



ASSAM ELECTRICITY REGULATORY COMMISSION

(AERC)

TARIFF ORDER

March 21, 2022

**Namrup Replacement Power Project
(NRPP)**

**Approval of Capital Cost,
ARR of FY 2021-22,
ARR for Control Period from FY 2022-23 to
FY 2024-25 and
Tariff for FY 2022-23**

**Assam Power Generation Corporation
Limited (APGCL)**

Petition No. 10/2021

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List of Abbreviations

A&G	Administrative and General
ABITA	Assam Branch of Indian Tea Association
AEGCL	Assam Electricity Grid Corporation Limited
AERC	Assam Electricity Regulatory Commission
AFC	Annual Fixed Charges
AGCL	Assam Gas Company Limited
APC	Auxiliary Power Consumption
APDCL	Assam Power Distribution Company Limited
APGCL	Assam Power Generation Corporation Limited
APM	Administered Pricing Mechanism
APR	Annual Performance Review
APTEL	Appellate Tribunal for Electricity
ARR	Aggregate Revenue Requirement
ASEB	Assam State Electricity Board
BHEL	Bharat Heavy Electricals Limited
C&I	Control and Instrument
CC	Combined Cycle
CERC	Central Electricity Regulatory Commission
COD	Date of Commercial Operation
CPI	Consumer Price Index
DPR	Detailed Project Report
EPC	Engineering Procurement and Construction
FINER	Federation of Industry & Commerce of North Eastern Region
FY	Financial Year
GCV	Gross Calorific Value
GFA	Gross Fixed Assets
GoA	Government of Assam
GSHR	Gross Station Heat Rate
GT	Gas Turbine

HRSG	Heat Recovery Steam Generator
IDC	Interest During Construction
IoWC/IWC	Interest on Working Capital
kcal	kilo calorie
kW	kilo Watt
kWh	kilo Watt Hour
LD	Liquidated Damages
LOI	Letter of Intent
LRPP	Lakwa Replacement Power Project
LTPS	Lakwa Thermal Power Station
MCLR	Marginal Cost of Funds Based Lending Rate
MMBTU	Million Metric British Thermal Unit
MMSCMD	Million Metric Standard Cubic Meter per Day
MU	Million Units
MW	Mega Watt
MYT	Multi Year Tariff
NAPAF	Normative Annual Plant Availability Factor
NCV	Net Calorific Value
NERLDC	North Eastern Regional Load Despatch Centre
NRPP	Namrup Replacement Power Project
NTI	Non-Tariff Income
NTPC	National Thermal Power Corporation Limited
NTPS	Namrup Thermal Power Station
O&M	Operation and Maintenance
OC	Open Cycle
P&M	Plant and Machinery
PAF	Plant Availability Factor
PFCL	Power Finance Corporation Limited
PG	Performance Guarantee
PLF	Plant Load Factor
R&M	Repairs and Maintenance
RoE	Return on Equity

SAC	State Advisory Committee
SBI	State Bank of India
SCM	Standard Cubic Meter
SHR	Station Heat Rate
SLDC	State Load Despatch Centre
TVS	Technical Validation Session
WHRU	Waste Heat Recovery Unit
WPI	Wholesale Price Index

ASSAM ELECTRICITY REGULATORY COMMISSION

Guwahati

Present

Shri K.S. Krishna, Chairperson

Smt. B. Borthakur, Member

Shri S.N. Kalita, Member

Petition No. 10/2021

Assam Power Generation Corporation Limited (APGCL) - **Petitioner**

ORDER

(Passed on 21 March, 2022)

- (1) APGCL filed Petition for approval of Capital Cost, Aggregate Revenue Requirement (ARR) for FY 2021-22, ARR for FY 2022-23 to FY 2024-25, and determination of Tariff for FY 2022-23 for Namrup Replacement Power Project (NRPP) as per the AERC (Terms and Conditions for determination of Multi-Year Tariff) Regulations, 2018 (MYT Regulations, 2018) and AERC (Terms and Conditions for determination of Multi-Year Tariff) Regulations, 2021 (MYT Regulations, 2021) as applicable, on November 30, 2021. The same was registered as Petition No. 10/2021.
- (2) The Commission observed that there were a few inconsistencies in the Petition. The Commission sought additional data and clarifications on the Petitions vide letter dated December 13, 2021.

- (3) The Commission held an Admissibility Hearing on December 23, 2021 and admitted the Petition (Petition No. 10/2021) vide Order dated December 23, 2021, subject to submission of additional information as sought for.
- (4) On admission of the Petition, in accordance with Section 64 of the Electricity Act, 2003, the Commission directed APGCL to publish a summary of the ARR and Tariff filings for NRPP in local dailies to facilitate due public participation.
- (5) Accordingly, a Public Notice was issued by the APGCL inviting objections/suggestions from stakeholders to be submitted on or before January 21, 2022. The notice was published in two (2) leading newspapers and short notice was published in five (5) leading newspapers of the State, as shown in the Table below:

Date	Name of Newspaper	Content Published
28.12.2021	The Assam Tribune	Public Notice in English
28.12.2021	Dainik Janambhumi	Public Notice in Assamese
28.12.2021	Dainik Jugasankha	Public Notice in English
28.12.2021	Purbanchal Prahari	Public Notice in English
28.12.2021	The Sentinel	Short Notice in English
28.12.2021	Bodosa (Bodo)	Short Notice in English
28.12.2021	Thekar (Karbi)	Short Notice in English

- (6) A copy of the Petition and other relevant documents were also directed to be made available to the consumers and other interested Parties at the office of the Managing Director of APGCL. A copy of the Petition was also made available on the websites of the Commission and APGCL.
- (7) In response to the Commission's letter dated December 13, 2021, APGCL submitted their replies to data gaps on January 10, 2022. After scrutinizing the first set of replies, a Technical Validation Session (TVS) was conducted on February 07, 2022. The Commission sought more clarifications on the Petition from APGCL vide letter dated February 08, 2022. The replies to the second set of queries were submitted by APGCL on February 15, 2022.

- (8) The Petition was also discussed in the 29th Meeting of the State Advisory Committee (SAC) (constituted under Section 87 of the Electricity Act, 2003) held on February 25, 2022 at Bidyut Niyamak Bhawan, Six Mile, Guwahati.
- (9) The Commission received suggestion/objections from three (3) stakeholders on the Petitions filed by APGCL. The stakeholders were notified about the place, date and time of Hearing, to enable them to take part in the Hearing. A notice was also published in Newspapers inviting participation from the general public as well as the Respondents. The Hearing was held at Bidyut Niyamak Bhawan Six Mile, Guwahati on March 02, 2022 as scheduled. All stakeholders/respondents who participated in the Hearing were given the opportunity to express their views on the Petition. The details are discussed in the Chapters attached with this Order.
- (10) The Commission, now in exercise of its powers and functions vested under Sections 61, 62, 86 and 181 of the Electricity Act, 2003 and all other powers enabling it in this behalf and taking into consideration the submissions made by the Petitioner, objections and suggestions received from stakeholders and all other relevant materials on record, has approved the Capital Cost, ARR for FY 2021-22, ARR for FY 2022-23 to FY 2024-25, and determined the tariff for FY 2022-23 for NRPP, as detailed in subsequent Chapters of this Order.
- (11) The Commission directs APGCL to publish a Public Notice intimating the revised Generation Tariff for NRPP before the implementation of this Order, in English and Vernacular newspapers and on the website of APGCL.
- (12) The approved Generation Tariff for NRPP shall be effective from April 01, 2022 and shall continue until replaced by any subsequent Order of the Commission.

(13) Accordingly, the Petition 10 of 2021 stands disposed of.

Sd/-

(S.N. Kalita)

Member, AERC

Sd/-

(B. Borthakur)

Member, AERC

Sd/-

(K. S. Krishna)

Chairperson, AERC

1 INTRODUCTION

1.1 Constitution of the Commission

- 1.1.1 The Assam Electricity Regulatory Commission (hereinafter referred to as the AERC or the Commission) was established under the Electricity Regulatory Commissions Act, 1998 (14 of 1998) on February 28, 2001. The first proviso of Section 82(1) of the Electricity Act, 2003 (hereinafter referred as the Act or the EA, 2003) has ensured continuity of the Commission under the EA 2003.
- 1.1.2 The Commission is mandated to exercise its powers and functions vested under Sections 61, 62, 86 and 181 of the EA 2003 and all the other powers enabling it in this behalf, to determine the ARR and Tariff of Assam Power Generation Corporation Limited (APGCL).

1.2 Tariff related Functions of the Commission

- 1.2.1 Under Section 86 of the Act, the Commission has the following tariff related functions:
- a) To determine the tariff for electricity, wholesale, bulk or retail, as the case may be;
 - b) To regulate power purchase and procurement process of the distribution utilities including the price at which the power shall be procured from the generating companies, generating stations or from other sources for transmission, sale, distribution and supply in the State;
 - c) To promote competition, efficiency and economy in the activities of the electricity industry to achieve the objects and purposes of this Act.
- 1.2.2 Under Section 61 of the Act in the determination of tariffs, the Commission is guided by the following:
- a) The principles and methodologies specified by the Central Commission for determination of the tariff applicable to generating companies and transmission licensees;
 - b) That the electricity generation, transmission, distribution and supply are conducted on commercial principles;
 - c) That factors which would encourage efficiency, economical use of the resources,

- good performance, optimum investments, and other matters which the State commission considers appropriate for the purpose of this Act;
- d) The interests of the consumers are safeguarded and at the same time, the consumers pay for the use of electricity in a reasonable manner based on their customer category cost of supply;
 - e) That the tariff progressively reflects the cost of supply of electricity at an adequate and improving level of efficiency and also gradually reduces cross subsidies;
 - f) The National Electricity Plan formulated by the Central Government including the National Electricity Policy and Tariff Policy.

1.3 Background

- 1.3.1 APGCL is the successor corporate entity of erstwhile Assam State Electricity Board (ASEB) formed 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 EA 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 successor entities. APGCL is a Company incorporated with the main object of generation of electricity in the State of Assam and is a Generating Company under the various provisions of the Act.
- 1.3.2 APGCL owns and operates the generating stations previously owned by ASEB. APGCL started functioning as a separate entity from December 10, 2004.

1.4 Multi Year Tariff Regulations, 2018

- 1.4.1 The Commission, in exercise of the powers conferred under Section 61 read with Section 181(2) (zd) of the Act, notified the AERC (Terms and Conditions for determination of Multi Year Tariff) Regulations, 2018 (herein after referred as "MYT Regulations, 2018") on July 17, 2018. These Regulations are applicable for determination of Tariff for Generation, Transmission, SLDC, Wheeling and Retail Supply for the Control Period of three financial years from April 1, 2019 onwards up to March 31, 2022.

1.4.2 Regulation 4.2 of the MYT Regulations, 2018, specifies the MYT framework for the Control Period from FY 2019-20 to FY 2021-22, as reproduced below:

“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) Annual Performance review vis-à-vis the approved forecast and categorization of variation in performance as those caused by factors beyond the control of the applicant (uncontrollable items) shall be undertaken by the Commission;

(vii) True up of the past years based on audited annual accounts of the licensees and the Generation companies.

(viii) The mechanism for pass-through of approved gains or losses on account of uncontrollable items as specified by the Commission in these Regulations;

(ix) The mechanism for sharing of approved gains or losses arising out of controllable items as specified by the Commission in these Regulations;

(x) Tariff determination for Generating Companies, SLDC, Transmission Licensee and Distribution Wheeling Business and Retail Supply Business, for each financial year within the Control period based on the approved forecast. The tariff shall be reviewed at the time of the true-up and annual performance review.

(xi) There will be no true-up of the controllable items except on account of Force Majeure events or on account of variations attributable to uncontrollable items. The variations in the controllable items, as defined in regulation 10, over and above the norms specified will be governed by incentive and penalty framework specified in these regulations.

(xii) The tariff determined by the Commission and the directions given in the MYT order shall be the quid pro quo and mutually inclusive. The tariff determined shall,

within the time period specified in the order, be subject to the compliance of the directions by the generating company and the licensees to the satisfaction of the Commission. Non-compliance of directions given in the tariff order may also lead to invocation of the provisions of section 142 of the Act.

(xiii) The tariff determined by the Commission shall continue to operate till it is modified or revised by the Commission.”

1.4.3 Regulation 28 of the MYT Regulations, 2018 specifies the provision for approval of the capital cost of the project as under:

“28 Capital Cost and capital structure

28.1 Capital cost for a project shall include:

- a) the expenditure incurred or projected to be incurred upto the date of commercial operation of the project, any gain or loss on account of foreign exchange risk variation on the loan during construction up to the date of commercial operation of the project, as admitted by the Commission, after prudence check*
- b) Interest during construction and financing charges, on the loans (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed*
- c) Increase in cost in contract packages as approved by the Commission;*
- d) Interest during construction and incidental expenditure during construction as computed in accordance with Regulation 29.7 of these regulations*
- e) capitalised initial spares subject to the ceiling rates specified in this Regulation; and*
- f) additional capital expenditure or de-capitalization determined under Regulation 29*
- g) Adjustment of revenue due to sale of infirm power in excess of fuel cost prior to the COD as specified under Regulation 44 of these regulations; and*
- h) Adjustment of any revenue earned by the transmission licensee by using the assets before COD.*

i) the capital cost admitted by the Commission prior to 1.4.2019 duly trued up by excluding liability, if any, as on 1.4.2019

j) expenditure on account of renovation and modernization as admitted by this Commission in accordance with regulation 29.5

Provided that the cost of the common assets forming part of the project, should be considered based on the suitable allocation and such allocated cost shall form part of the capital cost:

Provided that the assets forming part of the project, but not in use, shall be taken out of the capital cost:

28.2 The capital cost admitted by the Commission after prudence check shall form the basis for determination of tariff.”

1.5 Multi Year Tariff Regulations, 2021

1.5.1 The Commission, in exercise of the powers conferred under Section 61 read with Section 181(2) (zd) of the Act, notified the AERC (Terms and Conditions for determination of Multi Year Tariff) Regulations, 2021 (herein after referred as “MYT Regulations, 2021”) on September 18, 2021. These Regulations are applicable for determination of Tariff for Generation, Transmission, SLDC, Wheeling and Retail Supply for the Control Period of three financial years from April 1, 2022 onwards up to March 31, 2025. These Regulations are applicable to all existing and future Generating Companies, Transmission Licensees and Distribution Licensees within the State of Assam.

1.5.2 Regulation 4.2 of the MYT Regulations, 2021, specifies the MYT framework for the Control Period from FY 2022-23 to FY 2024-25, as reproduced below:

“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

(vi) Annual Performance review vis-à-vis the approved forecast and categorization of variation in performance as those caused by factors beyond the control of the applicant (uncontrollable items) shall be undertaken by the Commission;

(vii) True up of the past years based on audited annual accounts of the licensees and the Generation companies.

(viii) The mechanism for pass-through of approved gains or losses on account of uncontrollable items as specified by the Commission in these Regulations;

(ix) The mechanism for sharing of approved gains or losses arising out of controllable items as specified by the Commission in these Regulations;

(x) Tariff determination for Generating Companies, SLDC, Transmission Licensee and Distribution Wheeling Business and Retail Supply Business, for each financial year within the Control period based on the approved forecast. The tariff shall be reviewed at the time of the true-up and annual performance review.

(xi) There will be no true-up of the controllable items except on account of Force

Majeure events or on account of variations attributable to uncontrollable items. The variations in the controllable items, as defined in regulation 10, over and above the norms specified will be governed by incentive and penalty framework specified in these regulations.

(xii) The tariff determined by the Commission and the directions given in the MYT order shall be the quid pro quo and mutually inclusive. The tariff determined shall, within the time period specified in the order, be subject to the compliance of the directions by the generating company and the licensees to the satisfaction of the Commission. Non-compliance of directions given in the tariff order may also lead to invocation of the provisions of section 142 of the Act.

(xiii) The tariff determined by the Commission shall continue to operate till it is modified or revised by the Commission.”

1.6 Procedural History

- 1.6.1 APGCL had filed a Petition for approval of ARR for Control Period from FY 2016-17 to FY 2018-19 and determination of provisional Tariff for FY 2016-17 and FY 2017-18 for NRPP as per Regulation 41.4 of MYT Regulations, 2015, based on anticipated Date of Commercial Operation (COD). The Commission vide Order dated March 31, 2017 approved the ARR for FY 2017-18 and FY 2018-19 and also approved the provisional tariff for NRPP for FY 2017-18.
- 1.6.2 As per Regulation 40.5 of the MYT Regulations, 2018, APGCL is required to file a fresh Petition for determination of final tariff for NRPP based on actual capital expenditure incurred up to COD of the Generating Station duly certified by the statutory auditors. Further, as per Regulation 4.2 of the MYT Regulations, 2021, APGCL is required to file an application for true-up for previous year, i.e., FY 2020-21, APR for FY 2021-22, ARR for the Control Period from FY 2022-23 to FY 2024-25, and tariff for FY 2022-23 on or before November 30, 2021.
- 1.6.3 APGCL filed the Petition for approval of approval of Capital Cost, ARR for FY 2021-22, ARR for FY 2022-23 to FY 2024-25, and determination of Tariff for FY 2022-23 for NRPP as per MYT Regulations, 2018 and MYT Regulations, 2021 as applicable, on

November 30, 2021. The same was registered as Petition No. 10/2021.

- 1.6.4 The Commission observed that there were a few inconsistencies in the Petition. The Commission sought additional data and clarifications on the Petitions vide letter dated December 13, 2021.
- 1.6.5 The Commission held an Admissibility Hearing on December 23, 2021 and admitted the Petition (Petition No. 10/2021) vide Order dated December 23, 2021, subject to submission of additional information as sought for.
- 1.6.6 On admission of the Petition, in accordance with Section 64 of the EA 2003, the Commission directed APGCL to publish a summary of the ARR and Tariff filings for NRPP in local dailies to facilitate due public participation.
- 1.6.7 Accordingly, a Public Notice was issued by APGCL inviting objections/suggestions from stakeholders to be submitted on or before January 21, 2022. The notice was published in two (2) leading newspapers and short notice was published in five (5) leading newspapers of the State, as shown in the Table below:

Date	Name of Newspaper	Content Published
28.12.2021	The Assam Tribune	Public Notice in English
28.12.2021	Dainik Janambhumi	Public Notice in Assamese
28.12.2021	Dainik Jugasankha	Public Notice in English
28.12.2021	Purbanchal Prahari	Public Notice in English
28.12.2021	The Sentinel	Short Notice in English
28.12.2021	Bodosa (Bodo)	Short Notice in English
28.12.2021	Thekar (Karbi)	Short Notice in English

- 1.6.8 A copy of the Petition and other relevant documents were also directed to be made available to the consumers and other interested Parties at the office of the Managing Director of APGCL. A copy of the Petition was also made available on the websites of the Commission and APGCL.
- 1.6.9 In response to the Commission's letter dated December 13, 2021, APGCL submitted their replies to data gaps on January 10, 2022. After scrutinizing the first set of replies, a Technical Validation Session (TVS) was conducted on February 07, 2022. The

Commission sought more clarifications on the Petition from APGCL vide letter dated February 08, 2022. The replies to the second set of queries were submitted by APGCL on February 17, 2022.

- 1.6.10 The Petition was also discussed in the 29th meeting of the State Advisory Committee (SAC) (constituted under Section 87 of the EA 2003) held on February 25, 2022 at Bidyut Niyamak Bhawan, Six Mile, Guwahati.
- 1.6.11 The Commission received suggestions/objections from three (3) stakeholders on the Petitions filed by APGCL. The stakeholders were notified about the place, date and time of Hearing, to enable them to take part in the Hearing. A notice was also published in Newspapers inviting participation from the general public as well as the Respondents. The Hearing was held at Bidyut Niyamak Bhawan, Six Mile, Guwahati on March 02, 2022 as scheduled. All stakeholders/respondents who participated in the Hearing were given the opportunity to express their views on the Petition. The details are discussed in the Chapters attached with this Order.
- 1.6.12 All the written representations submitted to the Commission and oral submissions made before the Commission in the Hearing and the responses of APGCL have been carefully considered while issuing this Tariff Order. The major issues raised by different consumers and consumer groups along with the response of APGCL and views of the Commission are elaborated in **Chapter 3** of this Order.

1.7 State Advisory Committee Meeting

- 1.7.1 A meeting of the State Advisory Committee (SAC) was convened on February 25, 2022 and members were briefed on the Tariff Petition of APGCL. The Minutes of the SAC meeting are appended to this Order as **Annexure 1**.

2 Summary of APGCL's Petition

2.1 Background

- 2.1.1 The Commission vide Order dated March 31, 2017 approved the provisional tariff for NRPP. In the same Order, the Commission had directed APGCL to submit the final Tariff Petition for NRPP with the audited Capital Cost till COD. NRPP was commissioned on July 16, 2021.
- 2.1.2 Therefore, APGCL submitted the Petition on November 30, 2021 seeking approval for Capital Cost, ARR for FY 2021-22, ARR for FY 2022-23 to FY 2024-25, and determination of Tariff for FY 2022-23 for NRPP (Petition No.10/2021). The Generation Tariff is to be recovered from the Assam Power Distribution Company Limited (APDCL), who is the sole buyer of power from APGCL.

2.2 Capital Cost for NRPP

- 2.2.1 APGCL submitted the capital expenditure as on COD and addition for FY 2021-22 as shown in the following Table:

Table 1: Capital Expenditure for FY 2021-22 as submitted by APGCL (Rs. Crore)

Particulars	Expenditure as on COD (July 16, 2021)	Addition during year	Total project cost for FY 2021-22
Civil works	114.50	0.00	114.50
P&M	692.57	93.93	786.50
Total	807.07	93.93	901.00

- 2.2.2 APGCL has claimed Capital Cost of Rs. 807.07 Crore as on COD against Detailed Project Report (DPR) cost of Rs. 693.93 Crore. APGCL has claimed Interest During Construction (IDC) of Rs. 262.84 Crore as on COD as compared to IDC of Rs. 79.34 Crore as per DPR.

2.3 ARR for FY 2021-22

2.3.1 APGCL has claimed the ARR for FY 2021-22 based on its estimations, as detailed in the table below:

Table 2: ARR for NRPP for FY 2021-22 as submitted by APGCL (Rs. Crore)

Sl. No.	Particulars	Claimed for FY 2021-22
I	Power Generation	
1	Gross Generation (MU)	481.34
2	Net Generation (MU)	457.20
3	Auxiliary Consumption (%)	5.02%
II	Fixed Charges	
4	Operation & Maintenance Expenditure	28.98
5	Interest & Finance Charges	63.95
6	Interest on working Capital	4.82
7	Depreciation	22.68
8	Return on Equity	20.95
9	Less: Other Income	0.00
II	Total Fixed Charges	141.37
III	Fuel Cost*	53.96
IV	Total Revenue Requirement	195.34
V	Per unit tariff (Rs./kWh)	4.27

**Note: APGCL in data gaps reply has revised its claimed fuel cost to Rs. 53.93 Crore for FY 2021-22 due to revision in price of gas. APGCL has also revised Interest & Finance Charges to Rs.63.96 Crore. Thus, APGCL has revised ARR for FY 2021-22 to Rs. 195.31 Crore.*

2.4 Capital Investment Plan for FY 2022-23 to FY 2024-25

2.4.1 APGCL has proposed the Capital Investment Plan for NRPP for the Control Period from FY 2022-23 to FY 2024-25 as detailed in the Table below:

Table 3: Capital Investment Plan for NRPP for FY 2022-23 to FY 2024-25 as submitted by APGCL (Rs. Crore)

Sl. No.	Particulars	FY 2022-23	FY 2023-24	FY 2024-25
I	Civil Works for NRPP	0.95	1.07	5.05

2.5 ARR for MYT Control Period and Tariff for FY 2022-23 for NRPP

2.5.1 APGCL has projected the ARR for the MYT Control Period from FY 2022-23 to FY 2024-25 for NRPP as detailed in the Table below:

Table 4: ARR for NRPP for MYT Control Period as projected by APGCL (Rs. Crore)

Sl. No.	Particulars	FY 2022-23	FY 2023-24	FY 2024-25
		Projected	Projected	Projected
I	Power Generation			
1	Gross Generation (MU)	732.69	732.69	732.69
2	Net Generation (MU)	696.05	696.05	696.05
3	Auxiliary Consumption (%)	5.00%	5.00%	5.00%
II	Fixed Charges			
4	Operation & Maintenance Expenditure	22.90	23.94	25.04
5	Interest & Finance Charges	64.04	58.75	53.84
6	Interest on working Capital*	6.08	6.05	6.03
7	Depreciation	45.37	45.39	45.47
8	Return on Equity	41.90	41.90	41.90
9	Less: Other Income	0.00	0.00	0.00
II	Total Fixed Charges	180.28	176.02	172.27
III	Fuel Cost*	87.86	87.86	87.86
IV	Total Revenue Requirement	268.14	263.88	260.14
10	Fixed Charges (Rs./ kWh)	2.59	2.53	2.48
11	Energy Charge (Rs./ kWh)	1.26	1.26	1.26
12	Proposed Tariff (Rs./ kWh)	3.85	3.79	3.74

**Note: APGCL in data gaps reply has revised its claimed Interest on working Capital to Rs. 6.11 Crore, Rs. 6.07 Crore and Rs. 6.05 Crore for FY 2022-23 to FY 2024-25. APGCL has also revised its claimed fuel cost to Rs. 88.89 Crore for each year of Control Period, due to revision in price of gas.*

Table 5: Tariff of NRPP for FY 2022-23 as proposed by APGCL

Particulars	FY 2022-23
Annual Fixed Charges (Rs. Crore)	180.28
Monthly Fixed Charges (Rs. Crore)	15.02
Energy Charge Rate (Rs. /kWh)	1.26

3 Summary of Objections raised, Response of APGCL and Commission's Comments

3.1.1 The Commission received objections/ suggestions from the following three (3) stakeholders on the Petitions filed by APGCL.

Sl. No.	Name of objector
1	Assam Branch of India Tea Association (ABITA)
2.	Federation of Industries and Commerce of North Eastern Region (FINER)
3	Consumer Advocacy Cell (CAC)

3.1.2 APGCL submitted its responses to the objections/ suggestions received from the above objectors.

3.1.3 The Commission considered the objections /suggestions received and notified the objectors to take part in the Hearing process by presenting their views in person before the Commission, if they so desired.

3.1.4 The Commission held Hearing at the Conference Hall of Bidyut Niyamak Bhawan, Six Mile, Guwahati on March 02, 2022.

3.1.5 The objectors attended the Hearing and submitted their views/ suggestions. All the written representations submitted to the Commission and the oral submission made before the Commission in the Hearing and the responses of APGCL have been carefully considered while issuing this Tariff Order.

3.1.6 The objections/ suggestions made by the objectors and responses of the petitioner are briefly dealt with in this Chapter. The major issues raised by the objectors are discussed below along with the response of the Petitioner (APGCL) and views of the Commission.

3.1.7 While all the objections /suggestions have been given due consideration by the Commission, only, major responses/ objections received on the Petitions and also those raised during the course of Hearing have been grouped and addressed issue wise, in order to avoid repetition.

Issue 1: Cost Over Run of NRPP

CAC submitted that at last, NRPP started its commercial operation on July 16, 2021. The completion schedule of the project was stipulated at 35 months from February 09, 2009. Therefore, by 2012 March, the project should have been completed. However, it overran by about 108 months at the cost of financial loss to the people. A long delay in execution of the project had a direct implication on the interest head of the capital invested in it by APGCL and generation loss of the utility due to delay in execution of the project.

As regards the balance of payment due to BHEL, it will have to be adjusted in the account of liquidated damages payable to APGCL and such details has to be made public. The liquidated damages clause incorporated in the agreement has not mentioned anything specific about its enforcement.

Response of APGCL

APGCL submitted that it has provided detailed calculation of the capital cost of NRPP to the Commission. APGCL requested the Commission to approve the capital cost for NRPP after due consideration of APGCL's Petition.

Commission's views

The Commission noted the views of the respondents as well as replies of the Petitioner. The analysis of capital cost of NRPP is discussed in the subsequent chapters of this Order.

Issue 2: Operating Parameters of NRPP

CAC submitted that the test result shows a Gross Station Heat Rate of 1674 kcal/kWh against which APGCL has claimed Gross Station Heat Rate of 2016 kcal/kWh for FY 2021-22 and 1998 kcal/kWh for FY 2022-23. Reason for such discrepancy should be explained. Apparently, calorific value of gas supplied to NTPS varies from time to time. It should be clarified if APGCL has taken up the matter with gas supplier as to the standard quality to be maintained under its contract agreement with supplier. Also, APGCL should clarify if it has any mechanism to verify the quality of gas supplied.

Response of APGCL

APGCL submitted that the heat rate 1674 kcal/kWh found in the PG test is based on NCV or Lower Heating value (LHV). This value is 1858 kcal/kWh on GCV or Higher Heating

Value (HHV) taking GCV:NCV ratio of 1.11 based on the gas supplied by APGCL's suppliers. APGCL has considered the figure of 1988 kcal/kWh (the figure of 1998 kcal/kWh is a typographical error and APGCL regrets the same) as per Regulations. Based on the Regulations, Heat Rate of a new Thermal Power Station is 1.05 times the Design Heat Rate. The Design Heat Rate of NRPP is 1705.8 kcal/kWh on NCV or LHV, which becomes 1893 kcal/kWh on GCV or HHV. Taking 1.05 times of 1893 kcal/kWh as per Regulations it becomes 1988 kcal/kWh. PG Tests are done in ideal conditions and the 1858 kcal/kWh Heat Rate found in the PG test in the ideal conditions, supports the operational Heat Rate of NRPP running in operating conditions of the site, which is comparable to the design Heat Rate of the turbine. This indicates that the Gas Turbine of NRPP is operating optimally as per design parameters. APGCL requested the Commission to approve the Station Heat Rate for NRPP as claimed by APGCL after due consideration of its Petition.

Further, data points such as gas price notification and gas agreements with various suppliers have also been submitted to the Commission vide its reply in response to the Data gaps on the Petition.

APGCL also submitted that it is taking all earnest efforts to ensure most optimal generation planning for its power plant units. NRPP, which is a new and efficient machine and is the replacement of NTPS, gets priority over NTPS for running and utilizing available gas.

Commission's views

Noted. The Commission has approved GSHR for NRPP after prudence check in accordance with the MYT Regulations, 2018 and MYT Regulations, 2021.

4 Approval of Capital Cost for NRPP

4.1 Background

4.1.1 NRPP is the replacement project for old Namrup Thermal Power Station (NTPS) Units with gas turbines using natural gas as fuel. The gas turbine Units (1, 2, 3 & 4) of NTPS had outlived their designed lives of one lakh running hours in the mid-eighties and early nineties. Therefore, APGCL contemplated installation of a combined cycle power plant having capacity of 100 MW in the first phase. The first phase of NRPP is of capacity of 100 MW and uses natural gas from the existing gas linkage of 0.66 MMSCMD for NTPS. The project is located within the premises of NTPS and is adjacent to the existing plant.

4.2 Approval of Provisional Tariff

4.2.1 APGCL had filed a Petition for determination of provisional tariff for NRPP under Regulation 41.4 of the Tariff Regulations, 2015 in advance of the anticipated COD. The Commission vide Order dated March 31, 2017 approved the provisional tariff for NRPP as under:

Table 5: Provisional Tariff for FY 2017-18 for NRPP as approved by the Commission

Particulars	FY 2017-18
NRPP- Open Cycle	
Annual Fixed Charges (Rs. Crore)	86.17
Monthly Fixed Charges (Rs. Crore)	7.18
Energy Charges (Rs./kWh)	1.45
NRPP- Combined Cycle	
Annual Fixed Charges (Rs. Crore)	116.79
Monthly Fixed Charges (Rs. Crore)	9.73
Energy Charges (Rs./kWh)	1.01

4.2.2 In the same Order, the Commission had directed APGCL to submit the final Tariff Petition for NRPP with the audited Capital Cost till COD.

4.3 Present Petition

4.3.1 Regulation 28 of the MYT Regulations, 2018 specifies the provision for approval of the capital cost of the project as under:

“28 Capital Cost and capital structure

28.1 Capital cost for a project shall include:

- a) the expenditure incurred or projected to be incurred upto the date of commercial operation of the project, any gain or loss on account of foreign exchange risk variation on the loan during construction up to the date of commercial operation of the project, as admitted by the Commission, after prudence check*
- b) Interest during construction and financing charges, on the loans (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed*
- c) Increase in cost in contract packages as approved by the Commission;*
- d) Interest during construction and incidental expenditure during construction as computed in accordance with Regulation 29.7 of these regulations*
- e) capitalised initial spares subject to the ceiling rates specified in this Regulation; and*
- f) additional capital expenditure or de-capitalization determined under Regulation 29*
- g) Adjustment of revenue due to sale of infirm power in excess of fuel cost prior to the COD as specified under Regulation 44 of these regulations; and*
- h) Adjustment of any revenue earned by the transmission licensee by using the assets before COD.*
- i) the capital cost admitted by the Commission prior to 1.4.2019 duly trued up by excluding liability, if any, as on 1.4.2019*
- j) expenditure on account of renovation and modernization as admitted by this Commission in accordance with regulation 29.5*

Provided that the cost of the common assets forming part of the project, should be considered based on the suitable allocation and such allocated cost shall form part of the capital cost:

Provided that the assets forming part of the project, but not in use, shall be taken out of the capital cost:

28.2 The capital cost admitted by the Commission after prudence check shall form the basis for determination of tariff.”

4.3.2 Accordingly, APGCL in the present Petition, has prayed for approval of Capital Cost of Rs. 807.07 Crore as on COD and Rs. 901.00 Crore for FY 2021-22 for NRPP.

4.4 Commissioning of NRPP

4.4.1 APGCL submitted that NRPP was commissioned on July 16, 2021.

Commission’s Analysis

4.4.2 The Commission sought the necessary documentary evidences for confirming the date of commissioning of NRPP, which were submitted by APGCL.

4.4.3 In view of the above, the Commission has considered COD of NRPP as July 16, 2021 for the purpose of approval of Capital Cost and final Tariff.

4.5 Approval of Capital Cost

4.5.1 APGCL submitted the capital expenditure as on COD along with Auditor’s certificate and projected addition to GFA for FY 2021-22 as shown in the following Table:

Table 6: Capital Expenditure for NRPP as submitted by APGCL (Rs. Crore)

Particulars	Expenditure as on COD (July 16, 2021)	Addition during year	Total project cost for FY 2021-22
Civil works	114.50	0.00	114.50
Plant and Machinery (P&M)	692.57	93.93	786.50
Total	807.07	93.93	901.00

4.5.2 Further, APGCL submitted that as per the DPR, Rs. 208.86 Crore was sanctioned by

the Government of Assam (GOA); which has been received in the form of equity from GOA. As per agreement, total Rs. 485 Crore were supposed to be received from Power Finance Corporation Ltd. (PFCL). However, as on COD, only Rs. 311.74 Crore has been received from PFCL and balance Rs.173.26 Crore is supposed to be received during FY 2021-22. APGCL has paid Rs. 79.30 Crore against the balance loan receivable from PFCL for vendor payment and the same will be recovered from loan drawal of FY 2021-22 from PFCL.

4.5.3 APGCL submitted that as per DPR, net approved project cost for NRPP was Rs. 693.93 Crore. However, due to delay in actual COD of the plant, additional expenditure of Rs. 207.14 Crore was incurred by APGCL in the form of equity. Hence, the revised project cost of NRPP as on COD is Rs. 807.07 Crore and Rs. 901 Crore as on March 31, 2022, i.e., till FY 2021-22.

4.5.4 APGCL submitted the funding pattern for the capital expenditure as on COD and for FY 2021-22 as shown in the following Table:

Table 7: Funding of Capital Expenditure as submitted by APGCL (Rs. Crore)

Fund Source	Amount as per DPR	Amount received as on COD	Expenditure as on COD	Addition during Year	Closing Balance for FY 2021-22
Grant	0.00	0.00	0.00	0.00	0.00
APGCL Equity	0.00	0.00	286.47	(79.33)	207.14
GOA Equity	198.81	208.86	208.86	0.00	208.86
GOA loan	10.13	0.00	0.00	0.00	0.00
PFC loan	485.00	311.74	311.74	173.26	485.00
Total	693.93	520.60	807.07	93.93	901.00

Interest during Construction (IDC)

4.5.5 APGCL submitted that IDC is allowed as part of the capital cost of the project as per Regulation 30.7 of MYT Regulations, 2021. Against IDC of Rs. 79.34 Crore as per DPR, APGCL submitted the actual IDC of Rs. 262.84 Crore upto COD, which has been considered as part of Capital cost as on COD.

4.5.6 APGCL submitted that the increase in IDC has occurred due to time overrun, which is beyond the control of APGCL. The details of reason for delay in commissioning of plant along with day-wise delay have been shown below:

Table 8: Reasons for delay in commissioning of NRPP as submitted by APGCL

From	To	No of Days	Work Type	Justification
Dec-11	Mar-13	434	Civil Work Fronts	Delay in commencement of Civil work because of lack of planning, coordination, Supervisor, and non-deployment of adequate manpower at site by BHEL
Mar-13	Jan-15	666	Termination and Reinstatement	Due to poor performance, BHEL-PSER terminate NBPPL for both civil works. M/s Power Mechanical project limited awarded contract for balance civil and structural work. Delay in delivery of BOP package at site on time schedule by M/s Arun Construction Limited engaged by NBPPL
Jan-12	Aug-15	1325	Mechanical, Electrical, C&I Work Fronts	The work in HRSG area is stopped from 18-07-13 due to payment related issues between Arun and their Sub Contractor, next restarting of HRSG work on 08.06.2015 Work in GT and GTG area is slow due to adequate manpower is not placed by M/S Arun
Aug-15	Sep-17	746	Open Cycle Commissioning	220 kV Switchyard was charged on 22.08.2015; 100 MW Transformer charged on 05.07.2016. GT commissioning done in contingency manner as all the auxiliary system were not ready. Hence, GT was put under shutdown up to 16.09.2017
Jul-17	Mar-20	962	Combined Cycle Work Progress	HRSG wok flushing completed on 16.07.2017. Dm water tank filling: 10.08.2017. 1st, 2nd & 3rd stage Alkali Boil out (ABO); completed: 21.08.2017. Stream Blowing Stage 1 completed: 06.09.2017. Stream Turbine put on barring gear for 1 st time: 19.10.2017 Stream blowing 2 nd stage completed on 31.08.2019

From	To	No of Days	Work Type	Justification
				HRSG Safety valve floating was done on 04.03.2020
Sep-17	Mar-20	906	Mishap and Restoration – Force Majeure	GTG DAVR fire incident occurred on 07.09.2017
				DAVR restored and GT start again on 30.10.2017
				Gas Turbine stalling incident occurred on 06.11.2017 due to failure of DC power, thereby causing damage to Gas Turbine unit.
				BHEL placed work order to BHEL-GE Gas Turbine Service Pvt Ltd. for dismantling and installation of GT. Dismantling work started on 03.12.2017 and completed on 15.12.2017.
				Reinstallation of GT started from 22.06.2018 and completed on 09.07.2018. However, STG and Control room building roof collapsed on 09.07.2018 and GTG building sagging was noticed on 21.11.2018.
				GT Building renovation started from 18.09.2018 and completed on 12.04.2019.
				Gas Turbine unit was run and synchronized in open cycle mode on 26.04.2019. Full load on GT was done on 29.04.2019.
				Test run of Stream Turbine Unit was started on 01.10.2019 and synchronized with National Grid with load of around 5 MW. However, Rotor Earth Fault had occurred in Stream Turbine Generator rotor (cause suspected as moisture ingress) and therefore, dismantling of rotor of STG by engaging M/s P Erectors was done and the rotor of Generator was sent for cleaning/refurbishment at BHEL-Hyderabad on 06.11.2019. The rotor was ready for dispatch at BHEL-Hyderabad workshop on 11.12.2019, but due to CAA agitation, the dispatch plan was

From	To	No of Days	Work Type	Justification
				<p>postponed up to 04.01.2020. The STG rotor arrived at site on 20.01.2020 and was thereafter installed by M/s P Erector.</p> <p>In the month of Feb-2020, Metallic valve of Gas Booster compressor was replaced with non-metallic valves in order to resolve the problem of valve failure of Gas Booster Compressor.</p> <p>Due to COVID-19, further activities were postponed. After the partial lifting of lockdown.</p>
Mar-21	Jul-21	118	New Generator Installation and Commissioning of Plant	<p>Reliability Run of NRPP unit in combined cycle mode was carried out for the period of 14 days and completed on 22.05.2020 with 72 hours full load operation of observed. During 14 days period, STG tripped due to earth fault and low control oil header pressure, respectively.</p> <p>For commercial operation declaration, another slot of uninterrupted full load operation of the plant was observed in presence of SLDC, AEGCL and APDCL representatives in parallel to reliability run from 00:00 hrs of 20.05.2020 and had successfully concluded on 2.00 hrs of 23.05.2020. In between STG tripped due to axil displacement instrument error on 22.05.2020 at 9.52 hrs. STG again re-synced by 11:40 hrs within time frame of 1 hrs 48 min.</p> <p>Gas Turbine again tripped on 28.05.2020 due to differential protection relay operation due to failure of Stator insulation of R&Y phase of Generator.</p> <p>Inspection of Generator was conducted by BHEL- Hyderabad from 07.06.2020 to 10.06.2020. After Inspection, damage of stator winding was observed.</p>

From	To	No of Days	Work Type	Justification
				<p>BHEL vide mail dated 16.06.2020 proposed three options for rectification of faulty part of stator:</p> <ul style="list-style-type: none"> a) Repair of Stator at Site: Time duration (11/12 months) b) Transportation of Stator at BHEL Hyderabad for rectification: Time Duration (10 months) c) Manufacturing and Supply of new GTG Stator: Time Duration (8 Months)
				<p>APGCL vide letter dated 26.06.2020 informed BHEL that APGCL has adopted the option 3 of the offer and requested to initiate manufacturing process of the new stator.</p>
				<p>APGCL has deputed two team (2 officers per team) for inspection of New Generator Construction at BHEL Hyderabad workshop as per order dated 27.11.2020. The team was placed at Hyderabad alternately for duration of 1 week to 10 days on swap arrangement w.e.f. first week of Dec-2020 till the construction of Generator gets completed.</p>
				<p>Installation of Generator and commissioning of plant was completed on 16-07-2021</p>
				<p>Finally, COD was declared on 16-07-2021.</p>

4.5.7 Further, APGCL submitted that in a similar case of OTPC Palatana, CERC vide Order in Petition 199/GT/2013 and Petition No. 129/GT/2015 had approved the IDC incurred due to time overrun. CERC in Order dated August 31, 2015 in Petition No.199/GT/2013 had approved the tariff of Block-I (Unit-I) from COD (January 04, 2014) to March 31, 2014. CERC had examined in detail the time overrun of 744 days and had condoned the time overrun of 675 days in the COD of Block-I/ Unit-I, on the ground that the same was beyond the control of the Petitioner. CERC had accordingly disallowed the time

overrun of 69 days for the said unit/block. The factors, which had led to the total delay of 776 days (effective delay of 744 days= total delay of 776 days minus 32 days saved in erection of ODC)] in the completion of the project are:

- i. Delay of 399 days on account of delay in transportation of ODC materials and receipt at site;
- ii. Delay of 70 days due to inability of North Eastern Regional Load Despatch Centre (NERLDC) to provide full load for trial run and commissioning tests;
- iii. Delay of 69 days due to hot spots detected in Heat Recovery Steam Generator (HRSG); and
- iv. Delay of 238 days due to contamination in fuel gas.

4.5.8 As regards Unit II of OTPC Palatana, APGCL submitted that CERC in Order dated March 30, 2017 in Petition No. 129/GT/2015 had examined in detail the time overrun of 1097 days from scheduled COD to actual COD of Block-II/Unit-II, i.e., from March 22, 2012 to March 24, 2015. CERC had condoned the time overrun of 675 days in the COD of Block-II/Unit-II, on the ground that the same was beyond the control of the Petitioner. CERC had accordingly disallowed the time overrun of (69+444) days for the said Unit/Block. The factors which had led to the total delay of 1097 days in the completion of the project are:

- i. Delay of 214 days on account of Logistic constraints;
- ii. Delay of 130 days due to Unavailability of full load for testing;
- iii. Delay of 69 days due to Defects in HRSG;
- iv. Delay of 240 days due to Gas contamination; and
- v. Delay of 444 days due to non-availability of Fuel Gas.

4.5.9 APGCL submitted that in a similar case of NTPC Bongaigaon Thermal Power Station, CERC vide Order in Petition 45/GT/2016 of dated May 22, 2017 had approved the IDC due to time overrun. CERC had examined in detail the time overrun of 1886 from scheduled COD to actual COD, i.e., from February 04, 2011 to April 01, 2016. CERC had condoned the time overrun of 1303 days in the COD, on the ground that the same was beyond the control of the Petitioner and had accordingly disallowed the time overrun of 583 days for the said Unit. The factors that had led to the total delay of 1097 days in the completion of the project are:

- i. Violence, Bandhs & Curfew in 2008, 2012 and 2013;
- ii. Rainfall in 2008, 2009, 2010, 2012, 2013, 2014 and 2015;
- iii. Non availability of RCC bridge;
- iv. Koro Syndrome;
- v. Aggregate availability;
- vi. Storm causing failure of structure; and
- vii. Change of course of Champamati river.

4.5.10 In view of the above, APGCL prayed to the Commission to condone the delay in commissioning of NRPP and approve the claimed IDC till COD.

Cost of Fuel pertaining to Generation before COD

4.5.11 APGCL submitted that Rs. 6.97 Crore was billed to APDCL towards fuel consumed before COD. The details of the same are shown below:

Table 9: Fuel Cost before COD as submitted by APGCL (Rs. Crore)

Month	Gas Consumption (MMSCM)	Rate (Rs. /1000 SCM)	Total Cost (Rs. Crore)
May 2021	3.31	3537	1.17
June 2021	9.85	3537	3.48
July 2021	5.48	3537	1.94
Grand Total	18.64		6.59

Additional Capital Expenditure

4.5.12 APGCL submitted that as per Regulation 30 of MYT Regulations, 2021, the additional expenditure post COD is allowed by the Commission. APGCL has undertaken the expenditure post COD for NRPP as shown below:

Table 10: Capital Expenditure proposed post COD for NRPP as submitted by APGCL (Rs. Crore)

Particulars	As per DPR	Actual Expenditure on COD	Addition during Year	Closing Balance for FY 2021-22
Project Cost excluding IDC	614.59	544.23	93.93	638.16
IDC	79.34	262.84	0.00	262.84

Particulars	As per DPR	Actual Expenditure on COD	Addition during Year	Closing Balance for FY 2021-22
Total	693.93	807.07	93.93	901.00

4.5.13 APGCL submitted that the expenditure to be undertaken post COD of NRPP 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 prayed to the Commission to approve the additional capitalization planned in FY 2021-22.

4.5.14 APGCL also submitted that the total expenditure except IDC is Rs. 638.16 Crore (closing balance of FY 2021-22) against Rs. 614.59 Crore approved as per DPR. Additional claim of Rs. 23.58 Crore is due to employees and other expenses incurred during construction period of the project.

Commission's Analysis

4.5.15 Regulation 28.1 of the MYT Regulations, 2018 specifies the provisions related to Capital Cost and Capital structure, which is reproduced as under:

"28 Capital Cost and capital structure

28.1 Capital cost for a project shall include:

- a) the expenditure incurred or projected to be incurred upto the date of commercial operation of the project, any gain or loss on account of foreign exchange risk variation on the loan during construction up to the date of commercial operation of the project, as admitted by the Commission, after prudence check*
- b) Interest during construction and financing charges, on the loans (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed*
- c) Increase in cost in contract packages as approved by the Commission;*
- d) Interest during construction and incidental expenditure during construction as computed in accordance with Regulation 29.7 of these regulations*

- e) capitalised initial spares subject to the ceiling rates specified in this Regulation; and
- f) additional capital expenditure or de-capitalization determined under Regulation 29
- g) Adjustment of revenue due to sale of infirm power in excess of fuel cost prior to the COD as specified under Regulation 44 of these regulations; and
- h) Adjustment of any revenue earned by the transmission licensee by using the assets before COD.
- i) the capital cost admitted by the Commission prior to 1.4.2019 duly trued up by excluding liability, if any, as on 1.4.2019
- j) expenditure on account of renovation and modernization as admitted by this Commission in accordance with regulation 29.5

Provided that the cost of the common assets forming part of the project, should be considered based on the suitable allocation and such allocated cost shall form part of the capital cost:

Provided that the assets forming part of the project, but not in use, shall be taken out of the capital cost:

28.2 The capital cost admitted by the Commission after prudence check shall form the basis for determination of tariff.”

4.5.16 The Commission sought the comparison of actual cost incurred against all the heads of capital cost given in DPR for NRPP. APGCL submitted the following break-up of Capital Cost:

Table 11: Break-up of Capital Cost for NRPP as submitted by APGCL (Rs. Crore)

Sl. No.	Particulars	Project Cost as per DPR	Actual Project Cost as on COD
1.0	Preliminary & civil works		
1.1	Land cost	0.00	0.00
1.2	Preliminary works	0.50	0.27
1.3	Physical contingency	0.03	
	Sub Total 1.0	0.53	0.27
2.0	Plant and Equipment		
2.1	EPC Cost Combined Cycle Plant, & Intake	570.20	522.65

Sl. No.	Particulars	Project Cost as per DPR	Actual Project Cost as on COD
2.2	Evacuation cost	1.10	1.54
2.3	Diversion of 33 kV and 11 kV lines from project site	1.30	
2.4	Total investment	572.60	524.19
2.5	Physical contingency	17.20	8.83
	Subtotal 2.0	589.80	533.02
3.0	Works cost (1.0+2.0)	590.32	533.29
4.0	Pre-Commissioning expenses	2.95	0.00
5.0	Project management		
5.1	Financing charges @ 1%	2.99	0.00
5.2	Establishment including audit and Accounts	13.00	9.34
5.3	Environment Management Planning	2.20	0.18
	Subtotal 5.0	18.19	9.52
6.0	Training of O&M staff	0.50	0.00
7.0	Consultancy	2.62	1.42
8.0	Project cost excluding IDC (3.0+4.0+5.0+6.0+7.0)	614.58	544.23
9.0	Term Loan	485.26	311.74
10.0	Equity	208.06	495.33
11.0	Interest during construction	79.34	262.84
12.0	Project Cost including IDC	693.92	807.07

4.5.17 The Commission notes that APGCL has submitted the Auditor's Certificate dated November 25, 2021 for Capital expenditure incurred up to COD. The capital expenditure incurred till COD is shown as Rs. 807.07 Crore in Auditor's Certificate. This includes year-wise capital expenditure as shown below:

Table 12: Break-up of Capital Cost for NRPP as per Auditor's Certificate (Rs. Crore)

Sl. No.	Particulars	Amount
1	Capital expenditure in FY 2007-08	0.23
2	Capital expenditure in FY 2008-09	0.36
3	Capital expenditure in FY 2009-10	2.69
4	Capital expenditure in FY 2010-11	51.46
5	Capital expenditure in FY 2011-12	122.05

Sl. No.	Particulars	Amount
6	Capital expenditure in FY 2012-13	108.47
7	Capital expenditure in FY 2013-14	7.84
8	Capital expenditure in FY 2014-15	77.46
9	Capital expenditure in FY 2015-16	100.08
10	Capital expenditure in FY 2016-17	33.63
11	Capital expenditure in FY 2017-18	11.84
12	Capital expenditure in FY 2018-19	5.55
13	Capital expenditure in FY 2019-20	0.42
14	Capital expenditure in FY 2021-22	0.06
15	Sub-total	522.15
16	Various Expenses including Entry Tax	12.75
17	Interest during construction (IDC)	262.84
18	Employee cost capitalised	9.34
19	Grand total	807.07

4.5.18 Further, the Commission notes that project was funded by equity from GOA and loan from PFCL. APGCL submitted that Rs. 208.86 Crore sanctioned by the GOA has been received in the form of equity. As per the Agreement, total Rs. 485 Crore was supposed to be received from PFCL. However, as on COD, only Rs. 311.74 Crore was received from PFCL and balance Rs.173.26 Crore is to be received during FY 2021-22. APGCL has infused equity of Rs.286.47 Crore for NRPP. The Commission asked APGCL to submit supporting documents for equity of Rs. 208.86 Crore received from GOA and for equity of Rs.286.47 Crore infused by APGCL. In reply, APGCL submitted the documentary evidence for equity of Rs. 208.86 Crore received from GOA. Further, APGCL submitted that equity addition to the tune of Rs. 78.61 Crore (Rs. 286.47 Crore – Rs. 208.86 Crore) is incurred by APGCL from its own resources for payment of interest on PFCL loan.

4.5.19 The Commission asked APGCL to confirm if competitive bidding process was adopted for selection of EPC contractor for NRPP. APGCL was also asked to submit the details of number of bids received by APGCL against the Notice Inviting Tender (NIT) for the main plant of NRPP as well as for appointment of Civil Contractors. APGCL submitted that it had adopted competitive bidding for selection of EPC Contractor on Turnkey

Basis and only two bidders, viz., M/s Bharat Heavy Electricals Limited (BHEL) and M/s Gammon Sadelmi (GS) in JV mode had submitted the bid. APGCL issued Letter of Intent (LOI) for execution of project to BHEL on December 31, 2008. Subsequently, the Contract Agreement was signed on September 15, 2009. The Commission has verified documents submitted by APGCL, i.e., the Minutes of opening of EPC tender and Contract Agreement.

4.5.20 APGCL has submitted that due to delay in commissioning of project, actual IDC has increased to Rs. 262.84 Crore against IDC of Rs. 79.34 Crore considered in the DPR. The Commission asked APGCL to submit the impact of delay in commissioning of project on other heads of capital cost. APGCL submitted that the increase in the project cost includes capitalization of employee expenses of Rs. 9.34 Crore. However, the hard cost of the project has not increased.

4.5.21 The Commission notes that APGCL has incurred project cost (excluding IDC) of Rs. 544.23 Crore as on COD against project cost of Rs. 614.58 Crore approved in the DPR. It may be noted that the above project cost includes cost of initial spares of Rs. 27.58 Crore, which has been discussed subsequently. Therefore, for the purpose of approval of capital cost as on COD, the Commission approves the actual project cost (excluding IDC) of Rs. 516.65 Crore (excluding Rs. 27.58 Crore against initial spares) as claimed by APGCL, inclusive of cost of EPC, capitalization of employee expenses and taxes and duties.

Interest during Construction (IDC)

4.5.22 As per the original DPR, the project was envisaged to be commissioned in December 2011. However, the NRPP was commissioned on July 16, 2021. The Commission observes that APGCL has claimed IDC of Rs. 262.84 Crore against IDC of Rs. 79.34 Crore due to delay in commissioning of NRPP. APGCL submitted that the increase in IDC has occurred due to time overrun, which is beyond the control of APGCL. In the Petition, APGCL submitted details of reasons for delay of commissioning of plant along with day-wise delay resulting in increase in IDC to Rs. 262.84 Crore as on COD against IDC of Rs. 79.34 Crore as per DPR. The Commission asked APGCL to quantify work type-wise increase in IDC with supporting details. In reply, APGCL submitted that the total increase in IDC was Rs. 183.50 Crore from the original estimate of Rs. 79.34 Crore. APGCL further submitted the work type-wise increase in IDC as shown below:

Table 13: Work type wise increase in IDC as submitted by APGCL (Rs. Crore)

Sl. No.	Work type	From	To	No. of Days	Increase in IDC
1	Civil Work Fronts	Dec-11	Mar-13	434	22.85
2	Termination and Reinstatement	Mar-13	Jan-15	666	17.53
3	Mechanical, Electrical, C&I Work Fronts	Jan-12	Aug-15	1325	29.69
4	Open Cycle Commissioning	Aug-15	Sep-17	746	37.90
5	Combined Cycle Work Progress	Jul-17	Mar-20	959	25.24
6	Mishap and Restoration – Force Majeure	Sep-17	Mar-20	907	23.87
7	New Generator Installation and Commissioning of Plant	Mar-21	Jul-21	502	26.42
	Total increase in IDC (Rs. Crore)				183.50

4.5.23 As regards delay of 907 days due to ‘Mishap and Restoration’, APGCL has submitted various reasons like fire incident, damage to GT unit, re-installation of GT unit, repair of Stream Turbine Generator rotor, Dispatch issue of rotor, COVID-19, etc. APGCL has claimed IDC impact of Rs. 23.87 Crore on account of ‘Mishap and Restoration’. The Commission asked APGCL to give breakup of IDC of Rs. 23.87 Crore against all the reasons submitted for delay due to ‘Mishap and Restoration’ including COVID-19. In its reply, APGCL submitted the break-up for IDC for sub-categories under the head of ‘Mishap and Restoration’; however, impact due to COVID-19 was not considered.

4.5.24 Further, APGCL has not submitted justification for delay in project in work type of ‘Open Cycle Commissioning’, ‘Combined Cycle Work Progress’ and ‘New Generator Installation and Commissioning of Plant’. APGCL in its reply has only provided details of occurrence of various Technical and Operational events for NRPP. Therefore, APGCL was asked to justify why these Technical and Operational issues should not be entirely attributed to APGCL.

4.5.25 APGCL submitted that these technical mishaps happened under BHEL’s watch and the technical and operational aspects were being handled by them at that point of time. BHEL’s lack of diligence was visible not only in the delay in construction of NRPP but also in handling the technical and operational aspects of the project. As a

consequence, NRPP had to suffer not only construction delay but also delay caused by the technical mishaps that further hampered in the commissioning of the project. APGCL's technical manpower is capable of handling technical and operational issues of a power station. The projects in operation under APGCL indicates the same. NTPS has been in operation since year 1965 only due to its capable manpower. APGCL submitted that it will be unfair to assign the responsibility of the technical and operational mishaps that happened during the construction of NRPP on APGCL.

4.5.26 In reply to query, APGCL submitted the copy of agreement with BHEL and Civil Contractors for NRPP to verify reasonability of time schedule for completion of the project. It was noted that as per Supply & Service Agreement, the project completion schedule was thirty-five (35) months from the date of issue of full advance, which is February 09, 2009. Agreement also specified clause for Liquidated Damages (LD) on account of delay in execution. Therefore, APGCL was asked to submit details of LD claimed against BHEL and Civil Contractors, and status of such claims. In reply, APGCL submitted that the decision on LD is still pending and subject to further discussion with BHEL. However, currently APGCL has claimed LD of as per the contract with BHEL. APGCL clarified that BHEL was the EPC contractor of the project and APGCL did not engage any Civil Contractor of its own. APGCL submitted that it will intimate about the final status on the LD claim to the Commission when a firm decision will be reached, and it is reflected in the APGCL Accounts.

4.5.27 The Commission also notes that APGCL, during the 26th meeting of the SAC held on February 13, 2020, has given undertaking that any cost attributed to time overruns for NRPP need not be borne by the consumers. The relevant para of the Minutes of Meetings is reproduced below:

"MD, APGCL replied that the project was sanctioned in 2009 and although many parts/ turbines were procured then, actual construction started from 2012 onwards. She further informed that as NRPP is a turnkey project with fixed cost, any cost attributed to time overruns need not be borne by the consumers."

4.5.28 Notwithstanding such assurance, the Commission has analysed in detail the reasons and justification for work type-wise increase in IDC as submitted by APGCL. The Commission notes that APGCL has submitted the references of various CERC Orders in the context of approval of IDC for time overrun. It is to be noted that the Hon'ble

Appellate Tribunal for Electricity (APTEL) in its Judgment dated April 27, 2011 in Appeal No.72 of 2010 in the matter of Maharashtra State Power Generation Co. Ltd. Vs. Maharashtra Electricity Regulatory Commission & Others has laid down the principle of sharing increase in project cost due to time overrun in commissioning of the projects for which tariff is to be decided under Section 62 of the EA 2003. The same has been summarised below:

Table 14: Principle of sharing increase in project cost due to time overrun as per APTEL Judgment

Sl. No.	Scenarios	Principle as per APTEL Judgment
(i)	Due to factors entirely attributable to the generating company, e.g., imprudence in selecting the contractors / suppliers and in executing contractual agreements including terms and conditions of the contracts, delay in award of contracts, delay in providing inputs like making land available to the contractors, delay in payments to contractors/ suppliers as per the terms of contract, mismanagement of finances, slackness in project management like improper co-ordination between the various contractors, etc.	The entire cost due to time over run has to be borne by the generating company. However, the liquidated damages (LDs) and insurance proceeds on account of delay, if any, received by the generating company could be retained by the generating company
(ii)	Due to factors beyond the control of the generating company, e.g., delay caused due to force majeure like natural calamity or any other reasons, which clearly establish beyond any doubt that there has been no imprudence on the part of the generating company in executing the project	The generating company could be given benefit of the additional cost incurred due to time over-run. However, the consumers should get full benefit of the LDs recovered from the contractors/suppliers of the generating company and the insurance proceeds, if any, to reduce the capital cost
(iii)	Situation not covered by (i) & (ii) above	The additional cost due to time overrun including the LDs and insurance proceeds could be shared between the generating company and the consumer. It would also be prudent to consider the delay with respect to

Sl. No.	Scenarios	Principle as per APTEL Judgment
		some benchmarks rather than depending on the provisions of the contract between the generating company and its contractors/ suppliers. If the time schedule is taken as per the terms of the contract, this may result in imprudent time schedule not in accordance with good industry practices.

4.5.29 The Commission has carried out the analysis of increase in IDC for NRPP in view of the above APTEL Judgment. The Commission asked APGCL to confirm if competitive bidding process was adopted for selection of EPC contractor for NRPP. APGCL was also asked to submit the details of number of bids received by APGCL against the NIT for the main plant of NRPP as well as for appointment of Civil Contractors. APGCL submitted that it had adopted competitive bidding for selection of EPC contractor on Turnkey Basis and only two bidders, viz., M/s BHEL and M/s Gammon Sadelmi (GS) in JV mode had submitted bids.

4.5.30 The Commission asked APGCL to demonstrate with supporting documents that there was no delay in the following:

- a) award of contracts;
- b) providing inputs (like making land available to the contractors) to BHEL and other contractors with reference to contractual schedule; and
- c) payments to contractors/suppliers as per the terms of contract.

4.5.31 APGCL submitted the following timeline regarding the bidding process of NRPP:

- The technical bid for NRPP was opened on March 17, 2008;
- EPC technical bid evaluation was submitted on June 20, 2008;
- Price Bid was opened on June 24, 2008;
- EPC commercial bid evaluation report was submitted on July 08, 2008;
- Clarifications sought from bidders by July 29, 2008;
- Revised EPC bid evaluation report was submitted on August 08, 2008;
- Final Price bid proposal invited from bidders by September 2008;
- After detailed evaluation of the bid, EPC contract was finalised and LOI for NRPP was issued on December 31, 2008.

- 4.5.32 In view of the above, APGCL submitted that there was no delay in the award of contract. APGCL submitted that the zero date of the project started on February 09, 2009 as per the Contract between BHEL and APGCL and as such, inputs for the project were provided to BHEL starting from the zero date. However, the Commission noted that there was a delay in signing of the Contract with BHEL since the zero date of the project started on February 09, 2009 and the Contract with BHEL was signed on September 15, 2009. Thus, APGCL is responsible for this delay in signing of the Contract with BHEL, which is related to slackness in Project Management.
- 4.5.33 As regards payments to contractors/ suppliers, APGCL submitted that as seen in the Auditor's certificate of the Capex of NRPP till its COD, it is evident that regular timely payments were made to BHEL till FY 2016-17 after which payment to BHEL was halted on account of the delay in completion of the project as well as the breaking of the STG building ceiling.
- 4.5.34 On justification for delay in commissioning of NRPP, APGCL submitted the letters written by APGCL to BHEL and Civil Contractors. APGCL has raised various issues of contractors leading to delay in commissioning of NRPP. However, the Commission asked APGCL to justify why it should not be held responsible for slackness in project management. In reply, APGCL submitted BHEL's performance related to construction of 8 number of power projects where time overrun has happened. APGCL submitted that APGCL is not the only organisation that suffered delay in project completion, but other organizations too have suffered the same consequence on account of BHEL's performance.
- 4.5.35 APGCL further submitted that since the establishment of the organization, other than NRPP, it has successfully completed two other independent power projects, namely KLHEP and LRPP. KLHEP was handed over to APGCL after earlier attempts to construct the project failed and after many difficulties, APGCL successfully completed the project in 2006 and commissioned it in 2007 with old machineries delivered in the 1980s. LRPP was completed almost in time, which was a big achievement for APGCL considering the delays faced by almost all the infrastructure and power projects in the North-Eastern region. Both these projects are now running successfully. In view of this, APGCL submitted that it has the capability to commission projects in time and has the capability to commission difficult projects.

4.5.36 As regards BHEL's lack of diligence, APGCL pointed out that the Waste Heat project of LTPS Phase-II and LRPP are both in the same campus. However, BHEL was the EPC contractor of the Waste Heat project while Wartsila was the EPC contractor of LRPP. However, the 37.2 MW Waste Heat project got delayed by almost 3 and 1/2 years while the 70 MW LRPP was commissioned almost in time. BHEL's lack of diligence was visible not only in the delay in construction of NRPP but also in handling the technical and operational aspects of the project. Because of which, NRPP had to suffer not only construction delay but also delay caused by the technical mishaps, that further hampered in the commissioning of the project. In view of the above, APGCL submitted that the delay in the commissioning of NRPP is not on account of APGCL but due to the circumstances that were not under APGCL's control.

4.5.37 Considering the replies submitted by APGCL and principles laid down in the APTEL Judgment referred above, the Commission has allowed the increase in IDC due to time overrun as shown in the following Table:

Table 15: Increase in IDC approved by the Commission (Rs. Crore)

Sl. No.	Work type	Increase in IDC	APTEL Scenario	Increase in IDC allowed	Remarks
1	Civil Work Fronts	22.85	Scenario (iii)	11.43	APGCL has raised various issues of BHEL like inadequate manpower, lack of planning & coordination. However, APGCL may also be held responsible for slackness in project management. If APGCL had faced so many difficulties with BHEL while commissioning the Waste Heat Unit, and APGCL was aware that BHEL had delayed several other projects, then APGCL should have kept this in mind while awarding the Contract to BHEL.

Sl. No.	Work type	Increase in IDC	APTEL Scenario	Increase in IDC allowed	Remarks
					Though there was delay on the part of BHEL in supply and commissioning of the plant, it cannot be established beyond doubt that the entire delay was due to the reasons beyond the control of APGCL, as it had appointed BHEL as the EPC Contractor and was unable to get the work executed by BHEL as per schedule. Hence, 50% of excess IDC under this head has been allowed.
2	Termination and Reinstatement	17.53	Scenario (iii)	8.77	Though APGCL has raised various issues of civil contractor appointed by BHEL; APGCL may also be held responsible for slackness in project management, as it had appointed BHEL as the EPC Contractor and was unable to get the work executed by BHEL as per schedule. Hence, 50% of excess IDC under this head has been allowed.
3	Mechanical, Electrical, C&I Work Fronts	29.69	Scenario (iii)	14.85	Though APGCL has raised various issues of BHEL; APGCL may also be held responsible for slackness in project management, as it had appointed BHEL as the EPC Contractor and was unable to get the work executed by BHEL as per schedule. Hence, 50% of excess

Sl. No.	Work type	Increase in IDC	APTEL Scenario	Increase in IDC allowed	Remarks
					IDC under this head has been allowed.
4	Open Cycle Commissioning	37.90	Scenario (i)	0.00	No proper justification has been provided by APGCL. Issues raised by APGCL are operational issues including the auxiliary system not being ready, showing lack of co-ordination and poor project management. Hence, these issues are considered as controllable by APGCL and the excess IDC under this head has not been allowed.
5	Combined Cycle Work Progress	25.24	Scenario (i)	0.00	No proper justification has been provided by APGCL. Issues raised by APGCL are operational issues. Hence, these issues are considered as controllable by APGCL and the excess IDC under this head has not been allowed.
6	Mishap and Restoration – Force Majeure	23.87	Scenario (i)	0.00	Various issues have been submitted by APGCL like Fire incident, damage to GT unit, re-installation of GT unit, repair of Steam Turbine Generator rotor, Dispatch issue of rotor, COVID-19, etc. Delays appear to be on account of fires, building roof collapse, etc, which are all attributable to APGCL, and cannot be attributed to Force Majeure. COVID impact started from the 4 th week of

Sl. No.	Work type	Increase in IDC	APTEL Scenario	Increase in IDC allowed	Remarks
					March 2020, and APGCL has also not provided details of delay linked to COVID, hence, delay cannot be attributed to COVID. Therefore, the excess IDC under this head has not been allowed.
7	New Generator Installation and Commissioning of Plant	26.42	Scenario (i)	0.00	APGCL has submitted technical issues like tripping of STG, damage of stator winding, etc., which are factors entirely attributable to APGCL. Hence, the excess IDC under this head has not been allowed.
	Total	183.50		35.04	

4.5.38 In view of the above, the Commission has allowed the increase in IDC to the extent of Rs. 35.04 Crore due to time over run against increase in IDC of Rs. 183.50 Crore claimed by APGCL. The Commission has also allowed the IDC of Rs. 79.34 Crore as per the DPR. Thus, the Commission allows the total IDC of Rs. 114.38 Crore against the total IDC of Rs. 262.84 Crore claimed by APGCL. Further, APGCL has not submitted the amount of LD claimed from BHEL due to delay in project. APDCL shall submit all details of LD claimed and LD received from BHEL once such LD amount is received. Further, in accordance with the APTEL Judgment, as and when APGCL receives any amount of LD from BHEL against the heads under which excess IDC has been partly allowed, then APGCL shall share the LD proceeds with its beneficiary, viz., APDCL.

Fuel Cost

4.5.39 As per Regulation 44.1 of MYT Regulations, 2018, any revenue other than the recovery of fuel cost earned by the Generating Company from sale of infirm power shall be taken as reduction in capital cost and shall not be treated as revenue. Therefore, the Commission asked APGCL to confirm whether such revenue has been adjusted in the

capital cost of NRPP.

4.5.40 APGCL submitted that that as per the Regulation 44.1 of AERC MYT Regulations 2018, infirm power bill for NRPP was submitted for fuel cost recovery only as given in the table below:

Table 16: Infirm Power Bills for NRPP as submitted by APGCL (Rs. Crore)

Year	Revenue	Gross Generation (MU)	Gas Consumption (MMSCM)	Nature of recovery
FY 2019-20	3.60	20.822	6.081	Fuel cost recovery
FY 2020-21	4.69	41.975	9.635	Fuel cost recovery
FY 2021-22	6.59	76.393	18.631	Fuel cost recovery

4.5.41 APGCL clarified that the revenue earned is in the nature of fuel cost recovery and APGCL has reduced the same from the total fuel cost incurred for that respective year. Hence, APGCL has not included any impact of infirm power in the capital cost for NRPP as there was no revenue collected other than the actual fuel cost incurred.

4.5.42 The Commission has verified the fuel bills for NRPP for FY 2019-20 to FY 2021-22. The Commission notes that APGCL has billed actual fuel cost to APDCL for supply of infirm power. There is no additional revenue earned on account of sale of infirm power. In view of this, the Commission approves actual fuel cost as submitted by APGCL, and there is no implication on the project cost.

Initial Spares

4.5.43 Regulation 28.5 of the MYT Regulations, 2018 specify that capital cost may include initial spares, which shall be capitalized as a percentage of the Plant and Machinery cost up to the cut-off date, subject to the ceiling norm of 4% for Gas Turbine/Combined Cycle thermal generating stations. In reply to query on initial spares, APGCL submitted that the actual cost of initial spares included in the capital cost for NRPP is Rs. 27.58 Crore.

4.5.44 The total Project cost (excluding initial spares and IDC) approved by the Commission is Rs. 516.65 Crore. APGCL has submitted the actual Plant & Machinery Cost as Rs.

533.02 Crore, which includes the initial spares of Rs. 27.58 Crore. Thus, the Plant & Machinery cost to be considered for computing the allowable initial spares works out to Rs. 505.44 Crore (Rs. 533.02 Crore – Rs. 27.58 Crore). The ceiling value of 4% initial spares allowable as per the MYT Regulations, 2018 works out to Rs. 20.22 Crore. Hence, the Commission approves the cost of Initial Spares of Rs. 20.22 Crore, as part of Capital cost of project.

4.5.45 In view of the above, the Commission approves the capital cost of NRPP as on COD as under:

Table 17: Capital Cost of NRPP as on COD as approved by the Commission (Rs. Crore)

Sr. No.	Particulars	Capital Cost as on COD	
		Claimed by APGCL	Approved by the Commission
1	Hard Cost	516.65	516.65
2	Interest During Construction	262.84	114.38
3	Initial Spares	27.58	20.22
4	Grand Total	807.07	651.24

Means of Finance

4.5.46 As regards the means of finance, the Commission notes that funding of the project as proposed by APGCL is 61% from Equity and 39% from Debt. APGCL submitted capital cost of Rs. 807.07 Crore as on COD, which includes Loan of Rs. 311.74 Crore and Equity of Rs. 495.33 Crore. However, MYT Regulations, 2018 restricts the equity of the project up to 30%. The equity over and above 30% shall be considered as normative loan. Accordingly, the Commission has considered the normative debt: equity ratio of 70:30 for NRPP.

4.5.47 Further, disallowed capital cost has been reduced from equity and loan in the same proportion of the actual funding. The funding of the capital cost as on COD approved by the Commission is shown in the following table:

Table 18: Funding of Capital Cost as on COD for NRPP as approved by the Commission (Rs. Crore)

Particulars	Approved actual funding	Approved normative for tariff determination
Grant	0.00	0.00
Equity	404.21	195.37
Debt	254.39	455.87
Total	658.61	651.24

Additional Capitalisation

- 4.5.48 As per Regulation 29.1 of the MYT Regulations, 2018, the capital expenditure after the COD and up to the cut-off date may be allowed by the Commission, which would include works deferred for execution within the original scope. APGCL has proposed additional capitalisation of Rs. 93.93 Crore during FY 2021-22. APGCL submitted that the expenditure to be undertaken post COD of NRPP 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.
- 4.5.49 In this regard, APGCL was asked to submit package-wise details of works deferred for execution or undischarged liabilities that are yet to be paid for NRPP. APGCL submitted that it has estimated that works deferred for execution or undischarged liabilities recognized to be payable at a future date for NRPP is expected to be Rs. 93.93 Crore. APGCL submitted the break-up of Performance Guarantee (PG) test bills received from BHEL for Rs. 47.45 Crore. APGCL further submitted that it has to undertake the additional mechanical, electrical and Control and Instrument (C&I) works for NRPP for which it will utilize the remaining amount of Rs. 46.48 Crore (Rs. 93.93 Crore – Rs. 47.45 Crore).
- 4.5.50 The Commission notes that considering this expenditure of Rs. 93.93 Crore, project cost exceeds the project cost as per DPR by Rs. 23.58 Crore. APGCL has submitted that this increase is on account of employees and other expenses incurred during construction period of the project. In another submission, APGCL has stated that the increase in project cost on account of delay in project completion, apart from increase in IDC, is only Rs. 9.34 Crore on account of capitalization of employee expenses.

APGCL submitted that there was no increase in the hard cost of the project.

4.5.51 As mentioned earlier, the Commission also notes that APGCL, during the 26th meeting of the SAC held on February 13, 2020, has given undertaking that any cost attributed to time overruns for NRPP need not be borne by the consumers. The Commission has, therefore, limited the additional expenditure for FY 2021-22 to the hard cost of DPR and accordingly, provisionally approved Additional Capitalisation as shown in the Table below (subject to prudence check based on actual additional capitalisation at the time of truing-up):

Table 19: Additional Capital expenditure for NRPP for FY 2021-22 as approved by the Commission (Rs. Crore)

Particulars	Claimed by APGCL	Approved by the Commission
Additional capitalisation post COD	93.93	77.71

5 Aggregate Revenue Requirement for FY 2021-22

5.1 Introduction

- 5.1.1 Earlier, the Commission has determined the provisional Tariff for NRPP for FY 2017-18. Now, APGCL submitted the Petition for approval of ARR for FY 2021-22, supported by actual information available till September, 2021 and estimated the values for the next six months.
- 5.1.2 This Chapter deals with the determination of ARR for FY 2021-22 in accordance with the provisions of MYT Regulations, 2018 based on analysis of submissions made by APGCL.
- 5.1.3 APGCL in the Petition claimed ARR of Rs. 195.34 Crore for FY 2021-22, which included fuel cost of Rs. 53.96 Crore and Interest & Finance Charges of Rs. 63.95 Crore. However, APGCL in data gaps reply has revised its claimed fuel cost to Rs. 53.93 Crore due to revision in price of gas. APGCL has also revised Interest & Finance Charges to Rs.63.96 Crore. Thus, APGCL has revised ARR for FY 2021-22 to Rs. 195.31 Crore. The Commission has considered the revised submission of APGCL while approving the ARR for FY 2021-22.

5.2 Installed Capacity of FY 2021-22

- 5.2.1 Though the COD of NRPP has been achieved on July 16, 2021, the Commission has considered the full capacity for NRPP for FY 2021-22 as 98.40 MW. The Commission has calculated the fixed cost for full capacity and thereafter, reduced the fixed cost determined for FY 2021-22 to the extent of effective days of operations, i.e., for 259 days as discussed in subsequent section of this Chapter.

5.3 Performance Parameters for FY 2021-22

- 5.3.1 APGCL in its Petition has submitted the performance parameters for NRPP for FY 2021-22 as shown in the following Table:

Table 20: Performance Parameters for NRPP for FY 2021-22 as submitted by APGCL

Particulars	Approved FY 2018-19	April-Sept (Actual)	Oct-March (Estimated)	Estimated FY 2021-22
Plant Availability Factor (PAF) (%)	85.00%	66.36%	85.00%	75.68%
Plant Load Factor (PLF) (%)	85.00%	63.24%	90.00%	76.62%
Auxiliary Consumption (%)	5.00%	5.07%	5.00%	5.02%
Gross generation (MU)	744.60	115.00	366.34	481.34
Net Generation (MU)	707.37	109.17	348.03	457.20
Gross Station Heat Rate (kcal/kWh)	1791.00	2044.23	1988.00	2016.12

5.3.2 As per Regulation 47.1 of the MYT Regulations, 2018, the Normative Plant Availability Factor (NAPAF) for recovery of full fixed charges is 85% for new plants commissioned on or after April 01, 2019. APGCL submitted that during April to September of FY 2021-22, the availability of NRPP was low as it is facing teething problems under stabilization period. APGCL has projected the availability for October-March as per normative parameters.

5.3.3 APGCL requested the Commission to provide stabilisation period of 90 days for gas turbine/combined cycle generating stations as per Regulation 47.6 of MYT Regulations, 2018 for NRPP. APGCL requested the Commission to invoke “Power to remove difficulties” under Regulation 113 of MYT Regulations, 2018 while providing treatment for the same. APGCL submitted that for NRPP, the weighted average estimated Annual Plant Availability Factor for FY 2021-22 is at 75.68%.

5.3.4 As per Regulation 47.2 of the MYT Regulations, 2018, the Normative Plant Load Factor (NAPLF), is 90% for new plants commissioned on or after April 01, 2019. As NRPP is a newly commissioned plant, it is facing teething problems for initial months. Hence, the NAPLF may not be achieved in FY 2021-22.

5.3.5 As regards Gross Station Heat Rate (GSHR), APGCL requested the Commission to approve the norms for NRPP as per Regulation 114 ‘Power to Relax’ and also as per Regulation 47.4, where the Commission may decide to amend and notify the revised norms on case-to-case basis under the MYT Regulations, 2018. As regards GSHR, APGCL submitted as under:

- a) As per the technical proposal of the EPC documents with BHEL for development of NRPP, the guaranteed engine-wise GSHR was 1705.8 kcal/kWh on NCV basis (lower heating value). The Guaranteed values as per Contract is available in the PG Test Report. APGCL submitted that there is a difference between considering Gross SHR on Gross Calorific Value (GCV) basis and Net Calorific Value (NCV) basis. The conversion of GSHR from NCV basis to GCV basis was also referred in CERC Order No. 15 of 2014 dated February 05, 2016. The relevant excerpts from the Order are given below:

“5. Subsequently, based on the petition filed by the petitioner to revise the heat rate norms specified in 2009 Tariff Regulations, the Commission vide order dated 7.6.2012 in Petition No. 133/MP/2011 revised the Heat Rate norms with observation that GSHR specified in 2009 Tariff Regulations for generating stations were based on Net Calorific Value of fuel furnished by the petitioner inadvertently during the finalisation of 2009 Tariff Regulations and same is required to be recomputed and reviewed on the Gross Calorific Value of fuel. Relevant portion of said order dated 7.6.2012 is extracted as under:

“19..On analysis, it is noticed that the actual energy rate recovered during the period 2004-05 to 2007-08 was lower than the energy rate recoverable based on actual consumption of fuel and the actual price of fuel. Thus, it is evident that the petitioner had suffered due to higher actual Heat Rate in comparison to the Heat Rate norms specified under the 2004 Tariff Regulations, on account of mistake attributable to it. Based on the above discussions, and facts on record, we are of the view that the mistake in the data pertaining to Gross Station Heat Rate in respect of this generating station submitted by the petitioner during the finalization of operational norms for 2009-14 which had resulted in the notification of the 2009 Tariff Regulations, appears to be genuine for which necessary correction is required to be undertaken, in the interest of justice. Accordingly, in exercise of 'Power to relax' under Regulation 44 of the 2009 Tariff Regulations, we relax the normative Gross Station Heat Rate in respect of AGBPP (combined cycle mode) specified under Regulation 26(e)(ii) of the 2009 tariff Regulations. The actual average Heat Rate on NCV of fuel for the period 2003-04 to 2007-08 for the generating station is 2369

kCal/kWh, based on which the normative Heat Rate of 2400 kCal/kWh has been specified under Regulation 26(e)(ii) of the 2009 Tariff Regulations. After conversion of the Heat Rate based on NCV of fuel to GCV of fuel, the said Heat Rate (combined cycle) for the generating station would be 2511 kCal/kWh (2369x1.06). It is noticed that the actual gross Heat Rate of GT machines of similar frame size, of Indraprastha Power Generation Company Limited (IPGCL), New Delhi is found to be in the range of 2504 kCal/kWh and 2557 kCal/kWh during 2007-08 to 2010-11. In terms of the above discussions, the normative Gross Heat Rate of 2400 kCal/kWh specified in respect of AGBPP (combined cycle mode) under Regulation 26(e)(ii) of the 2009 Tariff Regulations, is revised to 2500 kCal/kWh.”

- b) It is clear from the above CERC Order that there is a difference in GSHR on GCV basis and GSHR on NCV basis. The difference between calculation of GSHR and Net SHR is clearly illustrated at page 5 of the Ministry of Power document of ‘Normalization Document and Monitoring & Verification Guidelines’ for thermal power plants. The formulae given in this document are used as the base document for setting and verification of targets under the Perform, Achieve and Trade (PAT) scheme of the Ministry of Power.
- c) Thus, there is a difference between GSHR on GCV basis, GSHR on NCV basis, Net SHR on GCV basis and Net SHR on NCV basis. The parameters considered for calculation of each are shown in the Table below:

Table 21: Parameters considered for calculation as submitted by APGCL

Particulars	Gross SHR on GCV basis	Gross SHR on NCV basis	Net SHR on GCV basis	Net SHR on NCV basis
Parameters considered for calculation	Gross generation with fuel values on GCV basis	Gross generation with fuel values on NCV basis	Net generation with fuel values on GCV basis	Net generation with fuel values on NCV basis

- d) The Commission vide Order dated March 31, 2017 had directed APGCL to submit the PG Test Report and also stated that the SHR issues will be considered at the time of determination of final tariff of NRPP. As the above

difference between GSHR on GCV and NCV is clearly established, the values obtained during PG Test Report for NRPP are discussed.

- e) The actual values obtained during PG Test for generating station-wise weighted GSHR was around 1674 kcal/kWh on NCV basis (lower heating value) and guaranteed value as per contract is 1705.8 kcal/kWh.
- f) For conversion of SHR from NCV basis to GCV basis, APGCL has used a conversion factor of 1.11. The conversion factor of 1.11 for conversion of SHR from NCV basis to GCV basis has been considered as the average ratio of GCV and NCV of fuel received for NTPS in the last 2.5 years. The calculations are shown below:

Table 22: Average ratio of GCV and NCV of fuel received for NTPS for FY 2018-19 as submitted by APGCL

Month	FY 2018-19		
	Gas NCV	Gas GCV	GCV: NCV
April	7935	8810	1.11
May	7938	8814	1.11
June	7998	8880	1.11
July	8017	8899	1.11
August	8020	8901	1.11
September	8037	8920	1.11
October	7925	8797	1.11
November	8256	9149	1.11
December	8020	8900	1.11
January	7993	8870	1.11
February	8042	8925	1.11
March	8210	9111	1.11
Total	8033	8915	1.11

Table 23: Average ratio of GCV and NCV of fuel received for NTPS for FY 2019-20 as submitted by APGCL

Month	FY 2019-20		
	Gas NCV	Gas GCV	GCV: NCV
April	8162	9061	1.11
May	8314	9224	1.11
June	8333	9245	1.11
July	8210	9115	1.11

Month	FY 2019-20		
	Gas NCV	Gas GCV	GCV: NCV
August	8214	9119	1.11
September	8244	9152	1.11
October	8189	9093	1.11
November	8264	9173	1.11
December	8244	9151	1.11
January	8292	9203	1.11
February	8269	9178	1.11
March	8286	9196	1.11
Total	8252	9159	1.11

Table 24: Average ratio of GCV and NCV of fuel received for NTPS for FY 2020-21 (H1) as submitted by APGCL

Month	FY 2020-21 (H1)		
	Gas NCV	Gas GCV	GCV: NCV
April	8197	9102	1.11
May	8250	9158	1.11
June	8279	9189	1.11
July	8215	9120	1.11
August	8164	9066	1.11
September	8161	9063	1.11
Total	8211	9116	1.11

- g) The values obtained after conversion of values obtained in PG Test are shown below:

Table 25: SHR values after conversion to GCV basis as submitted by APGCL

Particular	Guaranteed values as per contract		As per PG Test Report	
	GSHR on NCV basis	GSHR on GCV basis	GSHR on NCV basis	GSHR on GCV basis
	1	$2=1*1.05*1.11$	3	$4=3*1.05*1.11$
SHR in Kcal/kWh	1705.8	1988	1674	1951

- h) The Guaranteed SHR values (Gross SHR on GCV basis) obtained in FY 2021-22 is slightly higher than the values obtained through conversion of PG Test values to Gross SHR on GCV basis. The same is as shown below:

Table 26: Comparison of converted PG Test values and actual SHR values of FY 2021-22 as submitted by APGCL

Particular	Gross Heat Rate on GCV basis for Guaranteed value as per contract	Gross Heat Rate on GCV basis as per PG test report	Actual Values obtained for FY 2021-22
SHR in kcal/kWh	1988	1951	2044.2

- i) The actual Gross SHR on GCV basis is higher than the PG test report values, as during PG Test ideal conditions were made for completion of the test. The ideal conditions that were prepared for PG Test were - NRPP load was decreased to facilitate PG Test report because the gas pressure keeps changing frequently and corrections were applied to arrive at PG test numbers due to low load and knock state.
- j) SHR norm of 1988 kcal/kWh on GCV basis will provide the requisite margin for NRPP to compensate for partial loading, start-stop, etc., which are practically required during running of power plant.
- k) NRPP is designed to run on Open Cycle (OC) and Combined Cycle (CC) modes. The Design SHR under OC Mode as per the Contract with EPC contractor is 2,635 kcal/kWh on NCV basis (lower heating value). The Design SHR under OC mode is expected to be ~ 2,927 kcal/kWh on GCV Basis. APGCL prayed to the Commission to define the normative GSHR for NRPP under OC mode at 2,927 kcal/kWh.
- l) The similar margin is provided over and above the Design SHR (PG Test heat rate) to coal and gas / liquid-based plants under the MYT Regulations, 2018.
- m) In view of the above, APGCL prayed to the Commission to approve the SHR norms for NRPP as 1988 kcal/kWh on GCV basis as per guaranteed value of contract under CC mode and define the normative GSHR for NRPP under OC Mode at 2,927 kcal/kWh.

5.3.6 As regards Auxiliary Consumption for NRPP, APGCL submitted that as per Regulation

47.3(ii) of the MYT Regulations, 2018, the normative Auxiliary Consumption is 5% for gas based generating station in CC mode of operation with gas booster compressor. APGCL requested the Commission to approve the estimated Auxiliary Consumption of 5% for FY 2021-22.

Commission's Analysis

- 5.3.7 Regulation 47.1 of the MYT Regulations, 2018 specifies the Normative PAF for new generating stations commissioned after April 1, 2019 as 85% for full recovery of Fixed Charges. In reply to query, APGCL submitted that NRPP faced teething issues after the commissioning of the project. Therefore, APGCL requested the Commission to consider Regulation 47.6 by taking the availability of 65% for the first 90 days after the COD of NRPP while determining the availability of NRPP for FY 2021-22 by invoking the "Power to remove difficulties" under Regulation 113 of the MYT Regulations, 2018. The Commission notes that the actual availability of NRPP for the period from July, 16 2021 to September 30, 2021 is 66% which is higher than the availability of 65% specified in Regulation 47.6 for the first 90 days after the COD. At this stage, the Commission approves PAF of 85% for FY 2021-22. However, at the time of True-up of FY 2021-22, the Commission will consider the availability of 65% for the first 90 days after the COD of NRPP as per the provisions of Regulation 47.6 of MYT Regulations, 2018.
- 5.3.8 As regards the Auxiliary Consumption for Gas based generating Station, Regulation 47.3 (ii) specifies the norm of 5% for combined cycle with Gas Booster compressor. The Commission notes that NRPP has installed gas booster, hence, Auxiliary Consumption norm of 5% has been approved.
- 5.3.9 Regulation 47.2 of the MYT Regulations, 2018 specifies the Normative PLF for new Gas based generating stations as 85% for incentive. APGCL shall be eligible for incentive only if actual PLF is higher than NAPLF specified in MYT Regulations, 2018.
- 5.3.10 In reply to query, APGCL has revised the gross generation for NRPP for FY 2021-22 to 503.17 MU. The Commission has considered the gross generation for FY 2021-22 as submitted by APGCL and accordingly PLF. However, the incentive shall be allowed with respect to NAPLF specified in the MYT Regulations, 2018. The Commission has also considered the Net Generation after considering the approved auxiliary

consumption for NRPP in the APR of FY 2021-22.

5.3.11 As regards SHR for the new stations, Regulation 47.4 (ii)(b) of the MYT Regulations, 2018 specifies as under:

“b. Gas-based / Liquid-based thermal generating unit(s)/ block(s)

= 1.05 X Design Heat Rate of the unit/block for Natural Gas and RLNG (kCal/kWh)

....

Where, the Design Heat Rate of a unit shall mean the guaranteed heat rate for a unit at 100% MCR and at site ambient conditions; and the Design Heat Rate of a block shall mean the guaranteed heat rate for a block at 100% MCR, site ambient conditions, zero percent make up, design cooling water temperature/back pressure.”

5.3.12 The Commission in the Tariff Order dated March 31, 2017 had directed APGCL to submit the PG Test Report for NRPP after completion of the same. As directed by the Commission in provisional Tariff Order, APGCL has conducted the PG test. From the results of the PG Test, the Commission observes that GSHR on NCV basis is 1705.8 kcal/kWh as per Guaranteed Value as per contract and at 1674 kcal/kWh as per PG Test results after correction under CC mode. Gross SHR on NCV basis of 1674 kcal/kWh as per PG Test results works out to be 1951 kcal/kWh on GCV basis under CC mode after considering GCV:NCV conversion factor of 1.11 and factor of 1.05 specified in the formula as per Regulations. The Commission finds merit in the submission of APGCL. In view of the above, the Commission approves the GSHR for NRPP as 1951 kcal/kWh under CC mode.

5.3.13 As regards GSHR for NRPP under OC mode, APGCL has submitted that the Design SHR under OC Mode as per the Contract with EPC contractor is 2,635 kcal/kWh on NCV basis and the Design SHR under OC mode is expected to be 2,927 kcal/kWh on GCV Basis. Accordingly, in the absence of PG Test under OC mode, considering the Design SHR as per the Contract, the Commission approves the GSHR for NRPP at 2,927 kcal/kWh under OC mode.

5.3.14 The performance parameters approved by the Commission for NRPP for FY 2021-22 are shown in the following Table:

Table 27: Performance Parameters for NRPP approved by the Commission

Particulars	NRPP
Plant Availability Factor (PAF) for Full recovery of Fixed Charges	85%
Plant Load Factor (PLF) for Incentive	85%
Auxiliary Consumption	5.00%
Gross Station Heat Rate (kcal/kWh)- OC mode	2,927
Gross Station Heat Rate (kcal/kWh)- CC mode	1,951

5.3.15 Further, the Gross and Net Generation approved for FY 2021-22 are shown below:

Table 28: Generation for NRPP for FY 2021-22 approved by the Commission

Particulars	FY 2021-22
Gross Generation (MU)	503.17
Net Generation (MU)	478.01

5.4 Fuel Cost

5.4.1 As per Regulation 10 of the MYT Regulations, 2018, 'Fuel Price' and 'Calorific Value of Fuel' are uncontrollable items. The actual values for Fuel Price and GCV are shown in the following Table as submitted by APGCL:

Table 29: GCV and Landed Price of Gas for NRPP as submitted by APGCL

Particulars	FY 2021-22
GCV of Gas (kcal/SCM)	9205
Price of Gas (Rs./1000 SCM)	4667

5.4.2 Gas prices have been revised to USD 2.90 / MMBTU from October 2021. Hence, the weighted average price of gas has been considered for FY 2021-22. Accordingly, APGCL has projected fuel cost as Rs. 53.96 Crore for FY 2021-22 for NRPP.

Commission's Analysis

5.4.3 APGCL in data gaps reply has revised its claimed fuel cost of Rs. 53.96 Crore to Rs. 53.93 Crore for FY 2021-22 due to revision in price of gas from Rs.4667 per 1000 SCM

to Rs. 4664.68 per 1000 SCM for FY 2021-22.

5.4.4 The Commission notes that the gas allocation for NTPS will be used for operation of NRPP. No separate gas allocation has been sought by APGCL for NRPP. Hence, the Commission has considered the GCV of gas and landed price of gas as considered for NTPS for FY 2021-22 for the purpose of Annual Performance Review. The GCV and landed price of gas considered by the Commission for FY 2021-22 is shown in the following Table:

Table 30: GCV and Landed Price of Gas for NRPP as approved by the Commission

Particulars	FY 2021-22
GCV of Gas (kcal/SCM)	9204.80
Price of Gas (Rs./1000 SCM)	4699.56

5.4.5 APGCL is hereby directed to have separate metering arrangements for Gas supplies to NTPS and NRPP, if not done already.

5.4.6 The Commission has computed the fuel cost for NRPP based on approved performance parameters, GCV of gas and landed price of Gas. The fuel cost approved by the Commission for NRPP for FY 2021-22 is shown in the following Table:

Table 31: Fuel Cost for NRPP approved by the Commission for FY 2021-22

Sl. No.	Particulars	Unit	APGCL's Submission	Approved by the Commission
1	Gross Generation	MU	481.34	503.17
2	Heat Rate	kcal/kWh	2,016.12	1951.00
3	Overall Heat	Giga cal.	9,204.80	9,204.80
4	GCV of gas	kcal/SCM	9,70,447.23	9,81,706.37
5	Gas consumption	M. SCM	105.43	106.65
6	Price of Gas	Rs./1000 SCM	4,664.68	4,699.56
7	Total Cost of Gas	Rs. Crore	53.93	50.12

5.5 O&M Expenses

5.5.1 APGCL submitted that as per Regulation 50.2(b) of the MYT Regulations, 2018, O&M expenses for Advanced F Class Gas combined cycle generating station is Rs. 41.51

Lakh/MW. Since, NRPP was commissioned on July 16, 2021, APGCL has claimed O&M expenses for only 259 days in FY 2021-22 as per MYT Regulations, 2018. APGCL claimed the O&M Expenses of Rs. 28.98 Crore for NRPP.

5.5.2 APGCL submitted that Special R&M and increase in Terminal liabilities will be claimed separately as per MYT Regulations, 2018 during True-up.

Commission's Analysis

5.5.3 As regards O&M expenses for new Generating Stations, Regulation 50.2(b) of MYT Regulations, 2018, specifies the norm for Gas Turbine/Combined Cycle Generating Stations other than small gas turbine power generating stations as Rs. 22.48 Lakh/MW for FY 2021-22. Accordingly, the Commission has computed the O&M expenses for NRPP for FY 2021-22 based on norms provided in the MYT Regulations, 2018 as under:

Table 32: O&M Expenses for NRPP as provisionally approved by the Commission

Particulars	FY 2021-22
O&M Norms (Rs. Lakh/MW)	22.48
Installed Capacity (MW)	98.40
Normative O&M Expenses (Rs. Crore)	22.12

5.5.4 As regards Special R&M, APGCL has submitted that Special R&M will be claimed separately as per MYT Regulations, 2018 during True-up. However, APGCL should seek prior approval from the Commission for undertaking any Special R&M for NRPP.

5.6 Capital Expenditure and Capitalisation

5.6.1 APGCL submitted the Capital Investment and means of finance for NRPP as on COD as mentioned in the earlier Section of this Order. APGCL submitted the additional capitalisation of Rs. 93.93 Crore for FY 2021-22. The means of finance for capital cost as on COD and additional capitalisation proposed for FY 2021-22 have been considered by APGCL as shown in the following Table:

Table 33: Funding for Capitalisation for NRPP as submitted by APGCL (Rs. Crore)

Particulars	Expenditure as on COD	Closing Balance for FY 2021-22
Actual Equity	495.33	416.00
Normative Equity	242.12	270.30
Excess of Equity	253.21	145.70
Actual Loan	311.74	485.00
Addition of excess of equity consider as normative loan	253.21	145.70
Normative Loan considered for calculation	564.95	630.70
Total Project Cost	807.07	901.00
% Normative Equity	30%	30%
% Normative Loan	70%	70%

Commission's Analysis

5.6.2 As discussed in earlier Section of this Order, the Commission has approved the capital cost of Rs. 651.24 Crore as on COD of July 16, 2021 and additional capital expenditure of Rs. 77.71 Crore to be capitalised in FY 2021-22. Thus, the total capitalisation approved for NRPP for FY 2021-22 is Rs. 728.96 Crore. As regards the means of finance, the Commission notes that funding of the project as proposed by APGCL is 46% from Equity and 54% from Debt. However, MYT Regulations, 2018 restricts the equity of the project up to 30%. The equity over and above 30% shall be considered as normative loan. Accordingly, the Commission has considered the normative debt: equity ratio of 70:30 for NRPP.

5.6.3 Accordingly, the funding of capitalised works for NRPP as considered by the Commission for FY 2021-22 is shown in the following Table:

Table 34: Funding of Capitalisation for NRPP for FY 2021-22 considered by the Commission (Rs. Crore)

Particulars	APGCL Submission	Approved by Commission
Grant	0.00	0.00
Equity	270.30	218.69
Debt	630.70	510.27
Total Capitalised works	901.00	728.96

5.7 Depreciation

5.7.1 APGCL has computed the depreciation as per Regulation 32 of MYT Regulations, 2018 considering Capital Cost of the asset with 10% salvage value. Also, depreciation on grants has been subtracted. APGCL submitted the depreciation of Rs. 22.68 Crore for NRPP for FY 2021-22 as shown below:

Table 35: Depreciation for NRPP as submitted by APGCL (Rs. Crore)

Particulars	Approved FY 2018-19	APGCL's Submission
Depreciation	24.79	22.68
Less: Depreciation on assets funded through Grants	0.00	0.00
Net Depreciation	24.79	22.68

Commission's Analysis

5.7.2 For computation of depreciation, the Commission has considered the Capital Cost as on COD as the opening GFA for FY 2021-22. Addition during the year has been worked out based on the additional capitalisation allowed during FY 2021-22. The Commission has considered the scheduled depreciation rates as specified in MYT Regulations, 2018 and derived the weighted average depreciation rate of 4.96% for FY 2021-22. The Commission has not considered depreciation on assets funded through grants in accordance with MYT Regulations, 2018.

5.7.3 In view of the above, the Commission has approved depreciation for FY 2021-22, as per MYT Regulations, 2018, as given in the Table below:

Table 36: Depreciation for NRPP as approved by the Commission (Rs. Crore)

Particulars	FY 2021-22
Opening GFA	651.24
Addition during year	77.71
Closing GFA	728.96
Wt. avg. Depreciation rate	4.96%
Depreciation	34.22
<i>Less: Depreciation on assets funded by Grants</i>	<i>0.00</i>
Net Depreciation	34.22

5.8 Interest on Loan Capital

5.8.1 APGCL submitted that it has computed the Interest on long-term loan on normative basis for FY 2021-22. The Petitioner has considered normative loan portfolio and the repayment shown is considered equal to the depreciation for FY 2021-22. The interest rate has been considered as the expected weighted average rate of interest for FY 2021-22 for APGCL as a whole. APGCL has claimed the Interest on Loan of Rs. 63.95 Crore for NRPP for FY 2021-22 as shown below:

Table 37: Interest on Loan Capital for NRPP as submitted by APGCL (Rs. Crore)

Sr. No.	Particulars	Approved FY 2018-19	APGCL's Submission
1	Net Normative Opening Loan	412.65	564.95
2	Addition of normative loan during the year	0.00	65.75
3	Repayment of normative loan during the year	24.79	22.68
4	Net Normative Closing Loan	387.86	608.02
5	Average normative Loan during the year	400.26	586.49
6	Rate of Interest (%)	14.12%	10.90%*
7	Interest on Loan Capital	51.81	63.95
8	Add: Bank charges	0.00	0.00
9	Net Interest on Loan Capital	51.81	63.95

*Note: APGCL in data gaps reply has revised the interest rate to 10.91%.

Commission's Analysis

5.8.2 It is noted that APGCL in the Petition claimed Interest on Loan of Rs. 63.95 Crore. However, APGCL in data gaps reply has revised the Interest on Loan to Rs.63.96 Crore due to marginal change in interest rate from 10.90% to 10.91%. The Commission has considered the revised submission of APGCL while approving Interest on Loan.

5.8.3 The Commission notes that Interest on loan capital for FY 2021-22 is required to be allowed on normative basis as per Regulation 34 of MYT Regulations, 2018. The Commission has considered the opening normative loan equal to debt component considered for project cost as on COD. The addition of loan has been considered equal to debt portion of capitalised works as approved in this Order. The loan repayment has been considered equivalent to Depreciation approved in this Order. As per MYT Regulations, 2018, weighted average rate of interest shall be computed based on

actual outstanding loan as on April 1, 2021. The Commission has computed the weighted average interest rate of 10.91% for FY 2021-22 as considered for APGCL.

5.8.4 The Interest on loan capital approved by the Commission for FY 2021-22 is shown in the following Table:

Table 38: Interest on Loan Capital for NRPP approved by the Commission (Rs. Crore)

Sr. No.	Particulars	FY 2021-22
1	Normative Opening Loan	455.87
2	Addition of normative loan during the year	54.40
3	Normative Repayment during the year	34.22
4	Normative Closing Loan	476.05
5	Interest Rate (%)	10.91%
6	Interest on Loan Capital	50.81

5.9 Return on Equity (RoE)

5.9.1 APGCL has projected the RoE of Rs. 20.95 Crore for NRPP for FY 2021-22 as per Regulation 33 of the MYT Regulations, 2018.

Commission's Analysis

5.9.2 The Commission has approved the RoE in accordance with Regulation 33 of the MYT Regulations, 2018. Therefore, the RoE approved at 15.50%% is shown in the Table below:

Table 39: Return on Equity for NRPP for FY 2021-22 as approved by the Commission (Rs. Crore)

Sr. No.	Particulars	APGCL's Submission	Approved by Commission
1	Opening equity	0.00	195.37
2	Addition of equity during the year	270.30	23.31
3	Closing equity	270.30	218.69
4	Rate of return	15.50%	15.50%
5	Return on Equity	20.95	32.09

5.10 Interest on Working Capital (IoWC)

5.10.1 APGCL has claimed normative IoWC of Rs. 4.82 Crore as per Regulation 36 of the MYT Regulations, 2018. As APGCL does not have liquid fuel stock facility, it has not considered working capital on storage of liquid fuel. APGCL has considered the Rate of Interest of 10.00%, which is equal to the normative interest rate of three hundred (300) basis points above the average SBI MCLR (One-Year Tenor) prevalent during the last available six months.

Commission's Analysis

5.10.2 The Commission has computed IoWC in accordance with Regulation 36 of the MYT Regulations, 2018. For computation of working capital requirement, the Commission has considered the fuel cost and O&M Expenses on normative basis.

5.10.3 The rate of Interest has been considered equivalent to normative interest rate of three hundred (300) basis points above the average SBI MCLR (One-year tenor) prevalent during the last available six months for the determination of tariffs, i.e., interest rate has been considered as 10.00%.

5.10.4 IoWC approved by the Commission for FY 2021-22 is shown in the following Table:

Table 40: IoWC for NRPP approved by the Commission (Rs. Crore)

Sr. No.	Particulars	APGCL's Submission	Approved by Commission
1	Fuel Cost for one month	4.49	4.32
2	O&M Expenses for one month	2.42	1.84
3	Maintenance Spares-30% of O&M	8.70	6.64
4	Receivables for two months	32.55	32.59
5	Total Working Capital Requirement	48.15	45.39
6	Rate of Interest	10.00%	10.00%
7	Interest on working Capital	4.82	4.54

5.11 Non-Tariff Income

5.11.1 APGCL submitted that the Non-Tariff Income shall be deducted from the Annual Fixed Cost in determining the Annual Fixed Cost of the Generation Company as per Regulation 45 of the MYT Regulations, 2018. APGCL has not considered any Non-Tariff Income for NRPP for FY 2021-22.

Commission's Analysis

5.11.2 At this stage, the Commission has not considered any Non-Tariff Income for NRPP, however, the same shall be considered based on actuals at the time of Truing up for FY 2021-22.

5.12 Summary of APR for FY 2021-22

5.12.1 The summary of station-wise ARR for FY 2021-22 is shown in the following Table:

Table 41: Summary of ARR for NRPP for FY 2021-22 approved by the Commission (Rs. Crore)

S. No.	Particulars	Approved FY 2018-19	APGCL's Submission	Approved for FY 2021-22
A	Annual Fixed Charges			
1	O&M expenses	18.72	28.98	22.12
2	Depreciation	24.79	22.68	34.22
3	Interest on Loans	51.81	63.96	50.81
4	Return on Equity	24.65	20.95	32.09
5	Interest on Working Capital	5.89	4.82	4.54
7	Less: Non-Tariff Income	0.00	0.00	0.00
8	Total Annual Fixed Charges	125.85	141.38	143.78
B	Fuel Cost	71.33	53.93	50.12
C	Net ARR	197.19	195.31	193.90

5.13 Net ARR for Effective Days of Operation

5.13.1 Though the COD of NRPP has been achieved on July 16, 2021, the Commission has considered the full capacity for NRPP for FY 2021-22 as 98.40 MW. The Commission has calculated the fixed cost for full capacity as shown in earlier section and thereafter reduced the fixed cost derived after ARR of FY 2021-22 to the extent of effective days of operations, i.e., for 259 days as shown in the following Table:

**Table 42: APR for NRPP for FY 2021-22 for Operational Days as approved by the Commission
(Rs. Crore)**

Particulars	NRPP
Total Fixed Cost approved on installed capacity	143.78
Reduction in fixed cost	41.75
Total Fixed Cost approved based on effective days of operations	102.02
Less: Non-Tariff Income	0.00
Total Fixed Cost approved for effective days of operations	102.02
Add: Fuel Cost	50.12
Net ARR approved for effective days of operations	152.15

6 CAPITAL INVESTMENT PLAN FOR THE MYT CONTROL PERIOD FROM FY 2022-23 to 2024-2025

6.1 Renovation & Modernisation Plan for NRPP

6.1.1 APGCL submitted a detailed scheme-wise list of Renovation & Modernisation activities proposed to be undertaken at NRPP under Civil works as shown below:

Table 43: R&M plan proposed for NRPP for FY 2022-23 to FY 2024-25 as submitted by APGCL

Sl. No.	Description of Works	Proposed amount (In Rs. Lakh)			Need/ Justification
		FY 2022-23	FY 2023-24	FY 2024-25	
A	Civil Work for NRPP				
1	Repairing of Residential quarter of Type C (5 Nos), Type III (5 Nos), Type IV (10 Nos) at Namrup (Total =20 Nos)	50.0			The existing quarters at Namrup compound are old and in dilapidated condition. Some of the quarters need essential repairing of the building components to maintain a suitable habitable condition and also to check further deterioration of the building. Considering these factors and after thorough inspection and assessment, probable cost needed for repairing and renovation and the amount is placed accordingly.
2	Repairing and Maintenance of Main road (Borluit Path) of Namrup	44.8			The existing main road of Namrup, i.e., Borluit path is in damaged condition at certain locations. To make it fit for smooth movement of vehicles and easy movement of pedestrians, the need of the road is required. The estimated value of work is placed accordingly.

Sl. No.	Description of Works	Proposed amount (In Rs. Lakh)			Need/ Justification
		FY 2022-23	FY 2023-24	FY 2024-25	
3	Repairing of Residential quarter of Type B (3 Nos), Type C (5 Nos), Type III (4 Nos), Type IV (10 Nos) at Namrup (Total =22 Nos)		55.0		The existing quarters at Namrup are old and in dilapidated condition. Some of the quarters need essential repairing of the building components to maintain a suitable habitable condition and also to check further deterioration of the building. Considering these factors and after thorough inspection and assessment, probable cost needed for repairing and renovation and the amount is placed accordingly.
4	Construction of road in front of residential qtr no B-01 to Type III-17 at Namrup		27.4		There is a proposal for construction of new boundary wall along Pahar line, Namrup which will also be along residential qtr. No B-01 to Type III-17 at Namrup and the proposed wall will be in front of the residential 79trs.. Hence, a new route for the movement of vehicles and pedestrians along these quarters are needed. Considering these factors and after necessary inspection and assessment, estimated amount of the same is been placed accordingly.
5	Construction of road side drain in front of residential qtr no B-01 to Type III-17 at Namrup		11.6		There is a need of drainage system along the proposed road Infront of residential quarter type B-01 to Type III-17 (Pahar line) at Namrup to prevent accumulation of runoff water from the road and its surroundings. The estimated value of work is placed accordingly.
6	Dismantling and construction of chain link		12.9		The existing chain link fencing along residential qtr Type B-01 to B-09 and Type III-17 of Namrup is in deteriorated

Sl. No.	Description of Works	Proposed amount (In Rs. Lakh)			Need/ Justification
		FY 2022-23	FY 2023-24	FY 2024-25	
	fencing of residential qtr B-01 to B-09 and Type III-17 at Namrup				condition, which needs renewal works. The estimated value of work is placed accordingly.
7	Construction of new three-storey Type IV - R.C.C Building quarters at Namrup			325.6	The construction of three-storied RCC building has been proposed as part of upgradation of residential accommodation for housing more occupants at single location.
8	Repairing of colony roads at Namrup			84.8	The roads at Namrup are not good condition. For some roads, no repairing works have been done since several years. To make it fit for smooth movement of vehicles and easy movement of pedestrians, the need of repairing of the road is required. The estimated value of work is placed accordingly.
9	Providing chain link fencing at various locations as and where required around residential quarters of Namrup			94.5	The existing chain link fencing of residential qtrs at Namrup is in a deteriorated condition, which need renovation works. The estimated value for the same is placed accordingly.
Total		94.83	106.95	504.90	

Commission's Analysis

6.1.2 The Commission notes that APGCL has proposed capex of Rs. 0.95 Crore, Rs. 1.07 Crore and Rs. 5.05 Crore in the Control Period for Renovation & Modernisation plan

proposed only for Civil works like Repairing of Residential quarters, Repairing and Maintenance of main road, Construction of road and new quarters, etc. The Commission asked APGCL to justify the proposed Renovation & Modernisation plan for NRPP for FY 2022-23 to FY 2023-25, considering that this is a new Plant, and reasons for non-inclusion of these capex expenses in the original project cost of NRPP.

6.1.3 In reply, APGCL submitted that it has proposed Renovation & Modernisation works of only civil work nature for NRPP for FY2022-23 to FY2023-25. Both NTPS and NRPP are in the same compound and also have shared colony. Since, NTPS is an ageing plant and other capex of essential electro-mechanical works have been proposed for it in the MYT Control Period, to reduce the capex proposed under the head of NTPS, the civil work has been proposed under NRPP head. Considering that both plants are co-existing in a shared environment as well as the ageing nature of NTPS, which has led to an increase in its overall expenditure for civil works, APGCL has proposed to share the civil work expenses between NTPS and NRPP. This will help in maintaining the civil ecosystem of NRPP and NTPS.

6.1.4 The Commission observed that APGCL has not proposed any capex for civil works for NTPS in its MYT Petition. All capex for civil works is proposed for NRPP. Therefore, APGCL was asked to explain how it intends to share the cost of civil works between NTPS and NRPP. APGCL replied that the capex for civil works proposed for NRPP will be booked under NRPP's head, if approved and not under NTPS to reduce capex of NTPS as NTPS is an ageing station. APGCL also submitted that the capex proposed for NRPP for the MYT Control Period was not part of the original project cost of NRPP.

6.1.5 The Commission notes that the Renovation & Modernisation proposed by APGCL for NRPP for the MYT control period was not part of the original project cost of NRPP. Also, the NRPP is new plant commissioned in July 2021. Therefore, the Commission has not approved any expenditure for Renovation & Modernisation of NRPP for the Control Period.

Table 44: Additional Capital Expenditure approved by the Commission (Rs. Crore)

Station	FY 2022-23		FY 2023-24		FY 2024-25	
	Proposed	Approved	Proposed	Approved	Proposed	Approved
Renovation & Modernisation Plan	0.95	0.00	1.07	0.00	5.05	0.00

7 ARR for MYT Control Period from FY 2022-23 to FY 2024-25

7.1 Introduction

- 7.1.1 This Chapter deals with the determination of ARR for NRPP for the MYT Control Period from FY 2022-23 to FY 2024-25 in accordance with the provisions of MYT Regulations, 2021 based on analysis of submissions made by APGCL.
- 7.1.2 APGCL has made its submission in Petition for approval of ARR for the Control Period for NRPP and approval of Tariff for FY 2022-23. The Commission has determined the ARR for NRPP for the Control Period and Tariff for FY 2022-23 in line with MYT Regulations, 2021 as discussed in subsequent sections of this Chapter.

7.2 Norms of Operation

- 7.2.1 APGCL submitted the norms of operation for NRPP for the Control Period from FY 2022-23 to FY 2024-25 as shown in the following Table:

Table 45: Norms of Operation for NRPP for FY 2022-23 to FY 2024-25 as submitted by APGCL

Particulars	FY 2022-23	FY 2023-24	FY 2024-25
Plant Availability Factor (%)	85.00%	85.00%	85.00%
Plant Load Factor (%)	90.00%	90.00%	90.00%
Auxiliary Consumption (%)	5.00%	5.00%	5.00%
Station Heat Rate (kcal/kWh)	1988	1988	1988
Gross Generation (MU)	732.69	732.69	732.69
Net Generation (MU)	696.05	696.05	696.05

- 7.2.2 APGCL submitted that as per the Regulation 47.1(ii) in MYT Regulations, 2018, the NAPAF of new plant commissioned on or after April 01, 2019 is 85%. This same has been projected for the Control Period. Also, as per the Regulation 47.2 (ii) of MYT Regulations, 2018, the NAPLF of new plant commissioned on or after April 01, 2019

is 90%. This same has been projected for the Control Period.

7.2.3 APGCL submitted that it has projected the Auxiliary Consumption of 5% for the Control Period in line with the Regulation 47.3 (ii) of MYT Regulations, 2018.

7.2.4 As regards SHR, APGCL requested the Commission to approve Gross SHR of 1988 kcal/kWh on GCV basis under CC Mode and define GSHR of 2,927 kcal/kWh on GCV basis under OC Mode for Control Period.

Commission's Analysis

7.2.5 Regulation 48.1 of MYT Regulations, 2021 specifies the NAPAF for recovery of full fixed charges, as 85% for new Generating Stations. Accordingly, the Commission approves NAPAF of 85% for NRPP for FY 2022-23 to FY 2024-25.

7.2.6 Regulation 48.2 of MYT Regulations, 2021 specifies NAPLF for Incentive as 90% for Gas based stations. Accordingly, the same normative PLF is applicable for NRPP. Thus, for the purpose of projection of Generation, the Commission has considered the NAPLF of 90%.

7.2.7 As regards Auxiliary Consumption, the Commission approves Auxiliary Consumption of 5% for NRPP for FY 2022-23 to FY 2024-25 in accordance with Regulation 48.3 of MYT Regulations, 2021.

7.2.8 As discussed in earlier Chapter of this Order, the Commission has approved GSHR of 1951 kcal/kWh under CC mode and GSHR of 2,927 kcal/kWh under OC mode for NRPP for FY 2021-22. For FY 2022-23 to FY 2024-25, the Commission approves GSHR of 1951 kcal/kWh under CC mode of operation and GSHR of 2,927 kcal/kWh under OC mode of operation for NRPP.

7.2.9 The norms of operation approved by the Commission for NRPP for FY 2022-23 to FY 2024-25 are shown in the following Table:

Table 46: Norms of Operation for NRPP for the Control Period as approved by the Commission

Particulars	FY 2022-23	FY 2023-24	FY 2024-25
Plant Availability Factor (%)	85.00%	85.00%	85.00%
Plant Load Factor (%)	90.00%	90.00%	90.00%

Particulars	FY 2022-23	FY 2023-24	FY 2024-25
Auxiliary Consumption (%)	5.00%	5.00%	5.00%
Station Heat Rate (kcal/kWh)- OC mode	2927	2927	2927
Station Heat Rate (kcal/kWh)- CC mode	1951	1951	1951
Gross Generation (MU)	732.69	732.69	732.69
Net Generation (MU)	696.05	696.05	696.05

7.3 Fuel Cost

7.3.1 APGCL submitted that 'Fuel Price' and 'Calorific Value of Fuel' are uncontrollable items as per Regulation 10 of the MYT Regulations, 2021. The values of 'Calorific Value of Fuel' are considered same as considered for FY 2021-22.

7.3.2 As regards price of Fuel, APGCL submitted that the Gas prices has been revised to USD 2.90/ MMBTU from October 2021. Hence, the same price of gas has been considered for FY 2022-23 to FY 2024-25.

7.3.3 The following parameters are considered for calculating the landed gas price of gas for the MYT Control period:

- a. Basic Non-APM Gas price = \$ 2.90 / MMBTU
- b. Basic APM Gas price = \$ 1.74 / MMBTU (60% of Non-APM gas price)
- c. USD exchange rate = ₹ 73.56 (USD exchange rate for the month of Oct'21 in Rs. as obtained from RBI website)
- d. MMBTU to 1000 SCM conversion factor = 39.68254
- e. As per agreement, the transportation cost has been escalated by 3%.

7.3.4 APGCL submitted the GCV and Price of Fuel for Control Period as shown in the following Table:

Table 47: GCV and Landed Price of Gas for NRPP for FY 2022-23 to FY 2024-25 as submitted by APGCL

Particulars	FY 2022-23	FY 2023-24	FY 2024-25
GCV of Fuel (kcal/SCM)	9,204.80	9,204.80	9,204.80
Price of Fuel (Rs./1000 SCM)	5552.01	5552.27	5552.54

7.3.5 Accordingly, APGCL has projected fuel cost of Rs. 87.86 Crore for each year of the Control Period.

Commission's Analysis

7.3.6 In data gaps replies, APGCL submitted that there is a slight change in the Gas price for NRPP. Therefore, APGCL requested the Commission to approve the revised gas price as shown below:

Table 48: Revised Landed Price of Gas as submitted by APGCL (Rs. /1000 SCM)

Station	FY 2022-23	FY 2023-24	FY 2024-25
NRPP	5,617.39	5,617.39	5,617.39

7.3.7 APGCL submitted the revised fuel cost of Rs. 88.89 Crore for NRPP for each year of for the Control Period.

7.3.8 For the purpose of projecting the fuel price of NRPP for the Control Period, APGCL has considered the new gas price implemented from October 2021, which is appropriate. Therefore, the Commission has considered the fuel price and GCV as submitted by APGCL during the Control Period as shown below:

Table 49: GCV and Landed Price of Gas for NRPP for Control Period as approved by the Commission

Parameter	UoM	FY 2022-23	FY 2023-24	FY 2024-25
GCV	kcal/SCM	9,204.80	9,204.80	9,204.80
Price	Rs./1000 SCM	5,617.39	5,617.39	5,617.39

7.3.9 Accordingly, the Commission has approved the fuel cost for NRPP for the Control Period as shown in the Tables below:

-Table 50: Fuel Cost for NRPP for Control Period as approved by the Commission (Rs. Crore)

Sl. No.	Particulars	Derivation	Unit	FY 2022-23	FY 2023-24	FY 2024-25
1	Gross Generation	A	MU	732.69	732.69	732.69
2	Heat Rate	B	kcal/kWh	1,951.05	1,951.05	1,951.05
3	GCV of gas	C	kcal/SCM	9,204.80	9,204.80	9,204.80

Sl. No.	Particulars	Derivation	Unit	FY 2022-23	FY 2023-24	FY 2024-25
4	Overall Heat	D=AxB	G. cal.	14,29,505.60	14,29,505.60	14,29,505.60
5	Gas consumption	E=D/C	M. SCM	155.30	155.30	155.30
6	Price of Gas	F	Rs./1000 SCM	5,617.39	5,617.39	5,617.39
7	Total cost of Gas	G=ExF/100	Rs. Crore	87.24	87.24	87.24

7.4 O&M Expenses

7.4.1 APGCL has projected O&M expenses for NRPP for FY 2022-23 as per Regulation 50.2(b) of MYT Regulations, 2021, at approved normative O&M cost of Rs. 23.27 Lakh/MW/Year. Normative O&M expenses obtained for FY 2022-23 has been escalated at the rate equal to average of last three years CPI & WPI inflation considered in the ratio of 60:40 for the respective years to arrive at O&M expenses for FY 2023-24 to FY 2024-25 i.e., 4.57%. The O&M expenses projected by APGCL for FY 2022-23 to FY 2024-25 is shown in the table below:

Table 51: O&M Expenses for NRPP for Control Period as submitted by APGCL (Rs. Crore)

Station	FY 2022-23	FY 2023-24	FY 2024-25
O&M expenses	22.90	23.94	25.04

Commission's Analysis

7.4.2 The O&M expenses for NRPP have been estimated based on the O&M norm of Rs. 23.27 Lakhs/MW/Year for FY 2022-23 specified in Regulation 51.2 (b) of MYT Regulations, 2021. The O&M expenses for subsequent years of Control Period have been derived considering escalation of 5.25% on O&M expenses of FY 2022-23. Accordingly, the following O&M expenses are approved for the Control Period for all existing Stations of APGCL:

Table 52: O&M Expenses approved by the Commission for the Control Period (Rs. Crore)

Station	FY 2022-23	FY 2023-24	FY 2024-25
O&M expenses	22.90	24.10	25.37

7.5 Capitalisation

7.5.1 The Capital Investment proposed by APGCL for the Control Period towards R&M plan for NRPP have been discussed in detail in the previous Chapter. APGCL has considered the capitalisation against R&M plan. The summary of capitalisation proposed by APGCL for the Control Period is given in the Table below:

Table 53: Capitalisation for NRPP for Control Period as submitted by APGCL (Rs. Crore)

Station	FY 2022-23	FY 2023-24	FY 2024-25
Capitalisation	0.95	1.07	5.05

7.5.2 APGCL has proposed funding of above capitalisation for the Control Period entirely through debt.

Commission's Analysis

7.5.3 As discussed in earlier chapter, the Commission has not approved any expenditure for Renovation & Modernisation of NRPP for the Control Period. Hence, there is no capitalisation considered for the Control Period.

7.6 Depreciation

7.6.1 APGCL has computed the Depreciation as per Regulation 33 of MYT Regulations, 2021, considering the Capital Cost of the asset and projected asset addition with 10% salvage value. Also, depreciation on grants has been subtracted. The depreciation projected by APGCL for NRPP for the Control Period is shown in the following Table:

Table 54: Depreciation for NRPP for Control Period as submitted by APGCL (Rs. Crore)

Particulars	FY 2022-23	FY 2023-24	FY 2024-25
Opening GFA	901.00	901.95	903.02
Addition of GFA during the year	0.95	1.07	5.05
Closing GFA	901.95	903.02	908.07
Rate of Depreciation (%)	5.03%	5.03%	5.03%
Depreciation	45.37	45.39	45.47

Particulars	FY 2022-23	FY 2023-24	FY 2024-25
Less: Depreciation on grants	0.00	0.00	0.00
Net Depreciation	45.37	45.39	45.47

Commission's Analysis

7.6.2 For computation of depreciation, the Commission has considered the closing GFA for FY 2021-22 as approved in this Order, as the Opening GFA for FY 2022-23. Since, the additional capitalisation approved during the Control Period is Nil, no asset addition has been considered during the year. The Commission has considered the scheduled depreciation rates as specified in MYT Regulations, 2021. The Commission has not considered depreciation on assets funded through grants in accordance with Regulation 33 of MYT Regulations, 2021.

7.6.3 In view of the above, the Commission has approved depreciation for the period from FY 2022-23 to FY 2024-25 as per MYT Regulations, 2021, as given in the Table below:

Table 55: Depreciation for NRPP for Control Period as approved by the Commission (Rs. Crore)

Particulars	FY 2022-23	FY 2023-24	FY 2024-25
Opening GFA	728.96	728.96	728.96
Addition of GFA during the year	0.00	0.00	0.00
Closing GFA	728.96	728.96	728.96
Rate of Depreciation (%)	4.98%	4.98%	4.98%
Depreciation	36.27	36.27	36.27
Less: Depreciation on grants	0.00	0.00	0.00
Net Depreciation	36.27	36.27	36.27

7.7 Interest on loan capital

7.7.1 APGCL has projected the Interest on long-term Loan on normative basis for FY 2022-23 to FY 2024-25. APGCL has considered normative loan portfolio and the repayment is considered equal to the depreciation for FY 2022-23 to FY 2024-25. The weighted average interest rates of 10.93%, 10.85% and 10.79% have been considered for FY

2022-23 to FY 2024-25.

7.7.2 APGCL has computed the Interest on loan capital on normative basis as per MYT Regulations, 2021, as shown in the Table below:

Table 56: Interest on Loan Capital for NRPP for Control Period as submitted by APGCL (Rs. Crore)

Particulars	FY 2022-23	FY 2023-24	FY 2024-25
Net Normative Opening Loan	608.02	563.61	519.29
Addition of normative loan during the year	0.95	1.07	5.05
Repayment of normative loan during the year	45.37	45.39	45.47
Net Normative Closing Loan	563.61	519.29	478.87
Average normative Loan during the year	585.81	541.45	499.08
Rate of Interest (%)	10.93%	10.85%	10.79%
Interest on Loan Capital	64.04	58.75	53.84

Commission's Analysis

7.7.3 The closing net normative loan for FY 2021-22 as approved in this Order has been considered as opening net normative loan for FY 2022-23. No addition in normative loan has been considered. The loan repayment has been considered equivalent to Depreciation approved in this Order. As per MYT Regulations, 2021, the rate of interest shall be the weighted average rate of interest computed on the basis of the actual loan portfolio at the beginning of each year. The Commission has considered the weighted average interest rate of 10.93%, 10.85%, and 10.79% for FY 2022-23, FY 2023-24, and FY 2024-25, respectively as submitted by APGCL.

7.7.4 The Interest on loan capital approved by the Commission for the Control Period is shown in the following Table:

Table 57: Interest Charge for NRPP as approved for the Control Period (Rs. Crore)

Particulars	FY 2022-23	FY 2023-24	FY 2024-25
Net Normative Opening Loan	476.05	439.79	403.52
Addition of normative loan during the year	0.00	0.00	0.00
Repayment of normative loan during the	36.27	36.27	36.27

Particulars	FY 2022-23	FY 2023-24	FY 2024-25
year			
Net Normative Closing Loan	439.79	403.52	367.25
Rate of Interest (%)	10.93%	10.85%	10.79%
Interest on Loan Capital	50.05	45.74	41.57

7.8 Return on Equity

7.8.1 APGCL has projected the RoE at a rate of 15.5% in accordance with Regulation 34.2 (I) of the MYT Regulations, 2021. APGCL submitted that the actual tax paid would be claimed separately during True-up of respective years. APGCL submitted the ROE for Control Period for NRPP from FY 2022-23 to FY 2024-25 as shown in the following Table:

Table 58: Return on Equity for Control Period as submitted by APGCL (Rs. Crore)

Particulars	FY 2022-23	FY 2023-24	FY 2024-25
Opening Equity	270.30	270.30	270.30
Addition of Equity during the year	0.00	0.00	0.00
Closing Equity	270.30	270.30	270.30
Rate of Return	15.50%	15.50%	15.50%
Return on Equity	41.90	41.90	41.90

Commission's Analysis

7.8.2 The Commission has approved the Return on Equity in accordance with Regulation 34.2 of the MYT Regulations, 2021. The Commission has not considered any addition of equity for the Control Period. Accordingly, the approved Return on Equity at 15.50% is shown in the Table below:

Table 59: Return on Equity approved for the Control Period (Rs. Crore)

Particulars	FY 2022-23	FY 2023-24	FY 2024-25
Opening Equity	218.69	218.69	218.69
Addition of Equity during the year	0.00	0.00	0.00

Particulars	FY 2022-23	FY 2023-24	FY 2024-25
Closing Equity	218.69	218.69	218.69
Rate of Return	15.50%	15.50%	15.50%
Return on Equity	33.90	33.90	33.90

7.9 Interest on Working Capital (IoWC)

- 7.9.1 APGCL 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 is 10% (7% + 3%).
- 7.9.2 APGCL has computed the IoWC as per provisions of the MYT Regulations, 2021 for NRPP for the Control Period as shown in the following Table:

Table 60: Interest on Working Capital for Control Period as submitted by APGCL (Rs. Crore)

Particulars	FY 2022-23	FY 2023-24	FY 2024-25
Fuel Cost for one month	7.32	7.32	7.32
O&M Expenses for one month	1.91	2.00	2.09
Maintenance Spares @30% of O&M	6.87	7.18	7.51
Receivable for two months	44.69	43.98	43.36
Total Working Capital Requirement	60.79	60.48	60.28
Rate of Interest (%)	10.00%	10.00%	10.00%
Interest on Working Capital	6.08	6.05	6.03

Commission's Analysis

- 7.9.3 The Commission has computed IoWC in accordance with Regulation 37 of the MYT Regulations, 2021. 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 for the determination of tariff, which works out to 10.00%.

7.9.4 Interest on working capital approved by the Commission for NRPP for the Control Period is shown in the following Table:

Table 61: Interest on Working Capital approved for the Control Period (Rs. Crore)

Particulars	FY 2022-23	FY 2023-24	FY 2024-25
Fuel Cost for one month	7.27	7.27	7.27
O&M Expenses for one month	1.91	2.01	2.11
Maintenance Spares @30% of O&M	6.87	7.23	7.61
Receivable for two months	39.31	38.80	38.31
Total Working Capital Requirement	55.36	55.30	55.30
Rate of Interest (%)	10.00%	10.00%	10.00%
Interest on Working Capital	5.54	5.53	5.53

7.10 Non-Tariff Income

7.10.1 APGCL has not considered any Non-Tariff Income for NRPP for Control Period.

Commission's Analysis

7.10.2 The Commission has also not considered any Non-Tariff Income for NRPP for the Control Period. The same shall be considered on actual basis at time of truing up for respective years.

7.11 Summary of ARR for Control Period

7.11.1 Based on the above analysis, ARR approved for NRPP for the Control Period is summarised in the Table below:

Table 62: Summary of ARR approved by the Commission for NRPP for the Control Period (Rs. Crore)

Sr. No.	Particulars	APGCL's Submission			Approved by Commission		
		FY 2022-23	FY 2023-24	FY 2024-25	FY 2022-23	FY 2023-24	FY 2024-25
A	Annual Fixed Charges						
1	O&M Expenses	22.90	23.94	25.04	22.90	24.10	25.37
2	Depreciation	45.37	45.39	45.47	36.27	36.27	36.27
3	Interest on Loans	64.04	58.75	53.84	50.05	45.74	41.57
4	Return on Equity	41.90	41.90	41.90	33.90	33.90	33.90
5	Interest on working Capital*	6.08	6.05	6.03	5.54	5.53	5.53
6	Less: Other Income	0.00	0.00	0.00	0.00	0.00	0.00
7	Total Fixed Charges	180.28	176.02	172.27	148.65	145.53	142.63
B	Fuel Cost*	87.86	87.86	87.86	87.24	87.24	87.24
C	Total Revenue Requirement	268.14	263.88	260.14	235.88	232.77	229.87

**Note: APGCL in data gaps reply has revised its claimed Interest on working Capital to Rs. 6.11 Crore, Rs. 6.07 Crore and Rs. 6.05 Crore for FY 2022-23 to FY 2024-25. APGCL has also revised its claimed fuel cost to Rs. 88.89 Crore for each year of Control Period, due to revision in price of gas.*

8 Tariff for FY 2022-23

8.1 Generation Tariff for FY 2022-23

8.1.1 APGCL submitted the Tariff for NRPP for FY 2022-23 as shown in the following Table:

Table 63: Tariff for NRPP for FY 2022-23 as submitted by APGCL

Sr. No.	Particulars	FY 2022-23
1	Annual Fixed Charges (Rs. Crore)	180.28
2	Monthly Fixed Charges (Rs. Crore)	15.02
3	Energy Charge Rate (Rs./kWh)	1.26

Commission's Analysis

8.1.2 The tariff for FY 2022-23 has been determined based on the net ARR approved by the Commission in earlier Chapter of this Order.

8.1.3 Regulation 48.1 stipulates that the NAPAF for full recovery of Annual Fixed Charges shall be 85% for NRPP. The Availability approved by the Commission for NRPP is same as normative PAF. Hence, the Commission approves the full recovery of Fixed Charges for NRPP. Any loss in Annual Fixed Charges on account of lower availability shall be considered at the time of truing up for FY 2022-23. The Payment of Annual Fixed Charges shall be on monthly basis in equal instalments in proportion to contracted capacity subject to adjustment at the end of the year with respect to NAPAF.

8.1.4 Further, the Commission approves Energy Charge Rate based on Norms of Operation approved and GCV and price of Fuel considered in this Order. Any adjustment of rate of energy charge on account of variation in price or calorific value of fuels shall be done in accordance with Regulation 52.3 of MYT Regulations, 2021.

8.1.5 The Tariff approved by the Commission for NRPP for FY 2022-23 is shown in the following Table:

Table 64: Tariff for NRPP for FY 2022-23 as approved by the Commission

Sr. No.	Particulars	FY 2022-23
1	Annual Fixed Charges (Rs. Crore)	148.65
2	Monthly Fixed Charges (Rs. Crore)	12.39
3	Energy Charge Rate (Rs./kWh)	1.25

8.2 Applicability of Tariff

8.2.1 The approved Generation tariff for FY 2022-23 shall be effective from April 1, 2022 and shall continue until replaced/modified by an Order of the Commission.

Sd/-

(S.N. Kalita)

Member, AERC

Sd/-

(B. Borthakur)

Member, AERC

Sd/-

(K. S. Krishna)

Chairperson, AERC

Annexure 1: Minutes of the 29th Meeting of the State Advisory Committee

29th Meeting of the State Advisory Committee

VENUE : AERC Conference Hall, Guwahati.

DAY / DATE : Friday, 25th February, 2022.

LIST OF MEMBERS / SPECIAL INVITEES: At Annexure-I (Enclosed)

The 29th Meeting of State Advisory Committee (SAC) was chaired by the Hon'ble Chairperson, AERC, Kumar Sanjay Krishna, IAS, (Retd.).

Shri S.N Kalita, Member (Technical) participated in the meeting through video conferencing.

At the onset, Hon'ble Chairperson, AERC welcomed all members and invitees. He informed the members that APGCL, AEGCL, and SLDC submitted tariff petitions for MYT Control Period FY2022-23 to 2024-25, True-Up for FY 2020-21, APR for FY 2021-22 and Tariff for FY 2022-23 on 30th November 2021, and APDCL submitted on 16th December 2021. The Commission after scrutiny of the petitions directed the petitioners to publish the petition for information of the public and for comments/suggestions vide order dated 23.12.2021 after the preliminary hearing. In response to the petitions, eight (8) nos. of stakeholders submitted their views. The Commission has fixed 2nd March, 2022 for a public hearing. So, the Commission decided to place the tariff petition before the State Advisory Committee for valuable suggestions and guidance of the members. Hon'ble Chairperson requested the members to give constructive views and suggestions to enable Commission to complete tariff determination process within the timeline.

The welcome address was followed by an introductory session among the members and invitees. Thereafter, the agenda items were taken up for discussion in seriatim.

The important points raised by the members during the discussions are briefly recorded below.

Agenda: Confirmation of the Minutes of 28th meeting of SAC held on 23.09.2021

The draft minutes of the 28th meeting held on 23.09.2021 were circulated among the members. Few comments were received from the members that have been incorporated in the final minutes. The minutes were confirmed and accepted by the members.

Agenda: Presentation by APGCL

A Power Point presentation was made by MD, APGCL on the salient features of MYT petition submitted by APGCL. Important points of the discussion are noted below-

In true up for FY 2020-21, APGCL has shown a revenue gap of Rs. 25.86 Crore, Rs. 55.03 Crore for NTPS, KLHEP, and surplus of Rs. 13.59 Crore, Rs. 1.98 Crore for LTPS, LRPP. APGCL has a projected per unit cost of Rs. 3.87, Rs. 3.21, Rs. 4.84 and Rs. 2.07 for NTPS, LTPS, KLHEP, and LRPP, respectively.

In APR for FY 2021-22, APGCL has projected per-unit cost of Rs. 4.4, Rs.4.34, Rs. 2.32 and Rs. 2.21 for NTPS, LTPS, KLHEP and LRPP respectively.

In ARR for FY 2022-23 to FY 2024-25, APGCL has proposed a tariff of Rs. 3.85, Rs. 3.79 and Rs. 3.74 respectively.

MD, APGCL highlighted that in True-Up, KLHEP's gross generation is less than approved figures due to landslide. MD, APGCL also requested the Commission to approve special R&M for LTPS, and KLHEP amounting Rs. 5 Crore, and Rs.8 Crore, respectively. Several projects are in pipeline for APGCL for e.g Borpani stages 1 & 2, Lower Kopili in Hydro. APGCL is also emphasizing in solar plant and are developing solar generation plants in Majuli and Namrup. MD, APGCL highlighted that these new plants will be beneficial for APDCL during power crisis situations like October coal crisis when prices shoot up in IEX. Chairman, APGCL mentioned that a comprehensive study is very important for resources in Assam which will help in the enhancement of Generation Capacity and Renewable Capacity addition.

Consumer activist Shri Subodh Sharma stated that there is a lack of co-ordination between APGCL and APDCL which leads to power evacuation and optimization. He also mentioned that real-time measurement of gas supply is not available with APGCL except at LTPS which should be incorporated to ensure Calorific value and other parameters for the Generating station. He also suggested to conduct co-ordination

meetings between the three utilities which were also directed by the Hon'ble Commission.

Shri K. Medhi, Secretary, NESSIA requested APGCL to ensure timely completion of the Hydro and Solar projects with meticulous planning with the proper funding mechanism. MD, APGCL replied that budget provision is already made for the solar project and GoA has assured funding for Borpani stage 1&2. MD, APGCL also informed that Azure Power will complete the solar project in Silchar in March' 22.

Shri M.B Devchoudhury suggested that a study may be carried out for LTPS 's high auxiliary consumption to which MD, APGCL replied that APGCL will carry out the same.

Member, Technical enquired about the funding to pay the Interest & Finance charges for NRPP amounting Rs. 63.95 Crore to which MD, APGCL replied that the same will be adjusted in tariff.

Shri Saurabh Agarwal, Chairman, Power Committee, FINER expected APGCL to expedite peak time demand management and proper planning of resources.

Hon'ble Chairperson stated that Prime Minister is committed to attain target for renewable power and opined that APGCL should come up with a new renewable generation project with provision for storage. MD, APGCL replied that the same has been proposed to be incorporated in the policy of Govt. of Assam.

Agenda: Presentation by AEGCL

A PowerPoint presentation was made by MD, AEGCL on the salient features of MYT petition submitted by AEGCL and SLDC. Important points of the discussion are noted below

In True-up for FY 2020-21, AEGCL has shown ARR of Rs.378.56 Crore and a surplus of Rs. 16.36 Crore. For SLDC, in True-Up, ARR of Rs. 4.67 Crore and gap of Rs. 0.40 Crore is shown.

In APR for FY 2021-22, AEGCL has shown ARR of Rs.406.17 Crore and a gap of Rs. 5.72 Crore. For SLDC, in APR, ARR of Rs. 6.15 Crore and surplus of Rs. 1.21 Crore is shown.

In ARR for FY 2022-23, 2023-24 and 2024-25, AEGCL has shown ARR of Rs.504.89 Crore, Rs. 530.42 Crore and Rs. 577.71 Crore, respectively. In ARR for FY 2022-

23,2023-24 and 2024-25, SLDC has shown ARR of Rs.7.74 Crore, Rs. 9.40 Crore and Rs. 11.24 Crore, respectively.

AEGCL has submitted a loss of 3.34% for True-up and projected a loss of 3.30% through APR and ARR. AEGCL has a projected transmission charge of Rs.0.452 Rs./kwh and SLDC charge of Rs. 96.49/MW/Day for FY 2022-23.

MD, AEGCL has mentioned that Transmission Loss reduction will be ensured with the help of various projects details of which have been submitted in the tariff petition in the Capital Investment Plan. DGM(F&A) has mentioned that AEGCL has proposed to increase BST by 5 paise from the existing 15 paise to meet the liabilities of the pension trust. Shri, Subodh Sharma stated that Govt. should be made responsible for liabilities of pension trust instead of consumers. Member, Technical requested AEGCL to brief the Commission on how the deficit of pension trust is met in other states.

MD, AEGCL has stated about EOI by private telecom companies for OPGW infrastructure of AEGCL. Shri D.K Sharma, retd. Director PGCIL, mentioned that AEGCL should submit the details of income from OPGW.

Shri Harsh Sutodiya. Ex. member,AIIMO enquired about the timeline for completion for SAMAST which will ensure a proper mechanism to quantify real time transmission loss.MD, AEGCL replied that the four pilot projects of SAMAST shall be completed by Oct' 22.

Hon'ble Chairperson requested AEGCL to come up with actual analysis for Transmission loss instead of notional loss for proper reporting in Tariff Petition.

Agenda: Presentation by APDCL

A PowerPoint presentation was made by MD, APDCL on the salient features of MYT petition submitted by APDCL. Important points of the discussion are noted below

In True-Up for FY 2020-21, APDCL submitted ARR of Rs.6571.8 Crore with a gap of Rs.973.49 Crore. In APR for FY 2021-22, APDCL submitted ARR of Rs.7085 Crore with a gap of Rs. 645.57 Crore. In ARR for FY 2022-23,2023-24 and 2024-25, APDCL submitted ARR of Rs. 7536.029 Crore, Rs.8300.39 Crore. and Rs. 9059.01 Crore, respectively.

MD, APDCL has highlighted that the gap in True Up is mainly due to deviation in Power purchase cost to the tune of Rs.608 Crore. Key driving factor for this deviation are less generation by APGCL, incremental POC charges, additional fixed cost due to demand crash during the covid period, delay in commissioning of Nikachu Hydro Power Plant, etc.

MD, APDCL mentioned that APDCL is the first to get the DPR approved for RDSS (Revamped Distribution Sector Scheme) details of which are available in the tariff petition.

AASSIA opined that special consideration should be made for small scale industries in fixing the tariff.

Shri Subodh Sharma has suggested that Govt. should take up a master plan to reduce the revenue gap to improve APDCL's financial health.

FINER requested the Utilities to make a Power Roadmap for the State for the next 10 years. FINER also suggested APDCL to not purchase RECs as the upcoming 1000MW Solar Capacity will fulfill the RPO as per Regulations. FINER emphasized on incorporation of storage facility for the 1000MW Solar Capacity and explore Open Market for trading of this Solar Power.

NESSIA prayed before the Hon'ble Commission to not increase fixed charges as Industries will be affected adversely because of this, any increase in tariff should be recovered through energy charge. Shri M.P Bezbaruah, Prof. Guwahati University also supported the views.

Shri U.K Sharma, member senior Engineer's Forum advised APDCL should take up pilot projects in remote circles for getting better results.

Shri Harsh Sutodiya. Ex. member, AIIMO enquired about Power in hours for industrial feeders, cost of Power Purchase, REC burden of APDCL etc. for a better understanding of Tariff modeling.

The meeting ended with a vote of thanks from and to the Chair.

Sd/-
Secretary,
Assam Electricity Regulatory Commission

LIST OF MEMBERS, SPECIAL INVITEES AND OFFICERS PRESENT.

Members

1. Kumar Sanjay Krishna, IAS (Retd), Chairperson, AERC
2. Smt. Bulbuli Borthakur, Member (Law), AERC
3. Shri Satyendra Nath Kalita, Member (Technical), AERC
4. Shri Gautam Talukdar, Secretary, Power (E) Department, Government of Assam
5. Shri Harsh Sutodia, Executive Member, AIMO
6. Shri Subodh Sharma, Consumer Activist
7. Shri Mrinmoy Baruah, Secretary. ABITA
8. Shri M.C Barhakur, Vice President AASSIA
9. Shri J N Baruah, Treasurer, AASSIA
10. Shri M P Bezbaruah, Professor, Guwahati University
11. Shri Kumud Medhi, Secretary, NESSIA
12. Shri Saurabh Agarwal, Chairman Power, FINER
13. Shri D.K. Sarma, Retd. Director, PGCIL
14. Shri Champak. Baruah, Ex-Member (T), APDCL & Member, CGRF (Ghy).
15. Prof. N. B Dev Choudhury, Professor, NIT, Silchar
16. Dr. Aditya Bihar Kandali, Department of Electrical Engineering, JEC
17. Shri U.K. Sharma, Senior Engineer's Forum
18. Dr Satyajit Bhuyan, Professor, AEC

SPECIAL INVITEES

1. Shri Sanjeeva Kumar, IAS (Retd.), Chairman, APGCL
2. Shri Rakesh Kumar, IAS, Managing Director, APDCL & APGCL
3. Shri D Das, Managing Director, AEGCL

OFFICERS FROM APDCL. AEGCL & APGCL

APDCL

1. Shri Anamul Haque Laskar, CGM (Com & EE), APDCL
2. Shri Sumit Kr. Singha, AGM, APDCL
3. Shri N. Deb, AGM (F&A), APDCL

AEGCL

1. Shri L. Bhuyan, CGM, AEGCL
2. Shri HimayshuBaishya, GM, AEGCL
3. Shri Suresh Kaimal, DGM, AEGCL
4. Shri F H Ajhmi, DGM, AEGCL
5. Shri Debasish Paul, AGM, AEGCL
6. Shri MrigankaBhuyan, AGM, AEGCL
7. Shri Pranab Saha, AGM, AEGCL
8. Shri Bidyut Bikash Das, Consultant, AEGCL

APGCL

1. Mrs Aklantika Saikia, DGM, APGCL
2. Mrs Pinky Deb, AM (F&A), APGCL
3. Shri Manash Jyoti Konwar, JM, APGCL
4. Shri Sunny Kumar Singh, Deloitte India, Consultant

OFFICERS FROM AERC

1. Shri M.K. Deka, ACS (Retd), Secretary, AERC
2. Shri A.N. Devchoudhury, Director (Tariff), AERC
3. Ms. P. Sharma, Joint Director (Regulatory Affairs & Finance Planning), AERC
4. Shri N.K. Deka, Deputy Director (Gen, PPA, P&P), AERC
5. Mrs R. Baruah, Deputy Director (Engg.), AERC
6. Mrs P. Rabha, Assistant Director (Tariff), AERC

ADVISER FROM AERC:

1. Shri S.K. Roy, ACS (Retd).