued Order for the MYT Control Period of FY 2019-20 to FY 2021-22 on 01/03/2019.
- 8 That APGCL is now submitting the Petition for the Revised Aggregate Revenue Requirement and Determination of Tariff for NTPS for the FY 2020-21 as per the relevant Regulations.

Place: Guwahati

Date: 29<sup>th</sup> November' 2019

**Deponent**



(R. Choudhury)  
General Manager (HQ),

Assam Power Generation Corporation Ltd.



## 20. Revised ARR for FY 2020-21

### 20.1. Regulatory provisions for Revised ARR

20.1.1. The Hon'ble Commission in its Tariff regulations 2018 has stated the following on Revised ARR for the control period from FY 2019-20 to FY 2021-22. The same is reproduced below for ready reference:

#### *4 Multi-Year Tariff Framework*

*4.1 The Commission shall determine the tariff for matters covered under clauses (i), (ii), (iii), (iv) and (v) of Regulation 3.3 above under a Multi-Year Tariff framework with effect from 1<sup>st</sup> April 2019.*

*4.2 The Multi-Year Tariff framework shall be based on the following elements, for calculation of Aggregate Revenue Requirement and expected revenue from tariff and charges for Generating Companies, Transmission Licensee, SLDC, Distribution Wheeling Business and Retail Supply Business:*

- (i) Before commencement of Control Period, a forecast of the Aggregate Revenue Requirement and expected revenue from existing tariff and charges shall be submitted by the applicant and approved by the Commission;*
- (ii) A detailed Capital Investment Plan for each year of the Control Period, shall be submitted by the applicant for the Commission's approval;*
- (iii) The applicant shall submit operating norms and trajectories of performance parameters for each year of the Control Period, for the Commission's approval*
- (iv) The applicant shall submit the forecast of Aggregate Revenue Requirement and expected revenue from existing tariff for each year of the Control Period, and the Commission shall approve the tariff for Generating Companies, SLDC, Transmission Licensee, Distribution Wheeling Business and Retail Supply Business, for each year of the Control Period;*
- (v) In its tariff petition, a generating company shall submit information to support the determination of tariff for each generating station*

#### *5 Control Period and Baseline*

*5.1 The first Control Period under these Regulations shall be of three financial years from April 1, 2019 to March 31, 2022 and for every block of three years thereafter or such other period as may be decided by the Commission.*

*.....*

*5.2 The Commission shall determine baseline values for various financial and operational parameters of ARR for the Control Period taking into consideration the figures approved by the Commission in the past, actual average figures of last three years, audited accounts, estimate of the figures for the relevant year, Industry benchmarks/norms and other factors considered appropriate by the Commission;*

*Provided that in case of substantial difference between the estimates earlier provided / considered for determination of baseline values and the actual audited accounts, the Commission may re-determine the baseline values for the base year suo-moto or on an application filed by the Applicant"*



## 21. Norms of operations

### 21.1. Regulatory provisions

21.1.1. The Hon'ble Commission had set norms of operations under Tariff Regulations 2018.

21.1.2. The projected performance vis-a-vis norms of operations set is discussed below:

### 21.2. Snapshot of performance projection for FY 2020-21

21.2.1. The generation from Namrup thermal power station is expected to reduce due to proposed commissioning of the GT Unit of NRPP from 1<sup>st</sup> January 2020 and that of the whole plant at 1<sup>st</sup> March 2020. It is expected that only two units totalling 43.5 MW of Namrup thermal power station will run post commissioning of NRPP.

21.2.2. The Commission in its order dated 1st March 2019 had approved the NAPAF of NTPS at 50% for FY2020-21. However due to the problem of low gas supply and frequent forced shutdown of the aged units/auxiliaries, normative Plant Availability factor may not be achieved

21.2.3. The following table shows the projection of performance parameters of gas based Namrup thermal power station for FY2020-21

*Table 132: Projected Operating Performance for FY2020-21 of NTPS*

NTPS	2020-21 Approved	2020-21 Projected
Gross Energy in MU	173.73	173.73
Aux. Power Cons. (%)	4.50%	4.50%
Net Energy in MU	165.9	165.9
Plant Availability Factor (%)	50.00%	45.59%
Plant Load Factor (%)	50.00%	45.59%
Gross Station Heat Rate on GCV (kcal / kWh)	3900	3900



### 21.3. Normative Annual Plant Availability Factor (NAPAF)

21.3.1. As per Regulation 47.1 of the Tariff Regulations, 2018 the Normative Plant Availability factor for recovery of full fixed charges, is 50% for FY2020-21 for NTPS. However, post commissioning of NRPP, availability of NTPS is expected to decrease due to low availability of gas. The approved and projected numbers are shown in the table below.

Table 133: Projected Availability for FY2020-21 of NTPS

NTPS	2020-21 Approved	2020-21 Projected
Plant Availability Factor (%)	50.00%	45.59%

### 21.4. Normative Annual Plant Load Factor (NAPLF)

21.4.1. As per Regulation 47.2 of the Tariff Regulations, 2018 the Normative Plant Load factor is 50% for FY 2019-20 to FY 2021-22 for NTPS. However, post commissioning of NRPP, generation of NTPS is expected to decrease due to low availability of gas. The PLF for NTPS has been projected at same level of availability. APGCL will try to achieve the approved PLF for NTPS during the year.. The approved and projected numbers are shown in the table below.

Table 134: Projected PLF for FY2020-21 of NTPS

NTPS	2020-21 Approved	2020-21 Projected
Plant Load Factor (%)	50.00%	45.59%

### 21.5. Gross Station Heat Rate (SHR)

21.5.1. As per Regulation 47.4, of the Tariff Regulations, 2018 the Normative Station Heat Rate, is 3900 kCal/kWh for FY 2020-21 for NTPS in Partial combined cycle mode of operation.

21.5.2. The approved and projected numbers are shown in the table below.

Table 135: Projected SHR for FY2020-21 of NTPS

NTPS	2020-21 Approved	2020-21 Projected
Gross Station Heat Rate on GCV (kcal / kWh)	3900.00	3900.00

## 21.6. Auxiliary Energy Consumption

21.6.1. As per Regulation 47.3 of the Tariff Regulations, 2018 the Normative Auxiliary energy consumption is 4.50% for FY 2020-21 for NTPS. The same has been considered for projection. The approved and projected numbers are shown in the table below.

*Table 136: Auxiliary Energy Consumption for FY2020-21 of NTPS*

<b>NTPS</b>	<b>2020-21 Approved</b>	<b>2020-21 Projected</b>
Auxiliary energy consumption (%)	4.50%	4.50%

21.6.2. APGCL prays to the Hon'ble Commission to approve the projection of performance parameters as shown above.

## 22. Fixed Cost of the Plant

### 22.1. Annual fixed cost for FY 2020-21

22.1.1. As per regulation 42.1 of the AERC Tariff regulations, 2018 the following components have been considered for projecting of fixed cost under the Multi Year Tariff framework for the power plants:

- (a) Return on Equity Capital
- (b) Interest on Loan capital
- (c) Depreciation
- (d) Operation and Maintenance Expenses
- (e) Interest on Working Capital
- (f) Less: Non-Tariff Income

22.1.2. For the computation of the fixed components, the Petitioner has considered the principles provided in the Tariff Regulations, 2018. These components have been discussed in detail in the following sections of the petition.

### 22.2. Return on Equity (ROE)

22.2.1. The Hon'ble Commission in its regulation has considered the pre-tax return on equity at 15.5% on equity capital as per Regulation 33 of the Tariff Regulations, 2018.

22.2.2. APGCL has projected the Return on Equity (RoE) at a rate of 15.5% in accordance with the Tariff Regulations, 2018. The Petitioner submits that there is no plan of addition in Equity in FY 2020-21 for the existing plant. Further, it is submitted that the actual tax paid would be claimed separately during True-up of respective years.

Table 137: Projected Return on Equity capital for FY2020-21

Station	Particulars	2020-21 Approved	2020-21 Projected
NTPS	Opening Equity	55.00	55.00
	Closing Equity	55.00	55.00
	Rate of Return	15.50%	15.50%
	<b>Return on Equity</b>	<b>8.53</b>	<b>8.53</b>

*Rs. Cr*

22.2.3. APGCL prays to the Hon'ble Commission to approve the projected Return on Equity as shown above.



## 22.3. Interest on Loan Capital

22.3.1. As per Regulation 34 of the Tariff Regulations, 2018, the Commission will consider interest on Loan capital on normative basis with repayment equal to depreciation allowed for that year and rate of interest will be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year.

22.3.2. In view of the above, the Petitioner has projected the Interest on long term Loan on normative basis for FY2020-21. The Petitioner has considered normative loan portfolio and the repayment shown is considered equal to the depreciation for FY 2020-21. The interest rate has been considered as the expected weighted average rate of interest for FY 2020-21.

22.3.3. The finance charges are shown separately for FY 2020-21. The table below summarizes the interest on loan and finance charges considered for period of FY 2020-21.

Table 138: Projected Interest and Finance charges for FY2020-21 for NTPS

Rs. Cr

Station	Particulars	2020-21 Approved	2020-21 Projected
NTPS	Net Normative Opening Loan	3.27	3.47
	Addition of normative loan during the year	3.04	6.44
	Normative Repayment during the year	2.14	1.83
	Net Normative Closing Loan	4.17	8.07
	Avg. Normative Loan	3.72	5.77
	Interest Rate	10.18%	10.34%
	Interest on Loan Capital	0.38	0.60
	Add: Bank Charges	0.00	0.00
	<b>Net Interest on Loan Capital</b>	<b>0.38</b>	<b>0.60</b>

22.3.4. APGCL prays to the Hon'ble Commission to approve the projected Total interest and finance charges as shown above.

## 22.4. Depreciation

22.4.1. The Hon'ble Commission in its Tariff Regulations, 2018 has provided the principals for determination of depreciation.

22.4.2. In view of the above, the Petitioner has computed the Depreciation considering the Capital Cost of the asset admitted by the Commission and projected asset addition with 10% salvage value. Also, depreciation on grants has been subtracted. The table below summarizes the Depreciation projected for FY2020-21.

Table 139: Projected Depreciation for FY2020-21 of NTPS

Rs. Cr

Particulars	2020-21
Opening GFA	195.29
Addition during the year	7.72
Closing GFA	203.01
Average GFA	199.15
Rate of Depreciation	0.99%
Total Depreciation	1.98
Grant	13.70
Additions during the year	1.28
Closing grant	14.99
Average grant	14.35
Rate of Depreciation	0.99%
Depreciation on grants	0.14
<b>Net Depreciation</b>	<b>1.83</b>

Table 140: Summary of projected Depreciation for FY2020-21

Rs. Cr

Station	Particulars	2020-21 Approved	2020-21 Projected
NTPS	Depreciation	2.37	1.98
	<u>Less:</u> Depreciation on assets funded by Grants	0.23	0.14
	Net Depreciation	2.14	1.83

22.4.3. APGCL prays to the Hon'ble Commission to approve the projected Depreciation for FY 2020-21 as shown above.



## 22.5. Interest on Working Capital

22.5.1. As per Regulation 36 of the Tariff Regulations, 2018, the interest on working capital will be considered on normative basis.

22.5.2. As per the above regulations, the Petitioner has projected normative interest on working capital. However, as APGCL does not have liquid fuel stock facility, it has not considered working capital on storage of liquid fuel. The rate of interest has been considered equal to the normative interest rate of three hundred (300) basis points above the average State Bank of India MCLR (One Year Tenor) prevalent during the last available six months, which  $8.22\% + 3.00\% = 11.22\%$ .

22.5.3. The interest on working capital considered is shown in the table below:

Table 141: Summary of Interest on working capital projected for FY2020-21

Rs. Cr

Station	Particulars	2020-21 Approved	2020-21 Projected
NTPS	Fuel Cost for one month	4.23	3.71
	O&M Expenses for one month	1.67	1.70
	Maintenance Spares-30% of O&M	6.00	6.10
	Receivables for two months	11.79	11.91
	Total Working Capital Requirement	23.69	23.42
	Rate of interest	11.50%	11.22%
	<b>Interest on Working capital</b>	<b>2.72</b>	<b>2.63</b>

22.5.4. APGCL prays to the Hon'ble Commission to approve the Interest on Working capital for FY 2020-21 as shown above.

## 22.6. Operation and Maintenance Expenses (O&M Expenses)

22.6.1. The Operation and maintenance expense are to be projected as per Regulation 50.1 of the Tariff Regulations, 2018.

22.6.2. The Commission in its order dated 1<sup>st</sup> March 2019 had computed the normative O&M expenses for NTPS for FY2020-21. The same has been petitioned for revision considering the actual impact of ROP in FY2018-19 and actual effective capacity for the plants in FY2019-20.

22.6.3. Thus, the normative expenses computed considering the actual impact of ROP and effective capacity for FY2019-20 has been escalated with escalation factor of 6.3% as provided under Regulation 50.1 of Tariff Regulation, 2018.

22.6.4. Further the amount so computed has been apportioned again considering the effective capacity of NTPS in FY2020-21 i.e. 43.5 MW vis –a vis weighted average installed capacity of NTPS in FY2019-20 i.e. 85.6 MW (99.5 MW between 1<sup>st</sup> April 2019 to 31<sup>st</sup> December 2019 and 43.5 MW between 1<sup>st</sup> January 2020 to 31<sup>st</sup> March 2020) The same is shown below.

Table 142: Operation and Maintenance projected for FY2020-21

Rs. Cr

Station	2019-20 Revised Normative Expense for FY19-20 for effective Capacity	2020-21 Approved as per Order of March 2019	2020-21 Projected O&M for Effective Capacity
	1	2	$3=1*(1+6.3%)*43.5/85.6$
NTPS	37.65	20.01	20.34

22.6.5. APGCL prays to the Hon'ble Commission to approve the O&M expenses for FY 2020-21 as shown above.

## 22.7. Non-Tariff income

22.7.1. As per Regulation 45 of the Tariff Regulations, 2018, the non-tariff income shall be deducted from the Annual Fixed Cost in determining the Annual Fixed Cost of the Generation Company.

22.7.2. The non-tariff income for FY2020-21 are projected same as approved by Hon'ble Commission. The same is as shown in the table below

Table 143: Station-wise Non tariff income projected for FY2020-21

Rs. Cr

Station	2020-21	2020-21
---------	---------	---------



Station	2020-21 Approved	2020-21 Projected
NTPS	7.13	7.13

22.7.3. APGCL prays to the Hon'ble Commission to approve the Non-tariff income for FY FY2020-21 as shown above.

## 22.8. Total Fixed Cost

22.8.1. The recovery of Annual fixed charges is to be done as per regulation 51.1 of the Tariff Regulations, 2018.

22.8.2. Based on the above, the Annual fixed charges for FY2020-21 has been computed. The Hon'ble Commission is requested to approve the fixed charges as discussed in the table below:

Table 144: Annual Fixed charges for FY2020-21 of NTPS

NTPS	2020-21 Approved	2020-21 Projected
Operation & Maintenance Expenditure	20.01	20.34
Interest & Finance Charges	0.38	0.60
Interest on working Capital	2.72	2.63
Depreciation	0.78	1.83
Return on Equity	8.53	8.53
<u>Less: Other Income</u>	7.13	7.13
<b>Total Fixed Charges</b>	<b>25.29</b>	<b>26.79</b>

22.8.3. The Petitioner prays to the Hon'ble Commission to approve the fixed costs for FY 2020-21 as discussed in the tables above.

## 23. Energy Charges

### 23.1. Fuel Price and Calorific Value

23.1.1. As per Regulation 11 of the Tariff Regulations 2018, 'Fuel Price' and 'Calorific Value of Fuel' are uncontrollable items. The values of 'Calorific Value of Fuel' is considered same as considered in FY 2019-20. The value of 'Fuel Price' has been considered at the rate computed for the month of October 2019 and escalated at annual rate of 3% for Transmission charges as per agreement. The projected values of 'Fuel Price' and 'Calorific Value of Fuel' are shown in the table below:

Table 145: Projected GCV and Price for FY2020-21

Station	Wt. Avg. Gross Calorific Value	Wt. Avg. Price of Gas
---------	--------------------------------	-----------------------





	of Gas (kcal/SCM)	(Rs./1000 SCM)
NTPS	9,147.27	6,010.24

23.1.2. The Petitioner prays to the Hon'ble Commission to approve the projected Price of Gas and GCV for NTPS for FY 2020-21 as shown in the table above.

## 23.2. Fuel cost

23.2.1. The Commission, in the Tariff Order dated 1<sup>st</sup> March 2019 had approved the Fuel Cost for FY 2020-21. The table below shows the projected fuel cost for FY2020-21

Table 146: Fuel cost for NTPS for FY2020-21

Particulars	Derivation	Unit	2020-21 Approved	2020-21 Projected
Gross Generation	A	MU	173.73	173.73
Heat Rate	B	kcal/kWh	3900.00	3900.00
GCV of gas	C	kcal/SCM	8893.61	9147.27
Overall Heat	D=AxB	G. cal.	677547.00	677547.00
Gas consumption	E=D/C	M. SCM	76.18	74.07
Price of Gas	F	Rs./1000 SCM	6076.99	6010.24
<b>Total cost of Gas</b>	<b>G=ExF/10000</b>	<b>Rs. Crore</b>	<b>46.30</b>	<b>44.52</b>

23.2.2. The Petitioner prays to the Hon'ble Commission to approve the projected Fuel cost Price for NTPS for FY 2020-21 as shown in the table above.

## 23.3. Incentives

23.3.1. APGCL submits that the Incentives for FY 2020-21 will be claimed in True-up as per Regulations.

## 24. Other expenses

### 24.1. Special R&M

24.1.1. APGCL does not plan to undertake any Special R&M for NTPS in FY2020-21.

Table 147: Expenses under Special R&M

Station	FY2020-21 Approved	FY2020-21 Projected
NTPS	-	-

Rs. Cr



## 24.2. Capacity building

24.2.1. The Hon'ble Commission had approved the Capacity Building expenditure at INR 0.10 Crores for FY2020-21 for NTPS in its order dated 1<sup>st</sup> March 2019.

24.2.2. The actual capacity building expenses incurred by APGCL is INR 0.37 Crores in the first 7 months of FY2019-20 (April to October) for its employees. Given the importance of capacity building of employees to meet the growing challenge and future needs of power sector and better of performance of individuals, APGCL prays to the commission to approve INR 0.15 Crores for capacity building of employees of NTPS for FY2020-21.

24.2.3. The below table shows the approved and projected expenditure for Capacity Building.

Table 148: Expenses under Capacity building

Station	Rs. Cr	
	FY2020-21 Approved	FY2020-21 Projected
NTPS	0.10	0.15

## 24.3. Total Other expenses

24.3.1. The Other expenses for FY FY2020-21 is as shown in the tables below.

Table 149: Other expenses for NTPS in FY2020-21

Other expenses for NTPS	FY2020-21	
	Approved	Projected
Special R&M	0.00	0.00
Capacity building	0.10	0.15
<b>Total Other expenses</b>	<b>0.10</b>	<b>0.15</b>

24.3.2. APGCL submits that the Other expenses like actual tax paid, prior period items etc. for FY2020-21 will be claimed in True-up of FY 2020-21 as per Regulations.

## 25. Summary of submissions for Revised ARR of FY 2020-21

### 25.1. Summary

25.1.1. The Summary of the revised ARR for FY2020-21 for NTPS is shown below.

Table 150: Revised ARR for FY2020-21 for NTPS

Rs. Cr

Revised ARR for FY2020-21 For NTPS			
Sl. No	Particulars	2020-21 Approved	2020-21 Projected
	<b>POWER GENERATION (MU)</b>		
	Gross Generation	173.73	173.73
	Net Generation	165.9	165.9
	Auxiliary Consumption Loss %	4.50%	4.50%
<b>I</b>	<b>Fixed Charges</b>		
	Operation & Maintenance Expenditure	20.01	20.34
	Interest & Finance Charges	0.38	0.60
	Interest on working Capital	2.72	2.63
	Depreciation	0.78	1.83
	Return on Equity	3.10	8.53
	<u>Less:</u> Other Income	7.13	7.13
	<b>Total Fixed Charges</b>	<b>19.86</b>	<b>26.79</b>
	<b>Other expenses</b>		
	Special R&M	0.00	0.00
	Capacity Building	0.10	0.15
<b>II</b>	<b>Total Other expenses</b>	<b>0.10</b>	<b>0.15</b>
<b>III</b>	<b>Fixed Charges including Other expenses</b>	<b>19.96</b>	<b>26.94</b>
<b>IV</b>	<b>Fuel Cost</b>	<b>46.30</b>	<b>44.52</b>
<b>V</b>	<b>Total Revenue Requirement</b>	<b>66.26</b>	<b>71.46</b>
	Fixed charges including other charges (Rs. / kWh)	1.20	1.62
	Energy charges (Rs. / kWh)	2.79	2.68
<b>V</b>	<b>Proposed tariff (Rs. / kWh)</b>	<b>3.99</b>	<b>4.31</b>

## 25.2. Net Annual Revenue Requirement

25.2.1. The Net Annual Revenue Requirements for FY 2020-21 is shown in the tables below.

Table 151: Net Annual Revenue Requirements for NTPS for FY2020-21

Rs. Cr

Particulars	2020-21 Projected
Fixed Charges including Other expenses	26.94
Fuel Cost	44.52
Total Revenue Requirement	71.46

## 25.3. Tariff for NTPS for FY 2020-21

25.3.1. The tariff proposed for NTPS for FY 2020-21 is as shown below

Table 152: tariff proposed for NTPS for FY 2020-21

Particulars	NTPS
Annual fixed charges (Rs crore)	26.94
Monthly fixed charges (Rs crore)	2.25
Energy charge rate (Rs./ kWh)	2.68

25.3.2. The Petitioner prays to the Hon'ble Commission to approve the Net Annual Revenue Requirement for FY 2020-21 as discussed in the tables above.

APPEAL FOR REVISED AGGREGATE REVENUE REQUIREMENT FOR FY  
2020-21 FOR LTPS  
&  
DETERMINATION OF TARIFF FOR FY2020-21  
To  
ASSAM ELECTRICITY REGULATORY COMMISSION



Prepared by  
ASSAM POWER GENERATION CORPORATION LTD  
Bijulee Bhawan, Paltanbazar  
Guwahati – 781 001

## AFFIDAVIT – LTPS

BEFORE THE ASSAM STATE ELECTRICITY REGULATORY  
COMMISSION, GUWAHATI.

Petition No. –

Case No.  
(to be filed by the Office)

IN THE MATTER OF

Filing of Petition for Revised Aggregate Revenue Requirement and Determination of Tariff  
for the FY 2020-21

AND

IN THE MATTER OF

Lakwa Thermal Power Station,  
Assam Power Generation Corporation Limited,  
Maibella, Charaideo,  
Saffry-785689

Petitioner

I, Sri Ramendra Choudhury, son of Late Nagendra Choudhury, age 59 years, residing at Six  
Mile, Guwahati-781022, do solemnly affirm and say as follows:

I am the General Manager (HQ) of Assam Power Generation Corporation Limited, the  
petitioner in the above matter and am duly authorized by the said Petitioner to make this  
affidavit for and on behalf of the Assam Power Generation Corporation Limited.

The Statement made in the Petition based on information received from official records and  
I believe them to reflect truly and no material has been concealed from the statements so  
made or documents or supporting data etc. attached.

Solemnly affirm at Guwahati on 29<sup>th</sup> November 2019 that the contents of this affidavit are  
true to my knowledge, no part of it is false or no material has been concealed therefore and  
misleading material included therein.

Place: Guwahati

Date: 29<sup>th</sup> November 2018

Deponent



(Ramendra Choudhury)  
General Manager (HQ),  
Assam Power Generation Corporation Ltd.



## PRAYER FOR LTPS

### BEFORE THE HON'BLE ASSAM ELECTRICITY REGULATORY COMMISSION

FILINGNO .....

CASENO.....

#### IN THE MATTER OF:

Petition for Submission of Revised Aggregate Revenue Requirement and Determination of Tariff for the FY 2020-21

#### AND IN THE MATTER OF:

Lakwa Thermal Power Station (hereinafter referred to as "LTPS") of Assam Power Generation Corporation Limited (hereinafter referred to as "APGCL") incorporated under the provisions of the Companies Act, 1956 and having its registered office in the State of Assam

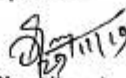
#### THE HUMBLE APPLICANT ABOVE NAMED MOST RESPECTFULLY SHEWETH:

- 1 That the APGCL is a successor corporate entity of former ASEB, formed in pursuant to the notification of the Government of Assam, notified under sub-sections (1), (2), (5), (6) and (7) of Section 131 and Section 133 of the Electricity Act 2003(Central Act 36 of 2003), for the purpose of transfer and vesting of functions, properties, interests, rights, obligations and liabilities, along with the transfer of Personnel of the Board to the successor corporate entities.
- 2 That the APGCL is a company incorporated with the main object of generation of electricity in the state of Assam.
- 3 That the APGCL is a generating company under the provisions laid down in Section 14 Proviso 5, read with Section 131 (2) of the Electricity Act 2003.
- 4 That the LTPS is an operating gas based thermal Power Station under the APGCL in the district of Charaideo, Assam.
- 5 That the Hon'ble Commission notified the AERC (Terms and Conditions for determination of Multi Year Tariff) Regulations, 2018 on 28th June, 2018.
- 6 That as per the Hon'ble Commission's this new MYT Regulations of 2018 the licensee filed for approval of the for Aggregate Revenue Requirement of LTPS for the MYT Period from FY 2019-20 to FY 2021-2022 and Determination of Tariff for the FY 2019-20 on 30/11/2018.
- 7 That the AERC, after completion of the due process, issued Order for the MYT Control Period of FY 2019-20 to FY 2021-22 on 01/03/2019.
- 6 That APGCL is now submitting the Petition for the Revised Aggregate Revenue Requirement and Determination of Tariff for LTPS for the FY 2020-21 as per the relevant Regulations.

Place: Guwahati

Date: 29<sup>th</sup> November' 2019

Deponent



(R. Choudhury)

General Manager (HQ),

Assam Power Generation Corporation Ltd.



## 26. Revised ARR for FY 2020-21

### 26.1. Regulatory provisions for Revised ARR

26.1.1. The Hon'ble Commission in its Tariff regulations 2018 has stated the following on Revised ARR for the control period from FY 2019-20 to FY 2021-22. The same is reproduced below for ready reference:

#### *4 Multi-Year Tariff Framework*

*4.1 The Commission shall determine the tariff for matters covered under clauses (i), (ii), (iii), (iv) and (v) of Regulation 3.3 above under a Multi-Year Tariff framework with effect from 1<sup>st</sup> April 2019.*

*4.2 The Multi-Year Tariff framework shall be based on the following elements, for calculation of Aggregate Revenue Requirement and expected revenue from tariff and charges for Generating Companies, Transmission Licensee, SLDC, Distribution Wheeling Business and Retail Supply Business:*

- (vi) Before commencement of Control Period, a forecast of the Aggregate Revenue Requirement and expected revenue from existing tariff and charges shall be submitted by the applicant and approved by the Commission;*
- (vii) A detailed Capital Investment Plan for each year of the Control Period, shall be submitted by the applicant for the Commission's approval;*
- (viii) The applicant shall submit operating norms and trajectories of performance parameters for each year of the Control Period, for the Commission's approval*
- (ix) The applicant shall submit the forecast of Aggregate Revenue Requirement and expected revenue from existing tariff for each year of the Control Period, and the Commission shall approve the tariff for Generating Companies, SLDC, Transmission Licensee, Distribution Wheeling Business and Retail Supply Business, for each year of the Control Period;*
- (x) In its tariff petition, a generating company shall submit information to support the determination of tariff for each generating station*

#### *5 Control Period and Baseline*

*5.1 The first Control Period under these Regulations shall be of three financial years from April 1, 2019 to March 31, 2022 and for every block of three years thereafter or such other period as may be decided by the Commission.*

*.....*

*5.2 The Commission shall determine baseline values for various financial and operational parameters of ARR for the Control Period taking into consideration the figures approved by the Commission in the past, actual average figures of last three years, audited accounts, estimate of the figures for the relevant year, Industry benchmarks/norms and other factors considered appropriate by the Commission;*

*Provided that in case of substantial difference between the estimates earlier provided / considered for determination of baseline values and the actual audited accounts, the Commission may re-determine the baseline values for the base year suo-moto or on an application filed by the Applicant"*





## 27. Norms of operations

### 27.1. Regulatory provisions

27.1.1. The Hon'ble Commission had set norms of operations under Tariff Regulations 2018.

27.1.2. The projected performance vis-a-vis norms of operations set is discussed below:

### 27.2. Snapshot of performance projection for FY 2020-21

27.2.1. The following table shows the projection of performance parameters of gas based Lakwa thermal power station for FY2020-21

*Table 153: Projected Operating Performance for FY2020-21 of LTPS*

LTPS	2020-21 Approved	2020-21 Projected
Gross Energy in MU	425.74	425.74
Aux. Power Cons. (%)	5.50%	5.50%
Net Energy in MU	402.3	402.3
Plant Availability Factor (%)	50.00%	50.00%
Plant Load Factor (%)	66.00%	50.00%
Gross Station Heat Rate on GCV (kcal / kWh)	3200	3200

### 27.3. Normative Annual Plant Availability Factor (NAPAF)

27.3.1. As per Regulation 47.1 of the Tariff Regulations, 2018 the Normative Plant Availability factor for recovery of full fixed charges, is 50% for FY2020-21 for LTPS. The approved and projected numbers are shown in the table below.

*Table 154: Projected Availability for FY2020-21 of LTPS*

LTPS	2020-21 Approved	2020-21 Projected
Plant Availability Factor (%)	50.00%	50.00%



## 27.4. Normative Annual Plant Load Factor (NAPLF)

27.4.1. As per Regulation 47.2 of the Tariff Regulations, 2018 the Normative Plant Load factor is 66% for FY 2020-21. The Hon'ble Commission had also approved the same for LTPS for FY2020-21.

27.4.2. As there is shortage of gas, PLF is projected as that as normative Availability. However APGCL will try to achieve the approved PLF during FY2020-21. The actual and projected numbers are shown in the table below.

*Table 155: Projected PLF for FY2020-21 of LTPS*

LTPS	2020-21 Approved	2020-21 Projected
Plant Load Factor (%)	66.00%	50.00%

## 27.5. Gross Station Heat Rate (SHR)

27.5.1. As per Regulation 47.4, of the Tariff Regulations, 2018 the Normative Station Heat Rate, is 3200 kCal/kWh for FY 2020-21 for LTPS in Partial combined cycle mode of operation. The same has been considered for projection. The approved and projected numbers are shown in the table below.

*Table 156: Projected SHR for FY2020-21 of LTPS*

LTPS	2020-21 Approved	2020-21 Projected
Gross Station Heat Rate on GCV (kcal / kWh)	3200.00	3200.00

## 27.6. Auxiliary Energy Consumption

27.6.1. As per Regulation 47.3 of the Tariff Regulations, 2018 the Normative Auxiliary energy consumption, is 5.50% for FY2020-21. The same has been considered for projection. The approved and projected numbers are shown in the table below.

*Table 157: Auxiliary Energy Consumption for FY2020-21 of LTPS*

LTPS	2020-21 Approved	2020-21 Projected
Auxiliary energy consumption (%)	5.50%	5.50%

27.6.2. APGCL prays to the Hon'ble Commission to approve the projection of performance parameters as shown above.

## 28. Fixed Cost of the Plant

### 28.1. Annual fixed cost for FY 2020-21

28.1.1. As per regulation 42.1 of the AERC Tariff regulations, 2018 the following components have been considered for projecting of fixed cost under the Multi Year Tariff framework for the power plants:

- (g) Return on Equity Capital
- (h) Interest on Loan capital
- (i) Depreciation
- (j) Operation and Maintenance Expenses
- (k) Interest on Working Capital
- (l) Less: Non-Tariff Income

28.1.2. For the computation of the fixed components, the Petitioner has considered the principles provided in the Tariff Regulations, 2018. These components have been discussed in detail in the following sections of the petition.

### 28.2. Return on Equity (ROE)

28.2.1. The Hon'ble Commission in its regulation has considered the pre-tax return on equity at 15.5% on equity capital.

28.2.2. APGCL has projected the Return on Equity (RoE) at a rate of 15.5% in accordance with the Tariff Regulations, 2018. The Petitioner submits that there is no plan of addition in Equity in FY 2020-21 for the existing plant. Further, it is submitted that the actual tax paid would be claimed separately during True-up of respective years.

Table 158: Projected Return on Equity capital for FY2020-21

Rs. Cr

Station	Particulars	2020-21	2020-21
		Approved	Projected
LTPS	Opening Equity	143.08	143.08
	Closing Equity	143.08	143.08
	Rate of Return	15.50%	15.50%
	<b>Return on Equity</b>	<b>22.18</b>	<b>22.18</b>

28.2.3. APGCL prays to the Hon'ble Commission to approve the projected Return on Equity as shown above.



### 28.3. Interest on Loan Capital

28.3.1. As per Regulation 34 of the Tariff Regulations, 2018, the Commission will consider interest on Loan capital on normative basis with repayment equal to depreciation allowed for that year and rate of interest will be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year.

28.3.2. In view of the above, the Petitioner has projected the Interest on long term Loan on normative basis for FY2020-21. The Petitioner has considered normative loan portfolio and the repayment shown is considered equal to the depreciation for FY 2020-21. The interest rate has been considered as the expected weighted average rate of interest for FY 2020-21.

28.3.3. The finance charges are shown separately for FY 2020-21. The table below summarizes the interest on loan and finance charges considered for period of FY 2020-21.

Table 159: Projected Interest and Finance charges for FY2020-21

Rs. Cr

Station	Particulars	2020-21 Approved	2020-21 Projected
LTPS	Net Normative Opening Loan	0.80	0.00
	Addition of normative loan during the year	15.20	20.91
	Normative Repayment during the year	15.84	12.12
	Net Normative Closing Loan	0.16	8.79
	Avg. Normative Loan	0.48	4.40
	Interest Rate	10.18%	10.34%
	Interest on Loan Capital	0.05	0.45
	Add: Bank Charges	0.00	0.00
	<b>Net Interest on Loan Capital</b>	<b>0.05</b>	<b>0.45</b>

28.3.4. APGCL prays to the Hon'ble Commission to approve the projected Total interest and finance charges as shown above.

### 28.4. Depreciation

28.4.1. The Hon'ble Commission in its Tariff Regulations, 2018 has provided the principals for determination of depreciation.

28.4.2. In view of the above, the Petitioner has computed the Depreciation considering the Capital Cost of the asset admitted by the Commission and projected asset addition with 10% salvage value. Also, depreciation on grants has been subtracted. The table below summarizes the Depreciation projected for FY2020-21.

Table 160: Projected Depreciation for FY2020-21 of LTPS

Rs. Cr

Particulars	2020-21
Opening GFA	493.62
Addition during the year	22.44
Closing GFA	516.06
Average GFA	504.84
Rate of Depreciation	2.77%
Total Depreciation	13.97
Grant	66.15
Additions during the year	1.53
Closing grant	67.68
Average grant	66.92
Rate of Depreciation	2.77%
Depreciation on grants	1.85
<b>Net Depreciation</b>	<b>12.12</b>

Table 161: Summary of projected Depreciation for FY2020-21

Rs. Cr

Station	Particulars	2020-21 Approved	2020-21 Projected
LTPS	Depreciation	18.52	13.97
	<u>Less:</u> Depreciation on assets funded by Grants	2.68	1.85
	Net Depreciation	15.84	12.12

28.4.3. APGCL prays to the Hon'ble Commission to approve the projected Depreciation for FY 2020-21 as shown above.

## 28.5. Interest on Working Capital

28.5.1. As per Regulation 36 of the Tariff Regulations, 2018, the interest on working capital will be considered on normative basis.

28.5.2. As per the above regulations, the Petitioner has projected normative interest on working capital. However, as APGCL does not have liquid fuel stock facility, it has not considered working capital on storage of liquid fuel. The rate of interest has been considered equal to the normative interest rate of three hundred (300) basis points above the average State Bank of India MCLR (One Year Tenor) prevalent during the last available six months, which  $8.22\% + 3.00\% = 11.22\%$ .

28.5.3. The interest on working capital considered is shown in the table below:

Table 162: Summary of Interest on working capital projected for FY2020-21

Rs. Cr

Station	Particulars	2020-21 Approved	2020-21 Projected
LTPS	Fuel Cost for one month	9.65	10.17
	O&M Expenses for one month	3.42	3.36
	Maintenance Spares-30% of O&M	12.31	12.10
	Receivables for two months	32.57	34.64
	Total Working Capital Requirement	57.95	60.27
	Rate of interest	11.50%	11.22%
	<b>Interest on Working capital</b>	<b>6.66</b>	<b>6.76</b>

28.5.4. APGCL prays to the Hon'ble Commission to approve the Interest on Working capital for FY 2020-21 as shown above.

## 28.6. Operation and Maintenance Expenses (O&M Expenses)

28.6.1. The Operation and maintenance expense are to be projected as per Regulation 50.1 of the Tariff Regulations, 2018.

28.6.2. The Commission in its order dated 1<sup>st</sup> March 2019 had computed the normative O&M expenses for LTPS for FY2020-21. The same has been petitioned for revision considering the actual impact of ROP in FY2018-19.

28.6.3. Thus, the normative expenses computed considering the actual impact of ROP has been escalated with escalation factor of 6.3% as provided under Regulation 50.1 of Tariff Regulation, 2018.

Table 163: Operation and Maintenance projected for FY2020-21

Rs. Cr



Station	2019-20 Revised Normative Expense for FY19-20 for effective Capacity	2020-21 Approved as per Order of March 2019	2020-21 Projected O&M for Effective Capacity
	1	2	3=1*(1+6.3%)
LTPS	37.93	41.05	40.32

28.6.4. APGCL prays to the Hon'ble Commission to approve the O&M expenses for FY FY2020-21 as shown above.

## 28.7. Non-Tariff income

28.7.1. As per Regulation 45 of the Tariff Regulations, 2018, the non-tariff income shall be deducted from the Annual Fixed Cost in determining the Annual Fixed Cost of the Generation Company.

28.7.2. The non-tariff income for FY2020-21 are projected same as approved by Hon'ble Commission. The same is as shown in the table below

Table 164: Station-wise Non tariff income projected for FY2020-21

Rs. Cr

Station	2020-21 Approved	2020-21 Projected
LTPS	9.22	9.22

28.7.3. APGCL prays to the Hon'ble Commission to approve the Non-tariff income for FY 2020-21 as shown above.

## 28.8. Total Fixed Cost

28.8.1. The recovery of Annual fixed charges is to be done as per regulation 51.1 of the Tariff Regulations, 2018.

28.8.2. Based on the above, the Annual fixed charges for FY 2020-21 has been computed. The Hon'ble Commission is requested to approve the fixed charges as discussed in the table below:

Table 165: Annual Fixed charges for FY2020-21 of LTPS

Rs. Cr

Particulars	2020-21 Approved	2020-21 Projected
-------------	---------------------	----------------------



Operation & Maintenance Expenditure	41.05	40.32
Interest & Finance Charges	0.05	0.45
Interest on working Capital	6.66	6.76
Depreciation	15.84	12.12
Return on Equity	22.18	22.18
<u>Less: Other Income</u>	9.22	9.22
<b>Total Fixed Charges</b>	<b>76.57</b>	<b>72.61</b>

28.8.3. The Petitioner prays to the Hon'ble Commission to approve the fixed costs for FY 2020-21 as discussed in the tables above.



## 29. Energy Charges

### 29.1. Fuel Price and Calorific Value

29.1.1. As per Regulation 11 of the Tariff Regulations 2018, 'Fuel Price' and 'Calorific Value of Fuel' are uncontrollable items. The values of 'Calorific Value of Fuel' is considered same as considered in FY 2019-20. The value of 'Fuel Price' has been considered at the rate computed for the month of October 2019 and escalated at annual rate of 3% for Transmission charges as per agreement. The projected values of 'Fuel Price' and 'Calorific Value of Fuel' are shown in the table below:

Table 166: Projected GCV and Price for FY2020-21

Station	Wt. Avg. Gross Calorific Value of Gas (kcal/SCM)	Wt. Avg. Price of Gas (Rs./1000 SCM)
LTPS	9,419.27	8,440.93

29.1.2. The Petitioner prays to the Hon'ble Commission to approve the projected Price of Gas and GCV for LTPS for FY 2020-21 as shown in the table above.

### 29.2. Fuel cost

29.2.1. The Commission, in the Tariff Order dated 1<sup>st</sup> March 2019 had approved the Fuel Cost for FY 2020-21. The table below shows the projected fuel cost for FY2020-21

Table 167: Fuel cost for LTPS for FY2020-21

Particulars	Derivation	Unit	2020-21 Approved	2020-21 Projected
Gross Generation	A	MU	425.74	425.74
Heat Rate	B	kcal/kWh	3200.00	3200.00
GCV of gas	C	kcal/SCM	9126.42	9419.27
Overall Heat	D=AxB	G. cal.	1362368.00	1362368.00
Gas consumption	E=D/C	M. SCM	149.28	144.64
Price of Gas	F	Rs./1000 SCM	7758.11	8440.93
<b>Total cost of Gas</b>	<b>G=ExF/10000</b>	<b>Rs. Crore</b>	<b>115.81</b>	<b>122.09</b>

29.2.2. The Petitioner prays to the Hon'ble Commission to approve the projected Fuel cost Price for LTPS for FY 2020-21 as shown in the table above.

### 29.3. Incentives

29.3.1. APGCL submits that the Incentives for FY 2020-21 will be claimed in True-up as per Regulations.

## 30. Other expenses

### 30.1. Special R&M

30.1.1. APGCL plans to undertake Special R&M for Unit 7 of LTPS in FY2020-21. The overhauling of Unit 5 was planned in FY2020-21 but was interchanged with Unit 7 for the following reason:

Sl. No.	Work Name	Approved	Total Amount Approved	Part expenditure claimed and allowed in Previous True Up	Claim for FY20-21	Remarks
1	Overhauling LTPS - Unit 5 in FY2020-21	15.00	15.00	0	0	LTPS, APGCL has been using HRSG with 20 MW BHEL, GE, Frame - V Gas Turbines to produce power in combined cycle since 2012. As the HRSG of the unit GT#5 is under shut down since 08/02/2018, for the purpose of maximizing generation, optimizing the utilization of limited available Natural Gas and to minimize heat rate and mainly to run the plant in combined Cycle Mode, Preference was given to Gas Turbines whose HRSG were in available condition. And so it was assumed that GT#7 will reach next MI running hours earlier than GT#5 though the MI of GT#7 was done around 8 months later on 03/12/2014 at running hours of 82889 hrs than GT#5. MI of GT#5 was completed on 24/02/2014 after at Running Hour of 80914.5 RH and so the MI of GT#5 was shifted to GT#7. In the above context the Major Overhauling work was interchanged from GT#5 to GT#7. GT#5 will get preference in producing power only after completion of restoration work of its HRSG. As on 9th Oct 2019 running hour of GT#5 and GT#7 reached
2	Overhauling of LTPS Unit -7 in FY2020-21	0.00	0.00	0.00	13.00	



Sl. No.	Work Name	Approved	Total Amount Approved	Part expenditure claimed and allowed in Previous True Up	Claim for FY20-21	Remarks
						116735 RH and 119081 RH. From Calculation it is seen that its remains only 12179.5 RH and 11808 RH for next MI of GT#5 and GT#7 respectively

Table 168: Expenses under Special R&M

Rs. Cr

Station	FY2020-21 Approved	FY2020-21 Projected
LTPS	15.00	13.00

### 30.2. Capacity building

30.2.1. The Hon'ble Commission had approved the Capacity Building expenditure at INR 0.10 Crores for FY2020-21 for LTPS in its order dated 1<sup>st</sup> March 2019.

30.2.2. The actual capacity building expenses incurred by APGCL is INR 0.37 Crores in the first 7 months of FY2019-20 (April to October) for its employees. Given the importance of capacity building of employees to meet the growing challenge and future needs of power sector and better of performance of individuals, APGCL prays to the commission to approve INR 0.15 Crores for capacity building of employees of LTPS for FY2020-21.

Table 169: Expenses under Capacity building

Rs. Cr

Station	FY2020-21 Approved	FY2020-21 Projected
LTPS		



	0.10	0.15
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### 30.3. Total Other expenses

30.3.1. The Other expenses for FY 2020-21 are as shown in the tables below.

Table 170: Other expenses for LTPS

Rs. Cr

Other expenses for LTPS	FY2020-21	
	Approved	Projected
Special R&M	15.00	13.00
Capacity building	0.10	0.15
<b>Total Other expenses</b>	<b>15.10</b>	<b>13.15</b>

30.3.2. APGCL submits that the Other expenses like actual tax paid, prior period items etc. for FY2020-21 will be claimed in True-up of FY 2020-21 as per Regulations.

## 31. Summary of submissions for Revised ARR of FY2020-21

### 31.1. Summary

31.1.1. The summary of the Revised ARR for LTPS for FY2020-21 is as shown below.

Table 171: Revised ARR for FY2020-21 For LTPS

Rs. Cr

Revised ARR for FY2020-21 For LTPS			
Sl. No	Particulars	2020-21 Approved	2020-21 Projected
	<b>POWER GENERATION (MU)</b>		
	Gross Generation	425.74	425.74
	Net Generation	402.3	402.3
	Auxiliary Consumption Loss %	5.50%	5.50%
<b>I</b>	<b>Fixed Charges</b>		
	Operation & Maintenance Expenditure	41.05	40.32
	Interest & Finance Charges	0.05	0.45
	Interest on working Capital	6.66	6.76
	Depreciation	10.82	12.12
	Return on Equity	15.16	22.18
	<u>Less:</u> Other Income	9.22	9.22
	Total Fixed Charges	64.53	72.61
	<b>Other expenses</b>		
	Special R&M	15.00	13.00
	Capacity Building	0.10	0.15
<b>II</b>	<b>Total Other expenses</b>	<b>15.10</b>	<b>13.15</b>
<b>III</b>	<b>Fixed Charges including Other expenses</b>	<b>79.63</b>	<b>85.76</b>
<b>IV</b>	<b>Fuel Cost</b>	<b>115.81</b>	<b>122.09</b>
<b>V</b>	<b>Total Revenue Requirement</b>	<b>195.44</b>	<b>207.85</b>
	Fixed charges including other charges (Rs. / kWh)	1.98	2.13
	Energy charges (Rs. / kWh)	2.88	3.03
<b>V</b>	<b>Proposed tariff (Rs. / kWh)</b>	<b>4.86</b>	<b>5.17</b>



### 31.2. Net Annual Revenue Requirement

31.2.1. The Net Annual Revenue Requirements for FY 2020-21 are as shown in the tables below.

Table 172: Net Annual Revenue Requirements for LTPS for FY2020-21

Rs. Cr

Particulars	2020-21 Projected
Fixed Charges including Other expenses	85.76
Fuel Cost	122.09
Total Revenue Requirement	207.85

### 31.3. Tariff for LTPS for FY 2020-21

31.3.1. The tariff proposed for LTPS for FY 2020-21 is as shown below

Table 173: tariff proposed for LTPS for FY 2020-21

Particulars	LTPS
Annual fixed charges (Rs crore)	85.76
Monthly fixed charges (Rs crore)	7.15
Energy charge rate (Rs./ kWh)	3.03

31.3.2. The Petitioner prays to the Hon'ble Commission to approve the Net Annual Revenue Requirement for FY 2020-21 as discussed in the table above.



APPEAL FOR REVISED AGGREGATE REVENUE  
REQUIREMENT FOR FY 2020-21 FOR KLHEP  
&  
DETERMINATION OF TARIFF FOR FY 2020-21  
To  
ASSAM ELECTRICITY REGULATORY COMMISSION



Prepared by  
ASSAM POWER GENERATION CORPORATION LTD  
Bijulee Bhawan, Paltanbazar  
Guwahati – 781 001

## AFFIDAVIT – KLHEP

BEFORE THE ASSAM STATE ELECTRICITY REGULATORY  
COMMISSION, GUWAHATI.

Petition No. –

Case No.  
(to be filed by the Office)

IN THE MATTER OF

Filing of Petition for Revised Aggregate Revenue Requirement and Determination of Tariff  
for the FY 2020-21

AND

IN THE MATTER OF

Karbi Langpi Hydro Electric Project,  
Assam Power Generation Corporation Limited,  
Lengery, Dist. Karbi Anglong, Assam

Petitioner

I, Sri Ramendra Choudhury, son of Late Nagendra Choudhury, age 59 years, residing at Six  
Mile, Guwahati-781022, do solemnly affirm and say as follows:

I am the General Manager (HQ) of Assam Power Generation Corporation Limited, the  
petitioner in the above matter and am duly authorized by the said Petitioner to make this  
affidavit for and on behalf of the Assam Power Generation Corporation Limited.

The Statement made in the Petition based on information received from official records and  
I believe them to reflect truly and no material has been concealed from the statements so  
made or documents or supporting data etc. attached.

Solemnly affirm at Guwahati on 29<sup>th</sup> November'2019 that the contents of this affidavit are  
true to my knowledge, no part of it is false or no material has been concealed therefore and  
misleading material included therein.

Place: Guwahati

Date: 29<sup>th</sup> November'2019

Deponent



(Ramendra Choudhury)  
General Manager (HQ),  
Assam Power Generation Corporation Ltd.





## PRAYER FOR KLHEP

### BEFORE THE HON'BLE ASSAM ELECTRICITY REGULATORY COMMISSION

FILINGNO .....

CASENO.....

#### IN THE MATTER OF:

Petition for Submission of Aggregate Revenue Requirement for the MYT Period from FY 2019-20 to FY 2021-2022 and Determination of Tariff for the FY 2019-20

#### AND IN THE MATTER OF:

Karbi Langpi Hydro Electric Project (hereinafter referred to as "KLHEP") of Assam Power Generation Corporation Limited (hereinafter referred to as "APGCL") incorporated under the provisions of the Companies Act, 1956 and having its registered office in the State of Assam

#### THE HUMBLE APPLICANT ABOVE NAMED MOST RESPECTFULLY SHEWETH:

- 1 That the APGCL is a successor corporate entity of former ASEB, formed in pursuant to the notification of the Government of Assam, notified under sub-sections (1), (2), (5), (6) and (7) of Section 131 and Section 133 of the Electricity Act 2003(Central Act 36 of 2003), for the purpose of transfer and vesting of functions, properties, interests, rights, obligations and liabilities, along with the transfer of Personnel of the Board to the successor corporate entities.
- 2 That the APGCL is a company incorporated with the main object of generation of electricity in the state of Assam.
- 3 That the APGCL is a generating company under the provisions laid down in Section 14 Proviso 5, read with Section 131 (2) of the Electricity Act 2003.
- 4 That the KLHEP, with commercial operation of both of its units declared on 06/04/2007, is an operating hydro Power Station under the APGCL in the district of Karbi Anglong, Assam.
- 5 That the Hon'ble Commission notified the AERC (Terms and Conditions for determination of Multi Year Tariff) Regulations, 2018 on 28th June, 2018.
- 6 That as per the Hon'ble Commission's this new MYT Regulations of 2018 the licensee filed for approval of the for Aggregate Revenue Requirement of KLHEP for the MYT Period from FY 2019-20 to FY 2021-2022 and Determination of Tariff for the FY 2019-20 on 30/11/2018.
- 7 That the AERC, after completion of the due process, issued Order for the MYT Control Period of FY 2019-20 to FY 2021-22 on 01/03/2019.
- 8 That APGCL is now submitting the Petition for the Revised Aggregate Revenue Requirement and Determination of Tariff for KLHEP for the FY 2020-21 as per the relevant Regulations.

Place: Guwahati

Date: 29<sup>th</sup> November' 2019

Deponent



(R. Choudhury)  
General Manager (HQ),

Assam Power Generation Corporation Ltd.



## 32. Revised ARR for FY 2020-21

### 32.1. Regulatory provisions for Revised ARR

32.1.1. The Hon'ble Commission in its Tariff regulations 2018 has stated the following on Revised ARR for the control period from FY 2019-20 to FY 2021-22. The same is reproduced below for ready reference:

#### *4 Multi-Year Tariff Framework*

*4.1 The Commission shall determine the tariff for matters covered under clauses (i), (ii), (iii), (iv) and (v) of Regulation 3.3 above under a Multi-Year Tariff framework with effect from 1<sup>st</sup> April 2019.*

*4.2 The Multi-Year Tariff framework shall be based on the following elements, for calculation of Aggregate Revenue Requirement and expected revenue from tariff and charges for Generating Companies, Transmission Licensee, SLDC, Distribution Wheeling Business and Retail Supply Business:*

- (xi) Before commencement of Control Period, a forecast of the Aggregate Revenue Requirement and expected revenue from existing tariff and charges shall be submitted by the applicant and approved by the Commission;*
- (xii) A detailed Capital Investment Plan for each year of the Control Period, shall be submitted by the applicant for the Commission's approval;*
- (xiii) The applicant shall submit operating norms and trajectories of performance parameters for each year of the Control Period, for the Commission's approval*
- (xiv) The applicant shall submit the forecast of Aggregate Revenue Requirement and expected revenue from existing tariff for each year of the Control Period, and the Commission shall approve the tariff for Generating Companies, SLDC, Transmission Licensee, Distribution Wheeling Business and Retail Supply Business, for each year of the Control Period;*
- (xv) In its tariff petition, a generating company shall submit information to support the determination of tariff for each generating station*

#### *5 Control Period and Baseline*

*5.1 The first Control Period under these Regulations shall be of three financial years from April 1, 2019 to March 31, 2022 and for every block of three years thereafter or such other period as may be decided by the Commission.*

*.....*

*5.2 The Commission shall determine baseline values for various financial and operational parameters of ARR for the Control Period taking into consideration the figures approved by the Commission in the past, actual average figures of last three years, audited accounts, estimate of the figures for the relevant year, Industry benchmarks/norms and other factors considered appropriate by the Commission;*

*Provided that in case of substantial difference between the estimates earlier provided / considered for determination of baseline values and the actual audited accounts, the Commission may re-determine the baseline values for the base year suo-moto or on an application filed by the Applicant"*

### 33. Norms of operations

#### 33.1. Regulatory provisions

33.1.1. The Hon'ble Commission had set norms of operations under Tariff Regulations 2018.

33.1.2. The projected performance vis-a-vis norms of operations set is discussed below:

#### 33.2. Snapshot of performance projection for FY 2020-21

33.2.1. The following table shows the projection of performance parameters of Karbi Langpi hydro electric power station for FY 2020-21. KLHEP may not be able to generate the approved generation as passed by the Hon'ble Commission in its order dated 1<sup>st</sup> March 2019 due to planned overhauling of Unit 1 in FY2020-21.

*Table 174: Projected Operating Performance for FY2020-21 of KLHEP*

KLHEP	2020-21 Approved	2020-21 Projected
Gross Energy in MU	390.00	385.00
Aux. Power Cons. (%)	0.50%	0.50%
Net Energy in MU	388.1	383.1
Plant Availability Factor (%)	85.00%	85.00%
Plant Load Factor (%)	44.50%	43.95%

#### 33.3. Normative Annual Plant Availability Factor (NAPAF)

33.3.1. As per Regulation 49.1, of the Tariff Regulations, 2018, the normative Plant Availability factor for KLHEP as 85% for FY2020-21. The approved and projected numbers are shown in the table below.

*Table 175: Projected Availability for FY2020-21 of KLHEP*

KLHEP	2020-21 Approved	2020-21 Projected
Plant Availability Factor (%)	85.00%	85.00%



### 33.4. Normative Annual Plant Load Factor (NAPLF)

33.4.1. As per Regulation 49.1 of the Tariff Regulations, 2018, normative PLF for KLHEP as 44.5%. The Hon'ble Commission had also approved the same for KLHEP for FY2020-21. The PLF has been projected considering the revised generation projection above. However APGCL will try to achieve the approved PLF for the plant during the year. The approved and projected numbers are shown in the table below.

*Table 176: Projected PLF for FY2020-21 of KLHEP*

KLHEP	2020-21 Approved	2020-21 Projected
Plant Load Factor (%)	44.50%	43.95%

### 33.5. Auxiliary Energy Consumption

33.5.1. As per Regulation 49.1 of the Tariff Regulations, 2018 the Normative Auxiliary energy consumption, is 0.50% for KLHEP. The same has been considered for projection. The approved and projected numbers are shown in the table below.

*Table 177: Auxiliary Energy Consumption for FY2020-21 of KLHEP*

KLHEP	2020-21 Approved	2020-21 Projected
Auxiliary energy consumption (%)	0.50%	0.50%

33.5.2. APGCL prays to the Hon'ble Commission to approve the projection of performance parameters as shown above.

## 34. Fixed Cost of the Plant

### 34.1. Annual fixed cost for FY 2020-21

34.1.1. As per regulation 42.1 of the AERC Tariff regulations, 2018 the following components have been considered for projecting of fixed cost under the Multi Year Tariff framework for the power plants:

- (a) Return on Equity Capital
- (b) Interest on Loan capital
- (c) Depreciation
- (d) Operation and Maintenance Expenses
- (e) Interest on Working Capital
- (f) Less: Non-Tariff Income

34.1.2. For the computation of the fixed components, the Petitioner has considered the principles provided in the Tariff Regulations, 2018. These components have been discussed in detail in the following sections of the petition.

### 34.2. Return on Equity (ROE)

34.2.1. The Hon'ble Commission in its regulation has considered the pre-tax return on equity at 15.5% on equity capital.

34.2.2. APGCL has projected the Return on Equity (RoE) at a rate of 15.5% in accordance with the Tariff Regulations, 2018. The Petitioner submits that there is no plan of addition in Equity in FY 2020-21 for the existing plant. Further, it is submitted that the actual tax paid would be claimed separately during True-up of respective years.

Table 178: Projected Return on Equity capital for FY2020-21

Rs.Cr

Station	Particulars	2020-21	2020-21
		Approved	Projected
KLHEP	Opening Equity	68.65	72.72
	Closing Equity	68.65	72.72
	Rate of Return	15.50%	15.50%
	<b>Return on Equity</b>	<b>10.64</b>	<b>11.27</b>

34.2.3. APGCL prays to the Hon'ble Commission to approve the projected Return on Equity as shown above.



### 34.3. Interest on Loan Capital

34.3.1. As per Regulation 34 of the Tariff Regulations, 2018, the Commission will consider interest on Loan capital on normative basis with repayment equal to depreciation allowed for that year and rate of interest will be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year.

34.3.2. In view of the above, the Petitioner has projected the Interest on long term Loan on normative basis for FY2020-21. The Petitioner has considered normative loan portfolio and the repayment shown is considered equal to the depreciation for FY 2020-21. The interest rate has been considered as the expected weighted average rate of interest for FY 2020-21.

34.3.3. The finance charges are shown separately for FY 2020-21. The table below summarizes the interest on loan and finance charges considered for period of FY 2020-21.

Table 179: Projected Interest and Finance charges for FY2020-21

Rs.Cr

Station	Particulars	2020-21 Approved	2020-21 Projected
KLHEP	Net Normative Opening Loan	209.28	200.74
	Addition of normative loan during the year	7.82	20.90
	Normative Repayment during the year	22.23	22.94
	Net Normative Closing Loan	194.87	198.71
	Avg. Normative Loan	202.08	199.73
	Interest Rate	10.18%	10.34%
	Interest on Loan Capital	20.58	20.65
	Add: Bank Charges	0.00	0.00
	<b>Net Interest on Loan Capital</b>	<b>20.58</b>	<b>20.65</b>

34.3.4. APGCL prays to the Hon'ble Commission to approve the projected Total interest and finance charges as shown above.

### 34.4. Depreciation

34.4.1. The Hon'ble Commission in its Tariff Regulations, 2018 has provided the principals for determination of depreciation.

34.4.2. In view of the above, the Petitioner has computed the Depreciation considering the Capital Cost of the asset admitted by the Commission and projected asset addition with 10% salvage value. Also, depreciation on grants has been subtracted. The table below summarizes the Depreciation projected for FY2020-21.

Table 180: Projected Depreciation for FY2020-21 of KLHEP

Rs.

Cr

Particulars	2020-21
Opening GFA	524.72
Addition during the year	22.92
Closing GFA	547.63
Average GFA	536.17
Rate of Depreciation	4.78%
Total Depreciation	25.64
Grant	55.52
Additions during the year	2.02
Closing grant	57.53
Average grant	56.52
Rate of Depreciation	4.78%
Depreciation on grants	2.70
<b>Net Depreciation</b>	<b>22.94</b>

Table 181: Summary of projected Depreciation for FY2020-21

Rs.

Cr

Station	Particulars	2020-21 Approved	2020-21 Projected
KLHEP	Depreciation	25.26	25.64
	<u>Less:</u> Depreciation on assets funded by Grants	3.03	2.70
	Net Depreciation	22.23	22.94

34.4.3. APGCL prays to the Hon'ble Commission to approve the projected Depreciation for FY 2020-21 as shown above.

### 34.5. Interest on Working Capital

34.5.1. As per Regulation 36 of the Tariff Regulations, 2018, the interest on working capital will be considered on normative basis.

34.5.2. As per the above regulations, the Petitioner has projected normative interest on working capital. However, as APGCL does not have liquid fuel stock facility, it has not considered working capital on storage of liquid fuel. The rate of interest has been considered equal to the normative interest rate of three hundred (300) basis points above the average State Bank of India MCLR (One Year Tenor) prevalent during the last available six months, which  $8.22\% + 3.00\% = 11.22\%$ .

34.5.3. The interest on working capital considered is shown in the table below:

Table 182: Summary of Interest on working capital projected for FY2020-21

Rs. Cr

Station	Particulars	2020-21 Approved	2020-21 Projected
	O&M Expenses for one month	2.52	2.55
	Maintenance Spares-30% of O&M	4.54	9.18
	Receivables for two months	15.44	16.35
	Total Working Capital Requirement	22.49	28.08
	Rate of interest	11.50%	11.22%
	<b>Interest on Working capital</b>	<b>2.59</b>	<b>3.15</b>

34.5.4. APGCL prays to the Hon'ble Commission to approve the Interest on Working capital for FY 2020-21 as shown above. The

### 34.6. Operation and Maintenance Expenses (O&M Expenses)

34.6.1. The Operation and maintenance expense are to be projected as per Regulation 50.1 of the Tariff Regulations, 2018.

34.6.2. The Commission in its order dated 1<sup>st</sup> March 2019 had computed the normative O&M expenses for KLHEP for FY2020-21. The same has been petitioned for revision considering the actual impact of ROP in FY2018-19.

34.6.3. Thus, the normative expenses computed considering the actual impact of ROP has been escalated with escalation factor of 6.3% as provided under Regulation 50.1 of Tariff Regulation, 2018.

Table 183: Operation and Maintenance projected for FY2020-21

Rs. Cr

Station	2019-20	2020-21	2020-21
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Station	2019-20 Revised Normative Expense for FY19-20 for effective Capacity	2020-21 Approved as per Order of March 2019	2020-21 Projected O&M for Effective Capacity
	1	2	3=1*(1+6.3%)
KLHEP	28.78	30.24	30.59

34.6.4. APGCL prays to the Hon'ble Commission to approve the O&M expenses for FY 2020-21 as shown above.

### 34.7. Non-Tariff income

34.7.1. As per Regulation 45 of the Tariff Regulations, 2018, the non-tariff income shall be deducted from the Annual Fixed Cost in determining the Annual Fixed Cost of the Generation Company.

34.7.2. The non-tariff income for FY2020-21 are projected same as approved by Hon'ble Commission. The same is as shown in the table below

Table 184: Station-wise Non tariff income projected for FY2020-21

Station	2020-21 Approved	2020-21 Projected
KLHEP	5.75	5.75

Rs.  
Cr

34.7.3. APGCL prays to the Hon'ble Commission to approve the Non-tariff income for FY 2020-21 as shown above.

### 34.8. Total Fixed Cost

34.8.1. The recovery of Annual fixed charges is to be done as per regulation 51.1 of the Tariff Regulations, 2018.

34.8.2. Based on the above, the Annual fixed charges for FY 2020-21 has been computed. The Hon'ble Commission is requested to approve the fixed charges as discussed in the table below:

Table 185: Annual Fixed charges for FY2020-21 of KLHEP

Particulars	2020-21 Approved	2020-21 Projected
-------------	---------------------	----------------------

Rs.Cr



Particulars	2020-21 Approved	2020-21 Projected
Operation & Maintenance Expenditure	30.24	30.59
Interest & Finance Charges	20.58	20.65
Interest on working Capital	2.59	3.15
Depreciation	22.23	22.94
Return on Equity	10.64	11.27
<u>Less:</u> Other Income	5.75	5.75
<b>Total Fixed Charges</b>	<b>80.53</b>	<b>82.86</b>

34.8.3. The Petitioner prays to the Hon'ble Commission to approve the fixed costs for FY 2020-21 as discussed in the tables above.

### 34.9. Incentives

34.9.1. APGCL submits that the Incentives for FY 2020-21 will be claimed in True-up as per Regulations.

## 35. Other expenses

### 35.1. Special R&M

35.1.1. APGCL's plans to undertake Special R&M for KLHEP Unit 2 in FY2020-21. As mentioned in APR Petition for FY2019-20, the planned Special R&M for Unit 2 was shifted from FY2019-20 to FY2020-21, the same has been considered for FY2020-21.

Sl. No.	Work Name	Approved	Total Amount Approved	Part expenditure claimed and allowed in Previous True Up	Claim for FY20-21	Remarks
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Sl. No.	Work Name	Approved	Total Amount Approved	Part expenditure claimed and allowed in Previous True Up	Claim for FY20-21	Remarks
1	Capital Overhauling of 50MW Francis type Fuji make Generator Turbine Unit-II - KLHEP	12.00	12.00	0.00	15.10	As major overhauling works of KLHEP Unit 1 has been shifted from FY2018-19 to FY2019-20, the proposed Capital Overhauling of Unit II of KLHEP has been shifted to FY2020-21 and beyond. The amount approved for FY2020-21 was INR 15.0 Crore for Unit 2 Overhauling by the Hon'ble Commission. The amount has been revised to INR 15.10 Crores by APGCL.

Table 186: Expenses under Special R&M

Rs.

Cr

Station	FY2020-21 Approved	FY2020-21 Projected
KLHEP	12.00	15.10



### 35.2. Capacity building

35.2.1. The Hon'ble Commission had approved the Capacity Building expenditure at INR 0.10 Crores for FY2020-21 for KLHEP in its order dated 1<sup>st</sup> March 2019.

35.2.2. The actual capacity building expenses incurred by APGCL is INR 0.37 Crores in the first 7 months of FY2019-20 (April to October) for its employees. Given the importance of capacity building of employees to meet the growing challenge and future needs of power sector and better of performance of individuals, APGCL prays to the commission to approve INR 0.15 Crores for capacity building of employees of KLHEP for FY2020-21.

Table 187: Expenses under Capacity building

Station	Cr		Rs.
	FY2020-21 Approved	FY2020-21 Projected	
KLHEP	0.10		0.15

### 35.3. Total Other expenses

35.3.1. The Other expenses for FY 2020-21 are as shown in the tables below.

Table 188: Other expenses for KLHEP

Other expenses for KLHEP	Cr		Rs.
	FY2020-21 Projected	FY2020-21 Projected	
Special R&M	12.00		15.10
Capacity building	0.10		0.15
<b>Total Other expenses</b>	<b>12.10</b>		<b>15.25</b>

35.3.2. APGCL submits that the Other expenses like actual tax paid, prior period items etc. for FY 2020-21 will be claimed in True-up of FY 2020-21 as per Regulations.

## 36. Summary of submissions for Revised ARR of FY2020-21

### 36.1. Summary

36.1.1. The summary of the Revised ARR For KLHEP for FY2020-21 is shown below

Table 189: Revised ARR for FY2020-21 For KLHEP

Rs. Cr

Revised ARR for FY2020-21 For KLHEP			
Sl. No	Particulars	2020-21 Approved	2020-21 Projected
	<b>POWER GENERATION (MU)</b>		
	Gross Generation	390.00	385.00
	Net Generation	388.1	383.1
	Auxiliary Consumption Loss %	0.50%	0.50%
<b>I</b>	<b>Fixed Charges</b>		
	Operation & Maintenance Expenditure	30.24	30.59
	Interest & Finance Charges	20.58	20.65
	Interest on working Capital	2.59	3.15
	Depreciation	22.23	22.94
	Return on Equity	10.64	11.27
	<u>Less:</u> Other Income	5.75	5.75
	Total Fixed Charges	80.53	82.86
	<b>Other expenses</b>		
	Special R&M	12.00	15.10
	Capacity Building	0.10	0.15
<b>II</b>	<b>Total Other expenses</b>	<b>12.10</b>	<b>15.25</b>
<b>III</b>	<b>Fixed Charges including Other expenses</b>	<b>92.63</b>	<b>98.11</b>
<b>IV</b>	<b>Fuel Cost</b>		
<b>V</b>	<b>Total Revenue Requirement</b>	<b>92.63</b>	<b>98.11</b>
	Fixed charges including other charges (Rs. / kWh)	2.39	2.56
	Energy charges (Rs. / kWh)	0.00	0.00
<b>V</b>	<b>Proposed tariff (Rs. / kWh)</b>	<b>2.39</b>	<b>2.56</b>



### 36.2. Net Annual Revenue Requirement

36.2.1. The Net Annual Revenue Requirement for FY 2020-21 is as shown in the tables below.

Table 190: Net Annual Revenue Requirements for KLHEP for FY2020-21

Particulars	2020-21 Projected	
	Cr	Rs.
Fixed Charges including Other expenses		98.11
Fuel Cost		0.00
Total Revenue Requirement		98.11

### 36.3. Tariff for KLHEP for FY 2020-21

36.3.1. The tariff proposed for KLHEP for FY 2020-21 is as shown below

Table 191: Tariff proposed for KLHEP for FY 2020-21

Particulars	KLHEP
Total Fixed charges (Rs crore)	98.11
Total Capacity charges (Rs crore)	49.05
Energy charge rate (Rs./ kWh)	1.28

36.3.2. The Petitioner prays to the Hon'ble Commission to approve the Net Annual Revenue Requirement for FY 2020-21 as discussed in the tables above.

APPEAL FOR REVISED AGGREGATE REVENUE REQUIREMENT FOR FY  
2020-21 FOR LRPP  
&  
DETERMINATION OF TARIFF FOR FY2020-21  
To  
ASSAM ELECTRICITY REGULATORY COMMISSION



Prepared by  
ASSAM POWER GENERATION CORPORATION LTD  
Bijulee Bhawan, Paltanbazar  
Guwahati – 781 001

## AFFIDAVIT – LRPP

BEFORE THE ASSAM STATE ELECTRICITY REGULATORY  
COMMISSION, GUWAHATI.

Petition No. –

Case No.  
(to be filed by the Office)

IN THE MATTER OF

Filing of Petition for Revised Aggregate Revenue Requirement and Determination of Tariff  
for the FY 2020-21

AND

IN THE MATTER OF

Lakwa Replacement Power Plant,  
Assam Power Generation Corporation Limited,  
Maibella, Charaideo,  
Saffry-785689

Petitioner

I, Sri Ramendra Choudhury, son of Late Nagendra Choudhury, age 59 years, residing at Six  
Mile, Guwahati-781022, do solemnly affirm and say as follows:

I am the General Manager (HQ) of Assam Power Generation Corporation Limited, the  
petitioner in the above matter and am duly authorized by the said Petitioner to make this  
affidavit for and on behalf of the Assam Power Generation Corporation Limited.

The Statement made in the Petition based on information received from official records and  
I believe them to reflect truly and no material has been concealed from the statements so  
made or documents or supporting data etc. attached.

Solemnly affirm at Guwahati on 29<sup>th</sup> November'2019 that the contents of this affidavit are  
true to my knowledge, no part of it is false or no material has been concealed therefore and  
misleading material included therein.

Place: Guwahati

Date: 29<sup>th</sup> November' 2018

Deponent



(Ramendra Choudhury)  
General Manager (HQ),  
Assam Power Generation Corporation Ltd.





## PRAYER FOR LRPP

**BEFORE THE HON'BLE ASSAM ELECTRICITY REGULATORY COMMISSION**

FILINGNO .....

CASENO.....

**IN THE MATTER OF:**

Petition for Submission of Revised Aggregate Revenue Requirement and Determination of Tariff for the FY 2020-21

**AND IN THE MATTER OF:**

Lakwa Replacement Power Plant (hereinafter referred to as "LRPP") of Assam Power Generation Corporation Limited (hereinafter referred to as "APGCL") incorporated under the provisions of the Companies Act, 1956 and having its registered office in the State of Assam

**THE HUMBLE APPLICANT ABOVE NAMED MOST RESPECTFULLY SHEWETH:**

- 1 That the APGCL is a successor corporate entity of former ASEB, formed in pursuant to the notification of the Government of Assam, notified under sub-sections (1), (2), (5), (6) and (7) of Section 131 and Section 133 of the Electricity Act 2003 (Central Act 36 of 2003), for the purpose of transfer and vesting of functions, properties, interests, rights, obligations and liabilities, along with the transfer of Personnel of the Board to the successor corporate entities.
- 2 That the APGCL is a company incorporated with the main object of generation of electricity in the state of Assam.
- 3 That the APGCL is a generating company under the provisions laid down in Section 14 Proviso 5, read with Section 131 (2) of the Electricity Act 2003.
- 4 That the LRPP, commissioned on 26-04-2018, is an operating gas engine based thermal Power Station under the APGCL in the district of Charaideo, Assam.
- 5 That the Hon'ble Commission notified the AERC (Terms and Conditions for determination of Multi Year Tariff) Regulations, 2018 on 28th June, 2018.
- 6 That as per the Hon'ble Commission's this new MYT Regulations of 2018 APGCL filed for approval of the Aggregate Revenue Requirement of LRPP for the MYT Period from FY 2019-20 to FY 2021-2022 and Determination of Tariff for the FY 2019-20 on 10/12/2018.
- 7 That the AERC, after completion of the due process, issued Tariff Order for LRPP for the FY 2019-20 on 01/03/2019.
- 8 That APGCL is now submitting the Petition for the Revised Aggregate Revenue Requirement and Determination of Tariff for LRPP for the FY 2020-21 as per the relevant Regulations.

Place: Guwahati

Date: 29<sup>th</sup> November' 2019

**Deponent**



**(R. Choudhury)**

**General Manager (HQ),**

**Assam Power Generation Corporation Ltd.**



## 37. Revised ARR for FY 2020-21

37.1.1. The Hon'ble Commission in its Tariff regulations 2018 has stated the following on Revised ARR for the control period from FY 2019-20 to FY 2021-22. The same is reproduced below for ready reference:

### *“4 Multi-Year Tariff Framework*

*4.1 The Commission shall determine the tariff for matters covered under clauses (i), (ii), (iii), (iv) and (v) of Regulation 3.3 above under a Multi-Year Tariff framework with effect from 1<sup>st</sup> April 2019.*

*4.2 The Multi-Year Tariff framework shall be based on the following elements, for calculation of Aggregate Revenue Requirement and expected revenue from tariff and charges for Generating Companies, Transmission Licensee, SLDC, Distribution Wheeling Business and Retail Supply Business:*

- (xvi) Before commencement of Control Period, a forecast of the Aggregate Revenue Requirement and expected revenue from existing tariff and charges shall be submitted by the applicant and approved by the Commission;*
- (xvii) A detailed Capital Investment Plan for each year of the Control Period, shall be submitted by the applicant for the Commission's approval;*
- (xviii) The applicant shall submit operating norms and trajectories of performance parameters for each year of the Control Period, for the Commission's approval*
- (xix) The applicant shall submit the forecast of Aggregate Revenue Requirement and expected revenue from existing tariff for each year of the Control Period, and the Commission shall approve the tariff for Generating Companies, SLDC, Transmission Licensee, Distribution Wheeling Business and Retail Supply Business, for each year of the Control Period;*
- (xx) In its tariff petition, a generating company shall submit information to support the determination of tariff for each generating station*

### *5 Control Period and Baseline*

*5.1 The first Control Period under these Regulations shall be of three financial years from April 1, 2019 to March 31, 2022 and for every block of three years thereafter or such other period as may be decided by the Commission.*

*.....*

*5.2 The Commission shall determine baseline values for various financial and operational parameters of ARR for the Control Period taking into consideration the figures approved by the Commission in the past, actual average figures of last three years, audited accounts, estimate of the figures for the relevant year, Industry benchmarks/norms and other factors considered appropriate by the Commission;*

*Provided that in case of substantial difference between the estimates earlier provided / considered for determination of baseline values and the actual audited accounts, the Commission may re-determine the baseline values for the base year suo-moto or on an application filed by the Applicant”*

## 38. Norms of operations

### 38.1. Regulatory provisions

38.1.1. The Hon'ble Commission had set norms of operations under Tariff Regulations 2018.

38.1.2. The projected performance vis-a-vis norms of operations set is discussed below:

### 38.2. Snapshot of performance projection for FY 2020-21

38.2.1. The following table shows the projection of performance parameters of gas based LRPP for FY 2020-21

*Table 192: Projected Operating Performance for FY2020-21 of LRPP*

LRPP	2020-21 Approved	2020-21 Projected
Gross Energy in MU	519.40	519.40
Aux. Power Cons. (%)	3.50%	3.50%
Net Energy in MU	501.2	501.2
Plant Availability Factor (%)	85.00%	85.00%
Plant Load Factor (%)	90.00%	85.00%
Gross Station Heat Rate on GCV (kcal / kWh)	2150	2150

### 38.3. Normative Annual Plant Availability Factor (NAPAF)

38.3.1. The Hon'ble Commission had approved 85% for NAPAF for LRPP for FY2020-21 in its order dated 1<sup>st</sup> March 2019. The approved and projected numbers are shown in the table below.

*Table 193: Projected Availability for FY2020-21 of LRPP*

LRPP	2020-21 Approved	2020-21 Projected
Plant Availability Factor (%)	85.00%	85.00%



### 38.4. Normative Annual Plant Load Factor (NAPLF)

38.4.1. The Hon'ble Commission had approved 90% for NAPLF for LRPP for FY2020-21 in its order dated 1<sup>st</sup> March 2019. APGCL has projected the PLF at same level of availability. However we will try to achieve the approved PLF for the plant during the year. The approved and projected numbers are shown in the table below.

*Table 194: Projected PLF for FY2020-21 of LRPP*

LRPP	2020-21 Approved	2020-21 Projected
Plant Load Factor (%)	90.00%	85.00%

### 38.5. Gross Station Heat Rate (SHR)

38.5.1. The Hon'ble Commission had approved GSHR of 2150 kCal/kWh for LRPP for FY2020-21 in its order dated 1<sup>st</sup> March 2019. The approved and projected numbers are shown in the table below.

*Table 195: Projected SHR for FY2020-21 of LRPP*

LRPP	2020-21 Approved	2020-21 Projected
Gross Station Heat Rate on GCV (kcal / kWh)	2150.00	2150.00

### 38.6. Auxiliary Energy Consumption

38.6.1. The Hon'ble Commission had approved 3.5% for auxiliary consumption for LRPP for FY2020-21 in its order dated 1<sup>st</sup> March 2019. The approved and projected numbers are shown in the table below.

*Table 196: Auxiliary Energy Consumption for FY2020-21 of LRPP*

LRPP	2020-21 Approved	2020-21 Projected
Auxiliary energy consumption (%)	3.50%	3.50%

## 39. Fixed Cost of the Plant

### 39.1. Annual fixed cost for FY 2020-21

39.1.1. As per regulation 42.1 of the AERC Tariff regulations, 2018 the following components have been considered for projecting of fixed cost under the Multi Year Tariff framework for the power plants:

- (a) Return on Equity Capital
- (b) Interest on Loan capital
- (c) Depreciation
- (d) Operation and Maintenance Expenses
- (e) Interest on Working Capital
- (f) Less: Non-Tariff Income

39.1.2. For the computation of the fixed components, the Petitioner has considered the principles provided in the Tariff Regulations, 2018. These components have been discussed in detail in the following sections of the petition.

### 39.2. Return on Equity (ROE)

39.2.1. The Hon'ble Commission in its regulation has considered the pre-tax return on equity at 15.5% on equity capital.

39.2.2. APGCL has projected the Return on Equity (RoE) at a rate of 15.5% in accordance with the Tariff Regulations, 2018. The Petitioner submits that it will submit the residual additional capital expenditure to be incurred for LRPP in FY2020-21 during the APR of FY2020-21. Further, it is submitted that the actual tax paid would be claimed separately during True-up of respective years.

*Table 197: Projected Return on Equity capital for FY2020-21*

Station	Particulars	2020-21 Approved	2020-21 Projected
LRPP	Opening Equity	16.10	15.30
	Closing Equity	16.10	15.30
	Rate of Return	15.50%	15.50%
	<b>Return on Equity</b>	<b>2.50</b>	<b>2.37</b>

39.2.3. APGCL prays to the Hon'ble Commission to approve the projected Return on Equity as shown above.



### 39.3. Interest on Loan Capital

39.3.1. As per Regulation 34 of the Tariff Regulations, 2018, the Commission will consider interest on Loan capital on normative basis with repayment equal to depreciation allowed for that year and rate of interest will be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year.

39.3.2. In view of the above, the Petitioner has projected the Interest on long term Loan on normative basis for FY2020-21. The Petitioner has considered normative loan portfolio and the repayment shown is considered equal to the depreciation for FY 2020-21. The interest rate has been considered as the expected weighted average rate of interest for FY 2020-21.

39.3.3. The finance charges are shown separately for FY 2020-21. The table below summarizes the interest on loan and finance charges considered for period of FY 2020-21.

*Table 198: Projected Interest and Finance charges for FY2020-21*

Station	Particulars	2020-21	2020-21
		Approved	Projected
LRPP	Net Normative Opening Loan	32.05	31.12
	Addition of normative loan during the year	0.00	0.00
	Normative Repayment during the year	2.75	2.31
	Net Normative Closing Loan	29.30	28.82
	Avg. Normative Loan	30.68	29.97
	Interest Rate	10.18%	10.34%
	Interest on Loan Capital	3.12	3.10
	Add: Bank Charges	0.00	0.00
	<b>Net Interest on Loan Capital</b>	<b>3.12</b>	<b>3.10</b>

39.3.4. APGCL prays to the Hon'ble Commission to approve the projected Total interest and finance charges as shown above.

### 39.4. Depreciation

39.4.1. The Hon'ble Commission in its Tariff Regulations, 2018 has provided the principals for determination of depreciation.

39.4.2. In view of the above, the Petitioner has computed the Depreciation considering the Capital Cost of the asset admitted by the Commission and projected asset addition with 10% salvage value. Also, depreciation on grants has been subtracted. The table below summarizes the Depreciation projected for FY2020-21.

Table 199: Projected Depreciation for FY2020-21 of LRPP

(Rs. Crore)

Particulars	2020-21
Opening GFA	266.97
Addition during the year	0.00
Closing GFA	266.97
Average GFA	266.97
Rate of Depreciation	4.52%
Total Depreciation	12.07
Grant	215.96
Additions during the year	0.00
Closing grant	215.96
Average grant	215.96
Rate of Depreciation	4.52%
Depreciation on grants	9.76
<b>Net Depreciation</b>	<b>2.31</b>

Table 200: Summary of projected Depreciation for FY2020-21

Station	Particulars	2020-21 Approved	2020-21 Projected
LRPP	Depreciation	13.60	12.07
	<u>Less:</u> Depreciation on assets funded by Grants	10.85	9.76
	Net Depreciation	2.75	2.31

39.4.3. APGCL prays to the Hon'ble Commission to approve the projected Depreciation for FY 2020-21 as shown above.

### 39.5. Interest on Working Capital

39.5.1. As per Regulation 36 of the Tariff Regulations, 2018, the interest on working capital will be considered on normative basis.



39.5.2. As per the above regulations, the Petitioner has projected normative interest on working capital. However, as APGCL does not have liquid fuel stock facility, it has not considered working capital on storage of liquid fuel. The rate of interest has been considered equal to the normative interest rate of three hundred (300) basis points above the average State Bank of India MCLR (One Year Tenor) prevalent during the last available six months, which  $8.22\% + 3.00\% = 11.22\%$ .

39.5.3. The interest on working capital considered is shown in the table below:

*Table 201: Summary of Interest on working capital projected for FY2020-21*

(Rs. Crore)

Station	Particulars	2020-21 Approved	2020-21 Projected
LRPP	Fuel Cost for one month	7.91	8.34
	O&M Expenses for one month	1.78	1.78
	Maintenance Spares-30% of O&M	6.39	6.39
	Receivables for two months	21.49	22.25
	Total Working Capital Requirement	37.56	38.76
	Rate of interest	11.50%	11.22%
	<b>Interest on Working capital</b>	<b>4.32</b>	<b>4.35</b>

39.5.4. APGCL prays to the Hon'ble Commission to approve the Interest on Working capital for FY 2020-21 as shown above.

### 39.6. Operation and Maintenance Expenses (O&M Expenses)

39.6.1. The Operation and maintenance expense are to be projected as per Regulation 50.1 of the Tariff Regulations, 2018.

39.6.2. The Commission in its order dated 1<sup>st</sup> March 2019 had computed the normative O&M expenses for LRPP for FY2020-21 according to the regulation. The same has been projected for FY2020-21 for LRPP

*Table 202: Operation and Maintenance projected for FY2020-21*

(Rs. Crore)

Station	2020-21 Approved as per Order of March 2019	2020-21 Projected O&M for Effective Capacity
LRPP	21.30	21.30

39.6.3. APGCL prays to the Hon'ble Commission to approve the O&M expenses for FY 2020-21 as shown above.





### 39.7. Non-Tariff Income

39.7.1. As per Regulation 45 of the Tariff Regulations, 2018, the non-tariff income shall be deducted from the Annual Fixed Cost in determining the Annual Fixed Cost of the Generation Company.

39.7.2. The non-tariff income for FY2020-21 are projected same as approved by Hon'ble Commission. The same is as shown in the table below

Table 203: Station-wise Non tariff income projected for FY2020-21

(Rs. Crore)

Station	2019-20 Approved	2020-21 Projected
LRPP	0.00	0.00

39.7.3. APGCL submits that Non-Tariff Income for FY FY2020-21 will be claimed during True-up of the same.

39.7.4. APGCL prays to the Hon'ble Commission to approve the Non-tariff income for FY 2020-21 as shown above.

### 39.8. Total Fixed Cost

39.8.1. The recovery of Annual fixed charges is to be done as per regulation 51.1 of the Tariff Regulations, 2018.

39.8.2. Based on the above, the Annual fixed charges for FY 2020-21 has been computed. The Hon'ble Commission is requested to approve the fixed charges as discussed in the table below:

Table 204: Annual Fixed charges for FY2020-21 of LRPP

(Rs. Crore)

Particulars	2020-21 Approved	2020-21 Projected
Operation & Maintenance Expenditure	21.30	21.30
Interest & Finance Charges	3.12	3.10
Interest on working Capital	4.32	4.35
Depreciation	2.75	2.31
Return on Equity	2.50	2.37
<u>Less: Other Income</u>	0.00	0.00
<b>Total Fixed Charges</b>	<b>33.99</b>	<b>33.43</b>

39.8.3. The Petitioner prays to the Hon'ble Commission to approve the fixed costs for FY 2020-21 as discussed in the tables above.



## 40. Energy Charges

### 40.1. Fuel Price and Calorific Value

40.1.1. As per Regulation 11 of the Tariff Regulations 2018, 'Fuel Price' and 'Calorific Value of Fuel' are uncontrollable items. The values of 'Calorific Value of Fuel' is considered same as considered in FY 2019-20. The value of 'Fuel Price' has been considered at the rate computed for the month of October 2019 and escalated at annual rate of 3% for Transmission charges as per agreement. The projected values of 'Fuel Price' and 'Calorific Value of Fuel' are shown in the table below:

Table 205: Projected GCV and Price for FY2020-21

Station	Wt. Avg. Gross Calorific Value of Gas (kcal/SCM)	Wt. Avg. Price of Gas (Rs./1000 SCM)
LRPP	9,419.27	8,440.93

40.1.2. The Petitioner prays to the Hon'ble Commission to approve the projected Price of Gas and GCV for LRPP for FY 2020-21 as shown in the table above.

### 40.2. Fuel cost

40.2.1. The Commission, in the Tariff Order dated 1<sup>st</sup> March 2019 had approved the Fuel Cost for FY 2020-21. The table below shows the projected fuel cost for FY2020-21

Table 206: Fuel cost for LRPP for FY2020-21

Particulars	Derivation	Unit	2020-21 Approved	2020-21 Projected
Gross Generation	A	MU	519.40	519.40
Heat Rate	B	kcal/kWh	2150.00	2150.00
GCV of gas	C	kcal/SCM	9126.42	9419.27
Overall Heat	D=AxB	G. cal.	1116710.00	1116710.00
Gas consumption	E=D/C	M. SCM	122.36	118.56
Price of Gas	F	Rs./1000 SCM	7758.11	8440.93
<b>Total cost of Gas</b>	<b>G=ExF/10000</b>	<b>Rs. Crore</b>	<b>94.93</b>	<b>100.07</b>

### 40.3. Incentives

40.3.1. APGCL submits that the Incentives for FY 2020-21 will be claimed in True-up as per Regulations.

### 40.4. Total Other expenses

40.4.1. The Other expenses for FY 2020-21 are as shown in the tables below.

Table 207: Other expenses for LTPS

Rs. Cr

Other expenses for LTPS	FY2020-21	
	Approved	Projected
Other Expenses	0.00	0.00

40.4.2. APGCL submits that the Other expenses like actual tax paid, prior period items etc. for FY2020-21 will be claimed in True-up of FY 2020-21 as per Regulations.

## 41. Summary of submissions for Revised ARR of FY2020-21

### 41.1. Summary

41.1.1. The Summary of the Revised ARR for LRPP for FY2020-21 is shown below.

Table 208: Revised ARR for FY2020-21 For LRPP

(Rs. Crore)

Revised ARR for FY2020-21 For LRPP			
Sl. No	Particulars	2020-21 Approved	2020-21 Projected
	<b>POWER GENERATION (MU)</b>		
	Gross Generation	519.40	519.40
	Net Generation	501.2	501.2
	Auxiliary Consumption Loss %	3.50%	3.50%
<b>I</b>	<b>Fixed Charges</b>		
	Operation & Maintenance Expenditure	21.30	21.30
	Interest & Finance Charges	3.12	3.10
	Interest on working Capital	4.32	4.35
	Depreciation	2.75	2.31
	Return on Equity	2.50	2.37
	<u>Less:</u> Other Income	0.00	0.00
	Total Fixed Charges	33.99	33.43
	<b>Other expenses</b>		
	Special R&M	0.00	0.00
	Capacity Building	0.00	0.00
<b>II</b>	<b>Total Other expenses</b>	<b>0.00</b>	<b>0.00</b>
<b>III</b>	<b>Fixed Charges including Other expenses</b>	<b>33.99</b>	<b>33.43</b>
<b>IV</b>	<b>Fuel Cost</b>	<b>94.93</b>	<b>100.07</b>
<b>V</b>	<b>Total Revenue Requirement</b>	<b>128.92</b>	<b>133.50</b>
	Fixed charges including other charges (Rs. / kWh)	0.68	0.67
	Energy charges (Rs. / kWh)	1.89	2.00
<b>V</b>	<b>Proposed tariff (Rs. / kWh)</b>	<b>2.57</b>	<b>2.66</b>

## 41.2. Net Annual Revenue Requirement

41.2.1. The Net Annual Revenue Requirements for FY 2020-21 are as shown in the tables below.

Table 209: Net Annual Revenue Requirements for LRPP for FY2020-21

(Rs. Crore)

Particulars	2020-21 Projected
Fixed Charges including Other expenses	33.43
Fuel Cost	100.07
Total Revenue Requirement	133.50

## 41.3. Tariff for LRPP for FY 2020-21

41.3.1. The tariff proposed for LRPP for FY 2020-21 is as shown below

Table 210: Tariff proposed for LRPP for FY 2020-21

(Rs. Crore)

Particulars	LRPP
Annual fixed charges (Rs crore)	33.43
Monthly fixed charges (Rs crore)	2.79
Energy charge rate (Rs./ kWh)	2.00

41.3.2. The Petitioner prays to the Hon'ble Commission to approve the Net Annual Revenue Requirement for FY 2020-21 as discussed in the tables above.

## 42. Directives

### 42.1. Compliance of Directives issued in the Tariff Order for 2019-20

42.1.1. We submit that the update on the compliance directives issued in the Tariff order for FY 2019-20 for Quarter 1 has already been submitted to the Hon'ble Commission.

Compliance of Directives issued in the Tariff Order for 2019-20																						
Sl. No:	AERC's Directive	Status as on 31 <sup>st</sup> October, 2019																				
<b>1</b>	<b>Directive1: Employee's Provident Fund</b>																					
	The Commission once again directs APGCL to complete the formalities of forming the Trust for Employee's Provident Fund as early as possible.	The matter is being continuously pursued by APGCL with GoA.																				
<b>2</b>	<b>Directive-2: Procurement of Gas</b>																					
	APGCL should continue to pursue with its gas suppliers/ transporter to obtain the contracted quantum of gas on a regular basis. The Commission also directs APGCL to take action for revision in modalities of MGQ formula in the revised Agreements to be signed with all the Gas Suppliers & Gas Transporters and submit copies of the same to the Commission within three months from the date of this Order. Further, APGCL should claim compensation, in case the MGQ is not met by Gas Supplier/Gas Transporter.	<p><b>A statement of drawal of gas by NTPS &amp;LTPS from Jul'19 to Sept'19 is given below:</b></p> <table border="1"> <thead> <tr> <th rowspan="2">Month</th> <th colspan="3">Received/ Allotted Qty (MMSCM)</th> </tr> <tr> <th>NTPS (OIL)</th> <th>LTPS (OIL)</th> <th>LTPS (GAIL)</th> </tr> </thead> <tbody> <tr> <td>July'19</td> <td>12.663/20.4 6 (62%)</td> <td>13.605/ 15.50 (88%)</td> <td>9.339/ 12.40 (75%)</td> </tr> <tr> <td>Aug'19</td> <td>13.447/20.4 6 (66%)</td> <td>14.189/15.50 (92%)</td> <td>10.075/12.40 (81%)</td> </tr> <tr> <td>Sept'19</td> <td>7.669/19.80 (39%)</td> <td>13.269/15.00 (88%)</td> <td>9.725/ 12.00 (81%)</td> </tr> </tbody> </table> <p>Regarding the gas supply Agreement for NTPS, the draft agreement is being prepared by M/s OIL. Revised general MGQ formula will be included in the agreement considering the force majeure clause. The draft Agreement will later be sent to APGCL for review and finalization. Presently, the gas is being supplied to NTPS under the old agreement till the new agreement is signed.</p> <p>Regarding the agreement with AGCL, as it is valid till May'2020 (effective from the date of drawal of gas as per agreement, which is 24-05-2005), as per the agreement the process of extension will begin six months prior to the expiry of the old agreement.</p> <p>Regarding the agreement with AGCL with LTPS, although the agreement was expired on 30<sup>th</sup> Nov'18, the same have been extended till 31<sup>st</sup> Aug'19 by virtue of a letter</p>		Month	Received/ Allotted Qty (MMSCM)			NTPS (OIL)	LTPS (OIL)	LTPS (GAIL)	July'19	12.663/20.4 6 (62%)	13.605/ 15.50 (88%)	9.339/ 12.40 (75%)	Aug'19	13.447/20.4 6 (66%)	14.189/15.50 (92%)	10.075/12.40 (81%)	Sept'19	7.669/19.80 (39%)	13.269/15.00 (88%)	9.725/ 12.00 (81%)
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		from AGCL. The draft agreement has been sent by AGCL and forwarded to APGCL for review and finalization. The same will be materialized by first week of Dec'19.
<b>3</b>	<b>Directive 3: Completion of New Power Projects within scheduled time and augmentation of own generating capacity</b>	
	The Commission directs APGCL to commission both the units of NRPP as per the revised schedule. APGCL is also directed to expedite the completion of other ongoing Projects including Solar PV projects.	<p><b><u>Present Status of 98.4 MW Namrup Replacement Power Project (NRPP):</u></b></p> <ul style="list-style-type: none"> <li>• Open Cycle mode of NRPP is expected to be commissioned by 1<sup>st</sup> January'20.</li> <li>• Combined Cycle mode of NRPP is expected to be commissioned by 1<sup>st</sup> March'20.</li> </ul> <p><b><u>Present Status of 70 MW Amguri Solar Power Project:</u></b></p> <ul style="list-style-type: none"> <li>• Foundation stone of the proposed project was laid by Honorable Chief Minister of Assam on 27.02.19.</li> <li>• The Request for Proposal (RFP) for selection of SPD has been floated on 7<sup>th</sup> Jan'2019 with upper ceiling price Rs.3.50 per unit but no bidder participated in the bidding process.</li> <li>• GoA has been requested for waiver of the existing ceiling limit of Rs.3.50/unit. GoA directed to take up the matter with AERC for review of existing ceiling limit.</li> <li>• APDCL authorized APGCL as "Authorized representative" of procurer i.e. APDCL.</li> <li>• APGCL floated the RFP of e-Reverse bidding on 2<sup>nd</sup> Sept'19 for selection of SPD proposing the upper ceiling tariff as Rs. 4.00 per unit.</li> <li>• Only one Bidder M/s JAKSON participated in the bidding process after extension of the Bid for three times.</li> <li>• After getting approval from the management, the price bid was opened on 14<sup>th</sup> Nov'19. The Bidder has quoted the Tariff as Rs. 3.99/Unit.</li> <li>• A letter has been forwarded to the GoA for approval of the Tariff rate as quoted by the bidder i.e. Rs. 3.99/Unit.</li> </ul> <p><b><u>Present Status of 120 MW Lower KHEP:</u></b></p>



		<ul style="list-style-type: none"> <li>• First Stage Forest Clearance has been accorded for 523.046 Hectare of forest land by Ministry of Environment and Forest and Climate Change on 5th February, 2019.</li> <li>• Final EC has been obtained from MoEF&amp; CC, New Delhi on 4<sup>th</sup> Sept'19.</li> <li>• The Resettlement and Rehabilitation (R&amp;R) Plan for the project has been approved by the Ministry of Tribal Affairs, Govt. of India.</li> <li>• The first installment of land premium amounting to Rs. 20.00 Cr has been released to NCHAC.</li> <li>• Disbursement of compensation to 87% PAFs is completed. Payment of land compensation to PAFs is going on.</li> <li>• NCHAC has issued a patta for land measuring 909 Hactares in favour of APGCL along with a map.</li> <li>• Land premium and compensation amount for Karbi Anglong Dist amounting to Rs. 8.11 Cr transferred to KAAC on 27.06.19.</li> <li>• Final land allotment letter for KAAC received on 01.08.19.</li> </ul> <p><b><u>Present status of 24 MW Borpani Middle-II SHEP:</u></b>  For land acquisition of the project, site visit has been made by representatives of Hamren, Donka and APGCL and land availability report has been submitted to the respective department under KAAC.  NOC from Water Resource Deptt. has been received. APGCL pursuing at other Deptt. viz Irrigation, Fishery and Pollution Control Board for expediting the process of clearance.</p> <p>The Preliminary Project Proposal Report was considered in 90<sup>th</sup>, 96<sup>th</sup> and 97<sup>th</sup> meeting of Screening committee of DEA where NITI Aayog has supported the proposal. Thereafter, DEA in its 99<sup>th</sup> meeting of the Screening committee dtd: 17<sup>th</sup> Sept'19 approved the posing of the project proposal of GoA for posing to ADB, for seeking financial assistance.</p> <p><b><u>Present Status of 13.5 MW MSHEP:</u></b>  Units no #2 &amp; #3 of (3X3) MW MSHEP-I has been commissioned on 15th and 16th of February'19 respectively. COD of Unit #1 of MSHEP-I shall be declared within 31<sup>st</sup> December'2019.</p> <p><b><u>Present Status of 2X800 MW Margherita Super Thermal Power Project:</u></b>  The APGCL Board approved the Draft DPR (Rev-I) of Margherita Super Thermal Power Project (2x800 MW)</p>
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		prepared by M/s NTPC Ltd, Noida with total financial involvement of Rs. 16,850.14 Crore (Rupees sixteen Thousand Eight Hundred Fifty Crores and Fourteen Lakhs) only. Final DPR is expected from M/S NTPC Ltd.
<b>4.</b>	<b>Directive 4: Fixed Asset Register</b>	
	The Commission directs APGCL that Fixed Asset Register should be prepared and updated every year, and these should be duly certified by Chartered Accountant. APGCL is directed to maintain Fixed Asset Register at their end and submit to the Commission as and when asked during tariff proceedings.	Noted and being complied with regularly. It is updated as on 31.03.19. The Fixed Asset Register is readily available and will be provided as and when asked by the Hon'ble Commission.
<b>5</b>	<b>Directive 5 – Capacity Building</b>	
	The Commission approved Rs 1 Cr for training and capacity building of employees in APGCL for the MYT control period. The Commission directs APGCL to submit the detailed expenditure on account of capacity building, separately to the Commission, at the time of true up.	Noted.