

APPEAL FOR TRUE-UP FOR THE FY 2021-22
&
ANNUAL PERFORMANCE REVIEW FOR THE FY 2022-23
&
REVISED AGGREGATE REVENUE REQUIREMENT FOR FY 2023-
24
&
DETERMINATION OF TARIFF FOR FY 2023-24
TO
ASSAM ELECTRICITY REGULATORY COMMISSION



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

Table of Contents

1.	Legal and Regulatory Framework	14
1.1.	Background	14
2.	Background	18
2.1.	Introduction	18
2.2.	APGCL Project Summary	19
2.3.	Annual accounts.....	19
2.4.	True-up of FY 2021-22.....	20
2.5.	Regulatory provisions	20
2.6.	Installed and Effective Capacity in FY 2021-22	20
3.	Norms of operations	20
3.1.	Regulatory provisions	20
3.2.	Snapshot of plant wise performance for FY 2021-22	20
3.3.	Normative Annual Plant Availability Factor (NAPAF).....	23
3.4.	Normative Annual Plant Load Factor (NAPLF)	25
3.5.	Gross Station Heat Rate (SHR)	26
3.6.	Auxiliary Energy Consumption.....	27
4.	Fixed Cost of the Plant	29
4.1.	Annual fixed cost for FY 2021-22	29
4.2.	Additional Capital Expenditure incurred in FY 2021-22 for Post COD for NRPP.....	29
4.3.	Return on Equity (ROE)	30
4.4.	Interest on Loan Capital.....	32
4.5.	Depreciation.....	33
4.6.	Interest on Working Capital	37
4.7.	Operation and Maintenance Expenses.....	38
4.8.	Impact of AERC (Payment of Fees etc.) Regulation, 2020	39
4.9.	Actual Tax Claim.....	40
4.10.	Special R&M.....	40
4.11.	Capacity building.....	42
4.12.	Non-Tariff income	44
5.	Energy Charges.....	44
5.1.	Fuel Price and Calorific Value.....	44
5.2.	Fuel cost	45
5.3.	Incentives	46
5.4.	Revenue from sale of power	47
6.	Summary of submissions for True-up of FY 2021-22	47
6.1.	Net Annual Revenue Requirement	47
6.2.	Summary	51



6.3.	Adjustment of Revenue Gap / Surplus.....	51
6.4.	Mechanism of recovery of Surplus/Gap of FY 2021-22	52
7.	Revised Capital Investment Plan of NTPS, LTPS, KLHEP, LRPP and NRPP for FY 2022-23 to FY 2023-24	54
7.1.	Regulatory provisions	54
8.	Capital Expenditure – Existing Projects.....	55
8.1.	Capital Expenditure Plan of Existing Projects	55
8.2.	Revised Capital Expenditure Plan of NTPS.....	55
8.3.	Revised Capital Expenditure Plan of LTPS.....	56
8.4.	Revised Capital Expenditure Plan of KLHEP	66
8.5.	Revised Capital Expenditure Plan of LRPP	70
8.6.	Plant wise mandatory spare required for FY 2023-24	71
9.	ERP implementation and Consultancy.....	71
9.1.	Capital investment	71
10.	SUMMARY OF THE REVISED CAPITAL EXPENDITURE PLAN	73
10.1.	Proposed Capex	73
11.	Present status of NTPS, LTPS, KLHEP, LRPP and NRPP.....	77
12.	Annual Performance Review of FY 2022-23	78
12.1.	Regulatory provisions.....	78
13.	Norms of operations	79
13.1.	Regulatory provisions.....	79
13.2.	Installed and Effective Capacity in FY 2022-23	79
13.3.	Snapshot of plant wise performance for FY 2022-23	79
13.4.	Normative Annual Plant Availability Factor (NAPAF).....	83
13.5.	Normative Annual Plant Load Factor (NAPLF)	84
13.6.	Gross Station Heat Rate (SHR)	86
13.7.	Auxiliary Energy Consumption.....	87
14.	Fixed Cost of the Plant	89
14.1.	Annual fixed cost for FY 2022-23	89
14.2.	Return on Equity (ROE)	89
14.3.	Interest on Loan Capital	90
14.4.	Depreciation.....	92
14.5.	Interest on Working Capital	96
14.6.	Operation and Maintenance Expenses (O&M Expenses).....	98
14.7.	Incentives	105
14.8.	Special R&M	105
14.9.	Non-Tariff Income	108
15.	Energy Charges.....	109



15.1.	Fuel Price and Calorific Value.....	109
15.2.	Fuel cost	109
16.	Summary of submissions for Annual Performance Review of FY 2022-23.....	111
16.1.	Net Annual Revenue Requirement	111
16.2.	Summary	114
17.	Revised ARR of NTPS for FY 2023-24	119
17.1.	Regulatory provisions for Revised ARR.....	119
18.	Norms of operations	120
18.1.	Regulatory provisions.....	120
18.2.	Installed and Effective Capacity in FY 2023-24	120
18.3.	Snapshot of performance projection for FY 2023-24	120
18.4.	Normative Annual Plant Availability Factor (NAPAF).....	120
18.5.	Normative Annual Plant Load Factor (NAPLF)	121
18.6.	Gross Station Heat Rate (SHR)	121
18.7.	Auxiliary Energy Consumption.....	121
19.	Fixed Cost of the Plant	122
19.1.	Annual fixed cost for FY 2023-24	122
19.2.	Return on Equity (ROE)	122
19.3.	Interest on Loan Capital	123
19.4.	Depreciation.....	123
19.5.	Interest on Working Capital	125
19.6.	Operation and Maintenance Expenses.....	125
19.7.	Impact of AERC (Payment of Fees etc.) Regulation, 2020	126
19.8.	Non-Tariff income	126
20.	Energy Charges.....	126
20.1.	Fuel Price and Calorific Value.....	126
20.2.	Fuel cost	127
20.3.	Incentives	127
21.	Other expenses	127
21.1.	Capacity building.....	127
21.2.	Special R&M.....	127
22.	Summary of submissions for Revised ARR of FY 2023-24.....	128
22.1.	Summary	128
22.2.	Net Annual Revenue Requirement	129
22.3.	Tariff of NTPS for FY 2023-24.....	129
23.	Revised ARR of LTPS for FY 2023-24	133
23.1.	Regulatory provisions for Revised ARR.....	133
24.	Norms of operations	134



24.1.	Regulatory provisions.....	134
24.2.	Installed and Effective Capacity in FY 2023-24	134
24.3.	Snapshot of performance projection for FY 2023-24	134
24.4.	Normative Annual Plant Availability Factor (NAPAF).....	134
24.5.	Normative Annual Plant Load Factor (NAPLF)	135
24.6.	Gross Station Heat Rate (SHR)	135
24.7.	Auxiliary Energy Consumption	135
25.	Fixed Cost of the Plant	135
25.1.	Annual fixed cost for FY 2023-24	135
25.2.	Return on Equity (ROE)	136
25.3.	Interest on Loan Capital	136
25.4.	Depreciation.....	137
25.5.	Interest on Working Capital	138
25.6.	Operation and Maintenance Expenses (O&M Expenses)	139
25.7.	Impact of AERC (Payment of Fees etc.) Regulation, 2020	139
25.8.	Non-Tariff income	140
26.	Energy Charges.....	140
26.1.	Fuel Price and Calorific Value.....	140
26.2.	Fuel cost	140
26.3.	Incentives	141
27.	Other expenses	141
27.1.	Capacity building.....	141
27.2.	Special R&M.....	141
28.	Summary of submissions for Revised ARR of FY 2023-24.....	142
28.1.	Summary	142
28.2.	Net Annual Revenue Requirement	143
28.3.	Tariff for LTPS for FY 2023-24	143
29.	Revised ARR of KLHEP for FY 2023-24.....	147
29.1.	Regulatory provisions for Revised ARR.....	147
30.	Norms of operations	148
30.1.	Regulatory provisions.....	148
30.2.	Installed and Effective Capacity in FY 2023-24	148
30.3.	Snapshot of performance projection for FY 2023-24	148
30.4.	Normative Annual Plant Availability Factor (NAPAF).....	148
30.5.	Normative Annual Plant Load Factor (NAPLF)	149
30.6.	Auxiliary Energy Consumption.....	149
31.	Fixed Cost of the Plant	149
31.1.	Annual fixed cost for FY 2023-24	149



31.2.	Return on Equity (ROE)	150
31.3.	Interest on Loan Capital	150
31.4.	Depreciation.....	151
31.5.	Interest on Working Capital	152
31.6.	Operation and Maintenance Expenses.....	153
31.7.	Non-Tariff income	153
31.8.	Incentives	154
32.	Other expenses	154
32.1.	Capacity building.....	154
32.2.	Special R&M.....	154
33.	Summary of submissions for Revised ARR of FY 2023-24.....	154
33.1.	Summary	154
33.2.	Net Annual Revenue Requirement	155
33.3.	Tariff for KLHEP for FY 2023-24.....	155
34.	Revised ARR of LRPP for FY 2023-24.....	159
34.1.	Regulatory provisions for Revised ARR.....	159
35.	Norms of operations	160
35.1.	Regulatory provisions.....	160
35.2.	Installed and Effective Capacity in FY 2023-24	160
35.3.	Snapshot of performance projection for FY 2023-24	160
35.4.	Normative Annual Plant Availability Factor (NAPAF).....	160
35.5.	Normative Annual Plant Load Factor (NAPLF)	161
35.6.	Gross Station Heat Rate (SHR)	161
35.7.	Auxiliary Energy Consumption.....	161
36.	Fixed Cost of the Plant	161
36.1.	Annual fixed cost for FY 2023-24	161
36.2.	Return on Equity (ROE)	162
36.3.	Interest on Loan Capital	162
36.4.	Depreciation.....	163
36.5.	Interest on Working Capital	164
36.6.	Operation and Maintenance Expenses.....	165
36.7.	Impact of AERC (Payment of Fees etc.) Regulation, 2020	166
36.8.	Non-Tariff income	166
37.	Energy Charges.....	166
37.1.	Fuel Price and Calorific Value.....	166
37.2.	Fuel cost	167
37.3.	Incentives	167
38.	Other expenses	167



38.1.	Capacity building.....	167
38.2.	Special R&M.....	167
39.	Summary of submissions for Revised ARR of FY 2023-24.....	168
39.1.	Summary.....	168
39.2.	Net Annual Revenue Requirement.....	169
39.3.	Tariff for LRPP for FY 2023-24.....	169
40.	Revised ARR of NRPP for FY 2023-24.....	173
40.1.	Regulatory provisions for Revised ARR.....	173
41.	Norms of operations.....	174
41.1.	Regulatory provisions.....	174
41.2.	Installed and Effective Capacity in FY 2023-24.....	174
41.3.	Snapshot of performance projection for FY 2023-24.....	174
41.4.	Normative Annual Plant Availability Factor (NAPAF).....	174
41.5.	Normative Annual Plant Load Factor (NAPLF).....	175
41.6.	Gross Station Heat Rate (SHR).....	175
41.7.	Auxiliary Energy Consumption.....	175
42.	Fixed Cost of the Plant.....	176
42.1.	Annual fixed cost for FY 2023-24.....	176
42.2.	Return on Equity (ROE).....	176
42.3.	Interest on Loan Capital.....	177
42.4.	Depreciation.....	177
42.5.	Interest on Working Capital.....	179
42.6.	Operation and Maintenance Expenses.....	179
42.7.	Impact of AERC (Payment of Fees etc.) Regulation, 2020.....	180
42.8.	Non-Tariff income.....	180
43.	Energy Charges.....	180
43.1.	Fuel Price and Calorific Value.....	180
43.2.	Fuel cost.....	181
43.3.	Incentives.....	181
44.	Other expenses.....	181
44.1.	Capacity building.....	181
44.2.	Special R&M.....	181
45.	Summary of submissions for Revised ARR of FY 2023-24.....	183
45.1.	Summary.....	183
45.2.	Net Annual Revenue Requirement.....	183
45.3.	Tariff of NRPP for FY 2023-24.....	184
46.	Directives.....	185
46.1.	Compliance of Directives issued in the Tariff Order for FY 2022-23.....	185



List of Tables

Table 1: Installed & Effective Capacity for FY 2021-22	20
Table 2: Operating Performance of NTPS for FY 2021-22.....	20
Table 3: Operating Performance of LTPS for FY 2021-22	21
Table 4: Operating Performance of KLHEP for FY 2021-22.....	21
Table 5: Operating Performance of LRPP for FY 2021-22	22
Table 6: Operating Performance of NRPP for FY 2021-22	22
Table 7: Generation loss of NTPS due to Grid disturbance in FY 2021-22.....	23
Table 8: Availability of NTPS for FY 2021-22	24
Table 9: Availability of LTPS for FY 2021-22.....	24
Table 10: Availability of KLHEP for FY 2021-22	24
Table 11: Availability of LRPP for FY 2021-22	24
Table 12: Availability of NRPP for FY 2021-22	25
Table 13: Plant Load Factor of NTPS for FY 2021-22	25
Table 14: Plant Load Factor of LTPS for FY 2021-22	25
Table 15: Plant Load Factor of KLHEP for FY 2021-22.....	25
Table 16: Plant Load Factor of LRPP for FY 2021-22.....	25
Table 17: Plant Load Factor of NRPP for FY 2021-22.....	26
Table 18: SHR of NTPS for FY 2021-22	26
Table 19: SHR of LTPS for FY 2021-22	26
Table 20: SHR of LRPP for 2021-22	27
Table 21: SHR of NRPP for FY 2021-22.....	27
Table 22: Auxiliary energy consumption of NTPS for FY 2021-22	27
Table 23: Auxiliary energy consumption of LTPS for FY 2021-22	28
Table 24: Auxiliary energy consumption of KLHEP for FY 2021-22.....	28
Table 25: Auxiliary energy consumption of LRPP for FY 2021-22	28
Table 26: Auxiliary energy consumption of NRPP for FY 2021-22.....	28
Table 27: Additional Capital Expenditure incurred in FY 2021-22 Post COD for NRPP.....	29
Table 28: Computation of opening equity base for FY 2021-22	30
Table 29: Computation of Plant wise Return in Equity for FY 2021-22	31
Table 30: Computation of Plant wise Interest and finance charges for FY 2021-22	32
Table 31: Depreciation of NTPS for FY 2021-22.....	34
Table 32: Depreciation of LTPS for FY 2021-22.....	34
Table 33: Depreciation of KLHEP for FY 2021-22	34
Table 34: Depreciation of LRPP for FY 2021-22	35
Table 35: Depreciation of NRPP for FY 2021-22	35
Table 36: Summary of Depreciation claimed for FY 2021-22	36
Table 37: Summary of Interest on working capital claimed for FY 2021-22.....	37
Table 38: Operation and Maintenance claimed for FY 2021-22.....	39
Table 39: Impact of increase in AERC Fees claimed for FY 2021-22	39
Table 40: Plant wise Tax on income claimed for FY 2021-22.....	40
Table 41: Details of Special R&M claimed for FY 2021-22.....	40
Table 42: Plant wise Special R&M for FY 2021-22	41
Table 43: Expenses under Capacity building for FY 2021-22	43
Table 44: Station-wise details of non-tariff income for FY 2021-22	44
Table 45: Actual Plant wise GCV and Price for FY 2021-22.....	44
Table 46: Fuel cost of NTPS for FY 2021-22	45
Table 47: Fuel cost of LTPS for FY 2021-22	45
Table 48: Fuel cost of LRPP for FY 2021-22.....	45
Table 49: Fuel cost of NRPP of FY 2021-22	46
Table 50: Secondary Charge of KLHEP for FY 2021-22.....	46



Table 51: Incentive Claim of KLHEP for FY 2021-22	46
Table 52: Plant wise Revenue from Sale of Power for FY 2021-22	47
Table 53: Net Annual Revenue Requirements of NTPS for FY 2021-22	47
Table 54: Net Annual Revenue Requirements of LTPS for FY 2021-22	48
Table 55: Net Annual Revenue Requirements of KLHEP for FY 2021-22	49
Table 56: Net Annual Revenue Requirements for LRPP for FY 2021-22	49
Table 57: Net Annual Revenue Requirements of NRPP for FY 2021-22	50
Table 58: True-up of APGCL as Whole for FY 2021-22	51
Table 59: Revenue Gap / Surplus amount of APGCL for FY 2021-22	52
Table 60: Total True-up Claim of APGCL for FY 2021-22	52
Table 61: R&M plan proposed of NTPS for FY 2022-23 to FY 2023-24	55
Table 62: R&M plan proposed of LTPS for FY 2022-23 to FY 2023-24	56
Table 63: R&M plan proposed of KLHEP for FY 2022-23 to FY 2023-24	66
Table 64: R&M plan proposed of LRPP for FY 2022-23 to FY 2023-24	70
Table 65: Plant wise mandatory spare for FY 2023-24	71
Table 66: Financial impact of ERP implementation and Consultancy	72
Table 67: Revised financial impact of ERP implementation and Consultancy plant wise	73
Table 68: Summary of revised capital expenditure plan for FY 2022-23 to FY 2023-24	73
Table 69: Present Status of NTPS Units	77
Table 70: Present Status of LTPS Units	77
Table 71: Present Status of KLHEP Units	77
Table 72: Present Status of LRPP Unit	77
Table 73: Present Status of NRPP Units	77
Table 74: Installed & Effective Capacity for FY 2022-23	79
Table 75: Operating Performance of NTPS for FY 2022-23	79
Table 76: Operating Performance of LTPS for FY 2022-23	80
Table 77: Operating Performance of KLHEP for FY 2022-23	81
Table 78: Operating Performance of LRPP for FY 2022-23	81
Table 79: Operating Performance of NRPP for FY 2022-23	82
Table 80: Availability of NTPS for FY 2022-23	83
Table 81: Availability of LTPS for FY 2022-23	83
Table 82: Availability of KLHEP for FY 2022-23	84
Table 83: Availability of LRPP for FY 2022-23	84
Table 84: Availability of NRPP for FY 2022-23	84
Table 85: Plant Load Factor of NTPS for FY 2022-23	84
Table 86: Plant Load Factor of LTPS FY for 2022-23	85
Table 87: Plant Load Factor of KLHEP for FY 2021-22	85
Table 88: Plant Load Factor of LRPP for FY 2022-23	85
Table 89: Plant Load Factor of NRPP for FY 2022-23	85
Table 90: SHR of NTPS for FY 2022-23	86
Table 91: SHR of LTPS for FY 2022-23	86
Table 92: SHR of LRPP for FY 2022-23	86
Table 93: SHR of NRPP for FY 2022-23	87
Table 94: Auxiliary energy consumption of NTPS for FY 2022-23	87
Table 95: Auxiliary energy consumption of LTPS for FY 2022-23	88
Table 96: Auxiliary energy consumption of KLHEP for FY 2022-23	88
Table 97: Auxiliary energy consumption of LRPP for FY 2022-23	88
Table 98: Auxiliary energy consumption of NRPP for FY 2022-23	88
Table 99: Computation of Plant wise Return in Equity for FY 2022-23	89
Table 100: Computation of Plant wise Interest and finance charges for FY 2022-23	91
Table 101: Depreciation of FY NTPS for 2022-23	92



Table 102: Depreciation of LTPS for FY 2022-23.....	93
Table 103: Depreciation of KLHEP for FY 2022-23.....	93
Table 104: Depreciation of LRPP for FY 2022-23.....	94
Table 105: Depreciation of NRPP for FY 2022-23.....	94
Table 106: Summary of Depreciation claimed for FY 2022-23.....	94
Table 107: Summary of Interest on working capital claimed for FY 2022-23.....	96
Table 108: Revised Normative O&M Cost for MYT Control Period from FY 2022-23 to FY 2024-25 .	100
Table 109: Revised O&M Cost for FY 2022-23.....	100
Table 110: Plant wise Special R&M for FY 2022-23.....	108
Table 111: Station-wise details of non-tariff income for FY 2022-23.....	109
Table 112: Actual Plant wise GCV and Price for FY 2022-23.....	109
Table 113: Fuel cost of NTPS for FY 2022-23.....	110
Table 114: Fuel cost of LTPS for FY 2022-23.....	110
Table 115: Fuel cost of LRPP for FY 2022-23.....	110
Table 116: Fuel cost of NRPP for FY 2022-23.....	110
Table 117: Net Annual Revenue Requirements of NTPS for FY 2022-23.....	111
Table 118: Net Annual Revenue Requirements of LTPS for FY 2022-23.....	111
Table 119: Net Annual Revenue Requirements of KLHEP for FY 2022-23.....	112
Table 120: Net Annual Revenue Requirements of LRPP for FY 2022-23.....	113
Table 121: Net Annual Revenue Requirements of NRPP for FY 2022-23.....	113
Table 122: APR of APGCL as Whole for FY 2022-23.....	114
Table 123: Net Annual Revenue Requirements of APGCL for FY 2022-23.....	115
Table 124: Installed & Effective Capacity of NTPS for FY 2023-24.....	120
Table 125: Projected Operating Performance of NTPS for FY 2023-24.....	120
Table 126: Projected Availability of NTPS for FY 2023-24.....	121
Table 127: Projected PLF of NTPS for FY 2023-24.....	121
Table 128: Projected SHR of NTPS for FY 2023-24.....	121
Table 129: Projected Auxiliary energy consumption of NTPS for FY 2023-24.....	121
Table 130: Projected Return on Equity capital of NTPS for FY 2023-24.....	122
Table 131: Projected Interest and Finance charges of NTPS for FY 2023-24.....	123
Table 132: Projected Depreciation of NTPS for FY 2023-24.....	124
Table 133: Summary of projected Depreciation of NTPS for FY 2023-24.....	124
Table 134: Summary of Interest on working capital of NTPS for FY 2023-24.....	125
Table 135: Revised O&M cost of NTPS for FY 2023-24.....	125
Table 136: Impact of increase in AERC Fees projected for FY 2023-24.....	126
Table 137: Station-wise non-tariff income projected for FY 2023-24.....	126
Table 138: Projected GCV and Price for FY 2023-24.....	126
Table 139: Fuel cost of NTPS for FY 2023-24.....	127
Table 140: Expenses under capacity building.....	127
Table 141: Expenses under Special R&M.....	128
Table 142: Revised ARR of NTPS for FY 2023-24.....	128
Table 143: Net Annual Revenue Requirements of NTPS for FY 2023-24.....	129
Table 144: Tariff proposed of NTPS for FY 2023-24.....	129
Table 145 : Installed & Effective Capacity of LTPS for FY2023-24.....	134
Table 146: Projected Operating Performance of LTPS for FY 2023-24.....	134
Table 147: Projected Availability of LTPS for FY 2023-24.....	134
Table 148: Projected PLF of LTPS for FY 2023-24.....	135
Table 149: Projected SHR of LTPS for FY 2023-24.....	135
Table 150: Projected Auxiliary energy consumption of LTPS for FY 2023-24.....	135
Table 151: Projected Return on Equity capital for FY 2023-24.....	136
Table 152: Projected Interest and Finance charges for FY 2023-24.....	137



Table 153:Projected Depreciation of LTPS for FY 2023-24	138
Table 154:Summary of projected Depreciation for FY 2023-24	138
Table 155:Summary of Interest on working capital projected for FY 2023-24.....	139
Table 156: Revised O&M cost for FY 2023-24	139
Table 157: Impact of increase in AERC Fees projected for FY 2023-24	139
Table 158:Station-wise non-tariff income projected for FY 2023-24	140
Table 159:Projected GCV and Price for FY 2023-24.....	140
Table 160: Fuel cost of LTPS for FY 2023-24	140
Table 161: Expenses under capacity building	141
Table 162: Expenses under Special R&M.....	141
Table 163: Revised ARR of LTPS for FY 2023-24	142
Table 164:Net Annual Revenue Requirements of LTPS for FY 2023-24.....	143
Table 165: Tariff proposed of LTPS for FY 2023-24.....	143
Table 166: Installed & Effective Capacity of KLHEP for FY 2023-24.....	148
Table 167: Projected Operating Performance of KLHEP for FY 2023-24	148
Table 168:Projected Availability of KLHEP for FY 2023-24	148
Table 169:Projected PLF of KLHEP for FY 2023-24.....	149
Table 170:Projected Auxiliary energy consumption of KLHEP for FY 2023-24	149
Table 171:Projected Return on Equity capital for FY 2023-24.....	150
Table 172:Projected Interest and Finance charges for FY 2023-24	151
Table 173:Projected Depreciation of KLHEP for FY 2023-24	151
Table 174:Summary of projected Depreciation for FY 2023-24	152
Table 175 : Summary of Interest on working capital projected for FY 2023-24.....	152
Table 176: Revised O&M cost of KLHEP for FY 2023-24	153
Table 177 : Station-wise non-tariff income projected for FY 2023-24	153
Table 178: Expenses under capacity building	154
Table 179: Revised ARR of KLHEP for FY 2023-24.....	154
Table 180:Net Annual Revenue Requirements of KLHEP for FY 2023-24.....	155
Table 181: Tariff proposed of KLHEP for FY 2023-24.....	155
Table 182: Installed & Effective Capacity of LRPP for FY 2023-24	160
Table 183: Projected Operating Performance of LRPP for FY 2023-24	160
Table 184:Projected Availability of LRPP for FY 2023-24.....	160
Table 185:Projected PLF of LRPP for FY 2023-24	161
Table 186: Projected SHR of LRPP for FY 2023-24	161
Table 187:Projected Auxiliary energy consumption of LRPP for FY 2023-24	161
Table 188:Projected Return on Equity capital for FY 2023-24.....	162
Table 189:Projected Interest and Finance charges for FY 2023-24	163
Table 190:Projected Depreciation of LRPP for FY 2023-24.....	164
Table 191 : Summary of projected Depreciation for FY 2023-24	164
Table 192 : Summary of Interest on working capital projected for FY 2023-24.....	165
Table 193: Revised O&M cost for FY 2023-24 for LRPP	165
Table 194: Impact of increase in AERC Fees projected for FY 2023-24	166
Table 195:Station-wise non-tariff income projected for FY 2023-24	166
Table 196 : Projected GCV and Price for FY 2023-24.....	166
Table 197 : Fuel cost of LRPP for FY 2023-24.....	167
Table 198: Expenses under capacity building	167
Table 199: Expenses under Special R&M.....	167
Table 200: Revised ARR of LRPP for FY 2023-24	168
Table 201 : Net Annual Revenue Requirements for LRPP for FY 2023-24.....	169
Table 202 : Tariff proposed for LRPP for FY 2023-24.....	169
Table 203: Installed & Effective Capacity of NRPP for FY 2023-24	174



Table 204: Projected Operating Performance of NRPP for FY 2023-24.....	174
Table 205: Projected Availability of NRPP for FY 2023-24.....	174
Table 206: Projected PLF for FY 2023-24 of NRPP	175
Table 207: Projected SHR of NRPP for FY 2023-24	175
Table 208: Projected Auxiliary energy consumption of NRPP for FY 2023-24	175
Table 209: Projected Return on Equity capital for FY 2023-24.....	176
Table 210 : Projected Interest and Finance charges for FY 2023-24	177
Table 211 : Projected Depreciation of NRPP for FY 2023-24.....	178
Table 212 : Summary of projected Depreciation for FY 2023-24	178
Table 213 : Summary of Interest on working capital projected for FY 2023-24.....	179
Table 214: Revised O&M cost of NRPP for FY 2023-24	179
Table 215: Impact of increase in AERC Fees projected for FY 2023-24	180
Table 216 : Station-wise non-tariff income projected for FY 2023-24	180
Table 217 : Projected GCV and Price for FY 2023-24.....	180
Table 218 : Fuel cost of NRPP for FY 2023-24.....	181
Table 219: Expenses under capacity building	181
Table 220: Expenses under Special R&M.....	182
Table 221: Revised ARR of NRPP for FY 2023-24	183
Table 222 : Net Annual Revenue Requirements of NRPP for FY 2023-24	183
Table 223: Tariff proposed of NRPP for FY 2023-24	184

List of Annexures

Sl. No.	Particulars	Annexure(s)
1.	Annual accounts for FY 2021-22	Annexure 1
2.	Statutory auditor report for FY 2021-22	Annexure 2
3.	SLDC certificate for FY 2021-22	Annexure 3
4.	NTPS – Loss due to Grid Constraints Certificate for FY 2021-22	Annexure 4
5.	Conversion of GOA Grants and Loans to Equity	Annexure 5
6.	PFC Loan and Interest rate details for FY 2021-22	Annexure 6
7.	Document related to interest rate applicable for GOA Loans	Annexure 7
8.	SLDC certificate for FY 2022-23	Annexure 8
9.	PFC Loan and Interest rates details for FY 2022-23	Annexure 9
10.	MOM related to 30 th SAC meeting dated 12 th October 2022	Annexure 10 A
11.	Details of Mandatory Spare required for FY 2023-24	Annexure 10 B
12.	Documents related to overhauling of CWP Pump for LTPS	Annexure 11
13.	Outage report of Gas Turbine Units of LTPS	Annexure 12
14.	P.O copy related to procurement of field instrument for LTPS	Annexure 13
15.	P.O Copy related to procurement of spare for GC Unit#9 of LTPS	Annexure 14
16.	P.O copy related to Upgradation of one unit of GT for LTPS	Annexure 15
17.	CEA letter related to derating of NTPS	Annexure 16
18.	Letter related to fire accident occurred for NRPP	Annexure 17
19.	OEM guideline for periodic maintenance of NRPP	Annexure 18
20.	Offer letter for CI Inspection for NRPP	Annexure 19
21.	Offer letter for HGPI of NRPP	Annexure 20
22.	Document for Guaranteed Heat Rate of NRPP	Annexure 21
23.	Annexure of Directives 2 nd Quarter of FY 2022-23	Annexure 22
24.	Regulatory Formats	Annexure 23



1. Legal and Regulatory Framework

1.1. Background

- 1.1.1. Under the provisions of Electricity Act 2003 (hereinafter referred to as "Electricity Act") the Assam Electricity Reforms First Transfer Scheme, 2004 (hereinafter referred to as "Transfer Scheme") was notified by Government of Assam on 10th December 2004. Under Section 5 (2) of the transfer scheme the functions and undertakings as set out in Schedule-A of the transfer scheme stands transferred to Assam Power Generation Corporation Limited (APGCL). The final transfer scheme was notified by Govt. of Assam vide notification No: PEL/151/2003/Pt.349 dated 16th Aug' 2005 w.e.f 1st April'05.
- 1.1.2. Section 131 (2) of the Electricity Act provides "...Any property, interest in property, rights and liabilities vested in the State Government under sub-section (1) shall be re-vested by the State Government in a Government company or in a company or companies, in accordance with the transfer scheme so published along with such other property, interest in property, rights and liabilities of the State Government as may be stipulated in such scheme, on such terms and conditions as may be agreed between the State Government and such company or companies being State Transmission Utility or generating company or transmission licensee or distribution licensee,..."
- 1.1.3. Section 62 of the Electricity Act 2003 requires the generating company to furnish details as may be specified by the Commission for determination of tariff.
- 1.1.4. As per AERC Tariff Regulation, 2018, APGCL is now filing the Petition for Truing-up for FY 2021-22 for the following plants.
 - i. Namrup Thermal Power Station
 - ii. Lakwa Thermal Power Station
 - iii. Karbi Langpi Hydro Electric Project
 - iv. Lakwa Replacement Power Plant
 - v. Namrup Replacement Power Plant
- 1.1.5. As per AERC Tariff Regulation, 2021, APGCL is now filing the Petition for Annual Performance Review for FY 2022-23 and Revised Aggregate Revenue Requirement and Determination of Tariff for the FY 2023-24 for the following plants.
 - i. Namrup Thermal Power Station
 - ii. Lakwa Thermal Power Station
 - iii. Karbi Langpi Hydro Electric Project
 - iv. Lakwa Replacement Power Plant
 - v. Namrup Replacement Power Plant
- 1.1.6. The various data formats and forms, as required by the Hon'ble Commission, are furnished in **Annexure -22**.



APPEAL FOR TRUE-UP FOR THE FY 2021-22
To
ASSAM ELECTRICITY REGULATORY COMMISSION



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

AFFIDAVIT – TRUE-UP

BEFORE THE ASSAM STATE ELECTRICITY REGULATORY
COMMISSION, GUWAHATI.

Petition No. –

Case No.
(to be filed by the Office)

IN THE MATTER OF

Filing of Petition for True-up of the FY 2021-22.

AND

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

Petitioner

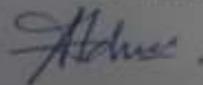
I, Sri Akshay Talukdar, Son of Late Debendra Nath Talukdar, age 51 years, residing at Santipur Hillside, PNGB Road, Guwahati - 781009, do solemnly affirm and say as follows:

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

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

Solemnly affirm at Guwahati on 24th November' 2022 that the contents of this affidavit are true to my knowledge, no part of it is false or no material has been concealed therefore and misleading material included therein.

Deponent



(Akshay Talukdar)
General Manager (HQ) i/c,
Assam Power Generation Corporation Ltd.

Place: Guwahati

Date: 24th November' 2022



PRAYER FOR TRUE-UP

BEFORE THE HON'BLE ASSAM ELECTRICITY REGULATORY COMMISSION

FILING NO

CASE NO

IN THE MATTER OF:

Petition for True-up for FY 2021-22

AND IN THE MATTER OF:

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

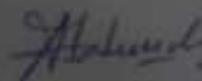
THE HUMBLE APPLICANT ABOVE NAMED MOST RESPECTFULLY SHEWETH:

- i. That Assam Power Generation Corporation Limited, hereinafter named as APGCL, is a successor corporate entity, formed in pursuant to the notification of the Government of Assam, notified under sub-sections (1), (2), (5), (6) and (7) of Section 131 and Section 133 of the Electricity Act 2003(Central Act 36 of 2003), for the purpose of transfer and vesting of functions, properties, interests, rights, obligations and liabilities, along with the transfer of Personnel of the Board to the successor corporate entities.
- ii. That APGCL is a company incorporated with the main objective of generation of electricity in the state of Assam.
- iii. That APGCL submitted petitions for ARR and Determination of Tariff for the FY 2021-22 for FY 2021-22 to the AERC on 03/12/2020.
- iv. That AERC declared tariff for FY 2021-22 on 15/02/2021 with effectuation date from 01/04/2021.
- v. That APGCL is now filing the Petition for True-up for FY 2021-22 as per the relevant Regulations.

Place: Guwahati

Date: 24th November 2022

For and on behalf of
Assam Power Generating Corporation Limited



(Akshay Talukdar)
General Manager (HQ) i/c,
Assam Power Generation Corporation Ltd.



2. Background

2.1. Introduction

- 2.1.1. Assam State Electricity Board (ASEB) was constituted under section 5 of the Electricity (supply) Act 1948. The announcement of Indian Electricity Act 2003 has made a compulsion to restructure State Electricity Boards. With a view to implementing the reorganization of ASEB, the Govt. had adopted the following sector structure:
- a. One Generating Company to take over the generating functions of the State Electricity Board,
 - b. One Transmission Company to take over transmission functions along with the functions of the State Transmission Utility and State Load Dispatch Centre: and
 - c. Three Distribution Companies later amalgated to one for the areas in the State of Assam (later merged into one distribution company).
- 2.1.2. The Assam Power Generation Corporation Limited (APGCL), registered under the Companies Act (1956) on 23rd October 2003, is a successor Company of erstwhile Assam State Electricity Board (ASEB). APGCL was formed as per the Electricity Act, 2003 for the purpose of running the already installed generating capacity of ASEB and utilising the resources available in the State of Assam to add more generating capacity by constructing new power projects to cater to the energy need of the people of Assam.



2.2. APGCL Project Summary

- 2.2.1. NTPS: After the commissioning of NRPP on 16/07/2021, NTPS generated power with the residual gas left after the consumption by NRPP in the FY 2021-22. With the contracted gas connectivity of 0.66 MMSCMD, only one GT unit of NTPS can be operated. However, both GTs of NTPS were operated in the FY 2021-22 from time to time depending on the additional gas availability. When the additional gas was not available, the other GT unit acted as a standby unit providing almost 100% availability when the operation of the GT units only is considered at the contractual gas connectivity as these units are very old and suffered frequent shutdowns in the FY 2021-22.
- 2.2.2. LTPS: LTPS could generate power at the normative availability in the FY 2021-22. The plant was operated efficiently in the FY 2021-22 as the Station Heat Rate of the station could be kept below the Normative Heat Rate.
- 2.2.3. KLHEP: KLHEP overachieved the gross generation target for the FY 2021-22 by 17.25 MU. The overall availability of the plant was 83.57% against the approved availability of 85.00% in FY 2021-22.
- 2.2.4. LRPP: LRPP managed to generate 510.11 MUs in FY 2021-22 against the Hon'ble Commission's approved generation target of 519.40 MU. The plant's availability, auxiliary power consumption and Gross Station heat Rate were better than the targets set by Hon'ble Commission for FY 2021-22.
- 2.2.5. NRPP: The plant was commissioned on 16/07/2021 and was able to generate 490.56 MU in the FY 2021-22 at an availability better than the normative availability for a newly commissioned gas-based plant. The Station Heat Rate and Auxiliary Power Consumption of the plant were also in accordance with the Regulatory Norms.

2.3. Annual accounts

- 2.3.1. The audited Annual accounts of APGCL for FY 2021-22, and Statutory Audit Report are attached as Annexure No.1 & Annexure No. 2 respectively as required under AERC Tariff Regulations, 2018. However, The CAG is in progress and the final comments of the CAG will be furnished to the Hon'ble Commission on the receipt of the same.



2.4. True-up of FY 2021-22

2.5. Regulatory provisions

2.5.1. The Hon'ble Commission in its regulation has stated the provisions on true-up of various costs under the regulations section 10 of Assam Electricity Regulatory Commission (Terms and Conditions for determination of Multi Year Tariff) Regulations, 2018 which has been followed while preparing this True Up Petition.

2.6. Installed and Effective Capacity in FY 2021-22

2.6.1. APGCL submits the following Installed & Effective Capacity for FY 2021-22.

Table 1: Installed & Effective Capacity for FY 2021-22

Station	Installed Capacity (MW)	Revised Installed Capacity (MW)	No. of Units	Units Available for Generation & Capacity in MW	Actual Effective Capacity
NTPS	119.5	47.81	3	GT U# 2&3(21MW), 6 (22.50 MW-WHRU) - till 15.07.2021 1 no of GT unit (21 MW), 6 (22.50 MW-WHRU) – after 15.07.2021	47.81
LTPS	142.2	97.20	4	5,6,7(20 MW Each),8 (37.20 MW-WHRU)	97.2
KLHEP	100	100	2	1 (50), 2(50)	100
LRPP	69.755	69.755	7	1-7 (9.965 each)	69.755
NRPP	98.40	98.40	2	1(62.25, 2(36.15)	98.40

3. Norms of operations

3.1. Regulatory provisions

3.1.1. The Hon'ble Commission had set norms of operations under Tariff Regulations 2018 Section 47 and 49 for Thermal Generating Stations and Hydro Generating Stations respectively which has been followed for preparing this petition.

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

3.2. Snapshot of plant wise performance for FY 2021-22

3.2.1. The following table shows the operating performance parameters of Namrup thermal power station for FY 2021-22.

Table 2: Operating Performance of NTPS for FY 2021-22

NTPS	Approved as per order of February 2021	Based on Normative	Claim for FY 2021-22	Remarks
Gross Energy in MU	145.21	157.10	157.10	Actual
Aux. Power Cons. (%)	4.50%	4.50%	5.69%	



NTPS	Approved as per order of February 2021	Based on Normative	Claim for FY 2021-22	Remarks
Net Energy in MU	138.68	150.03	148.16	It has lost 1.87 MU on net generation due to higher auxillary consumption
Availability (%)	50.00%	50.00%	44.84%	Actual was lower than normative value
PLF (%) for incentive	50.00%	50.00%	37.05%	
Gross Station Heat Rate on GCV (kcal/ kWh)	3900	4300 (OC) 3900 (CC)	4181.66	Claimed weighted average normative value
Wt. Avg. Price of Gas (Rs. / 1000 SCM)	3537.22	4765.2	4765.2	Actual

3.2.2. The following table shows the operating performance parameters of gas based Lakwa thermal power station for FY 2021-22.

Table 3: Operating Performance of LTPS for FY 2021-22

LTPS	Approved as per order of February 2021	Based on Normative	Claim for FY 2021-22	Remarks
Gross Energy in MU	425.74	406.52	406.52	Actual
Aux. Power Cons. (%)	5.50%	5.50%	9.42%	It has lost 15.95 MU on net generation due to higher auxillary consumption.
Net Energy in MU	402.32	384.16	368.21	
Availability (%)	50.00%	50.00%	50.00%	Achieved normative value
PLF (%) for incentive	66.00%	66.00%	45.76%	Actual was lower than normative value
Gross Station Heat Rate on GCV (kcal/ kWh)	3200	3200.00	3200.00	Claimed at normative SHR
Wt. Avg. Price of Gas (Rs./1000 SCM)	4923.31	5774.1	5774.1	Actual

3.2.3. The following table shows the operating performance parameters of Karbi Langpi hydroelectric power station for FY 2021-22.

Table 4: Operating Performance of KLHEP for FY 2021-22

KLHEP	Approved as per order of February 2021	Based on Normative	Claim for FY 2021-22	Remarks
Gross Energy in MU	390.00	407.25	407.25	Actual
Aux. Power Cons. (%)	0.50%	0.5%	0.50%	Actual auxillary consumption was within normative value.
Net Energy in MU	388.05	405.21	405.21	
Availability (%)	85.00%	85.00%	83.57%	Actual was lower than normative value
PLF (%)	44.50%	44.50%	44.50%	Achieved Normative



3.2.4. The following table shows the operating performance parameters of Lakwa Replacement Power Project for FY 2021-22.

Table 5: Operating Performance of LRPP for FY 2021-22

LRPP	Approved as per order of February 2021	Based on Normative	Claim for FY 2021-22	Remarks
Gross Energy in MU	519.4	510.11	510.11	Actual
Aux. Power Cons. (%)	3.50%	3.50%	3.50%	Actual auxillary consumption was within normative value.
Net Energy in MU	501.22	492.26	492.26	
Availability (%)	85.00%	85.00%	85.00%	Achieved normative value
PLF (%) for incentive	90.00%	90.00%	84.59%	Actual was lower than normative value
Gross Station Heat Rate on GCV (kcal/kWh)	2150	2150	2150	Claimed normative value
Wt. Avg. Price of Gas (Rs./1000 SCM)	4923.31	7515.95	7515.95	Actual

3.2.5. The following table shows the operating performance parameters of Namrup Replacement Power Project for FY 2021-22.

Table 6: Operating Performance of NRPP for FY 2021-22

NRPP	Approved as per order of March 2022	Based on Normative	Claim for FY 2021-22	Remarks
Gross Energy in MU	503.17	490.56	490.56	Actual
Aux. Power Cons. (%)	5.00%	5.00%	5.00%	Actual auxillary consumption was within normative value.
Net Energy in MU	478.01	466.03	466.03	
Availability (%)	85.00%	78.05%	78.05%	Achieved normative value
PLF (%) for incentive	85.00%	85.00%	80.59%	Actual was lower than normative value
Gross Station Heat Rate on GCV (kcal/kWh)	1951	2927 (OC) 1988 (CC)	2070.03	Claimed normative value
Wt. Avg. Price of Gas (Rs./1000 SCM)	4699.56	5483.47	5483.47	Actual

3.2.5.1. As per regulation 47.6 of the MYT Regulation 2018, the normative plant availability factor (PAF) of Gas turbine / combined cycle generating stations is 65% for the stabilization period of 90 days and for the rest of the period of a FY 2021-22 is 85%. Hence, weighted normative plant availability factor for NRPP is 78% for FY 2021-22.

3.2.6. The performance parameter certificate showing plant wise availability, generation, auxiliary consumption etc. issued by SLDC is attached as Annexure No. 3.



3.3. Normative Annual Plant Availability Factor (NAPAF)

- 3.3.1. **NAPAF for NTPS:** As per Regulation 47.1 of the MYT Regulations, 2018 the Normative Plant Availability factor for recovery of full fixed charges, is 50% for FY 2021-22 for NTPS.
- 3.3.2. We submit that NTPS faced Force Majeure conditions in the form of grid disturbance. We submit that as per Tariff Regulations, 2018, Force Majeure is any event or circumstance, which is not within the reasonable control of, and is not due to an act of omission or commission of that party. As per the regulation, the shutdown or the interruption of the grid is also a Force Majeure condition.
- 3.3.3. We submit that in FY 2021-22, APGCL has lost the opportunity to generate 3.337 MU of electricity due to Grid disturbance. The month-on-month generation loss due to the two factors is shown below:

Table 7: Generation loss of NTPS due to Grid disturbance in FY 2021-22

MU lost for NTPS in 2021-22	MU lost due to grid disturbance
Apr-21	0.16
May-21	0.25
Jun-21	-
Jul-21	0.07
Aug-21	0.31
Sep-21	0.10
Oct-21	0.60
Nov-21	0.59
Dec-21	0.62
Jan-22	0.58
Feb-22	0.06
Mar-22	-
TOTAL	0.16
Grand total	3.337

- 3.3.4. Both of the above reasons for loss of generation are uncontrollable events for APGCL. The Tariff Regulations 2018 define the event pertaining to grid interruption as a Force Majeure Event as follows:

“Force Majeure Event” means, with respect to any party, any event or circumstance, which is not within the reasonable control of, and is not due to an act of omission or commission of, that party and which, by the exercise of reasonable care and diligence, could not have been prevented, and without limiting the generality of the foregoing, would include the following events:

- a. acts of God, including but not limited to lightning, storm, action of the elements, earthquakes, flood, torrential rains, drought and natural disaster;*
- b. strikes, lockouts, go-slow, bandh or other industrial disturbances not instigated by any party;*
-*
- e. any shutdown or interruption of the grid, which is required or directed by the State or Central Government or by the Commission or the Assam State Load Despatch Centre;”*



3.3.5. In view of the above, APGCL has claimed availability lost due to uncontrollable factors. The summary of the approved and availability claimed for FY 2021-22 are shown in the table below.

Table 8: Availability of NTPS for FY 2021-22

NTPS	Approved as per order of Feb. 2021	Availability achieved	Availability lost due to uncontrollable factors	Claim for FY 2021-22
Plant Availability Factor (%)	50.00%	44.00%	0.83%	44.84%

3.3.6. The certificate for Generation Loss of NTPS due to Grid Restrictions is attached in Annexure No. 4.

3.3.7. NAPAF for LTPS: As per Regulation 47.1 of the MYT Regulations, 2018 the Normative Plant Availability factor for recovery of full fixed charges, is 50%. It has achieved actual availability higher than the normative value. The approved and claimed numbers are shown in the table below.

Table 9: Availability of LTPS for FY 2021-22

LTPS	Approved as per order of February 2021	Claim for FY 2021-22
Plant Availability Factor (%)	50.00%	50.00%

3.3.8. NAPAF for KLHEP: Regulation 49 specifies normative PAF for KLHEP as 85%. But it has achieved the lower availability than NAPAF. The approved and claimed numbers are shown in the table below.

Table 10: Availability of KLHEP for FY 2021-22

KLHEP	Approved as per order of February 2021	Claim for FY 2021-22
Plant Availability Factor (%)	85.00%	83.57%

3.3.9. NAPAF for LRPP: As per Regulation 47.1 of the Tariff Regulations, 2018 the Normative Plant Availability factor for recovery of full fixed charges, is 85% for new plants. It has achieved the actual availability higher than the normative value. The approved and claimed numbers are shown in the table below.

Table 11: Availability of LRPP for FY 2021-22

LRPP	Approved as per order of February 2021	Claim for FY 2021-22
Plant Availability Factor (%)	85.00%	85.00%



- 3.3.10. **NAPAF for NRPP:** As per regulation 47.6 of the MYT Regulation 2018, the normative plant availability factor (PAF) of Gas turbine / combined cycle generating stations is 65% for the stabilization period of 90 days and for the rest of the period in FY 2021-22 is 85%. Hence, weighted normative plant availability factor for NRPP is 78.05% for FY 2021-22. Further, it has achieved the actual availability higher than 78.05%. Hence, it has claimed normative plant availability factor i.e 78.05%. The approved and claimed numbers are shown in the table below.

Table 12: Availability of NRPP for FY 2021-22

NRPP	Approved as per order of March 2022	PAF as per Norms	Claim for FY 2021-22
Plant Availability Factor (%)	85.00%	78.05%	78.05%

3.4. Normative Annual Plant Load Factor (NAPLF)

- 3.4.1. **NAPLF for NTPS and LTPS:** As per Regulation 47.2 of the MYT Regulations, 2018 the Normative Plant Load factor was 50% and 66% for NTPS and LTPS respectively. But both the plants were unable to achieve the normative PLF. The approved and claimed numbers are shown in the table below.

Table 13: Plant Load Factor of NTPS for FY 2021-22

NTPS	Approved as per order of February 2021	Claim for FY 2021-22
Plant Load Factor (%)	50.00%	37.05%

Table 14: Plant Load Factor of LTPS for FY 2021-22

LTPS	Approved as per order of February 2021	Claim for FY 2021-22
Plant Load Factor (%)	66.00%	45.76%

- 3.4.2. **NAPLF for KLHEP:** Further, Regulation 49 of the MYT Regulations, 2018 specifies normative PLF for KLHEP as 44.5% for FY 2021-22. It has achieved the actual PLF more than the normative value. The approved and claimed numbers are shown in the table below.

Table 15: Plant Load Factor of KLHEP for FY 2021-22

KLHEP	Approved as per order of February 2021	Claim for FY 2021-22
Plant Load Factor (%)	44.50%	44.50%

- 3.4.3. **NAPLF for LRPP:** As per Regulation 47.2 of the Tariff Regulations, 2018 the Normative Plant Load factor, is 90% for new plants commissioned. It has achieved the actual PLF lower than the normative value. The approved and claimed numbers are shown in the table below.

Table 16: Plant Load Factor of LRPP for FY 2021-22

LRPP	Approved as per order of February 2021	Claim for FY 2021-22
Plant Load Factor (%)	90.00%	84.59%



3.4.4. NAPLF for NRPP: As per Regulation 47.2 of the Tariff Regulations, 2018 the Normative Plant Load Factor is 85% for newly commissioned gas based generating station. It has achieved the lower PLF than normative value. The approved and claimed numbers are shown in the table below.

Table 17: Plant Load Factor of NRPP for FY 2021-22

NRPP	Approved as per order of March 2021	Claim for FY 2021-22
Plant Load Factor (%)	85%	80.59%

3.5. Gross Station Heat Rate (SHR)

3.5.1. SHR for NTPS: As per Regulation 47.4 of the MYT Regulations, 2018 the Normative Station Heat Rate, is 3900 kCal/kWh for FY 2021-22 for NTPS in combined cycle and 4300 kCal/kWh in open cycle modes of operation.

3.5.2. We submit that the actual SHR of NTPS is 5057.11 KCal/KWh, which is higher than the approved SHR in FY 2021-22 due to part loading of units resulting due to lower gas supply and evacuation constraints and old nature of the plant equipment and machinery.

3.5.3. APGCL has claimed the normative SHR for FY 2021-22 as shown in the table below.

Table 18: SHR of NTPS for FY 2021-22

NTPS	Approved as per order of February 2021	Claim for FY 2021-22
Station Heat Rate (kCal/kWh)	3900	4181.66

3.5.4. The computation of actual weighted normative is shown in table below.

FY 2021-22	GSHR	Running Hours in	Normative Weighted
NTPS	Approved	Open Cycle Mode	Average SHR
Open Cycle	4300.0	5117.59	4181.66
Combined Cycle	3900.0	2150.11	
Total		7267.7	

3.5.5. SHR for LTPS: As per Regulation 47.4 of the MYT Regulations, 2018 the Normative Station Heat Rate for FY 2021-22 of LTPS, is 3200 kCal/kWh in combined and 3900 Kcal/KWh in open cycle modes of operation.

3.5.6. APGCL has claimed the normative SHR for FY 2021-22 as shown in the table below.

Table 19: SHR of LTPS for FY 2021-22

LTPS	Approved as per order of February 2021	Claim for FY 2021-22
Station Heat Rate (kCal/kWh)	3200 for Combined cycle 3900 for Open cycle	3200

3.5.7. SHR for LRPP: The Hon'ble Commission had approved the Gross Station Heat Rate for LRPP at 2,150 kCal/kWh in the Tariff Order dated February 2021 for LRPP.

3.5.8. APGCL has claimed the normative SHR for FY 2021-22 as shown in the table below.



Table 20: SHR of LRPP for 2021-22

LRPP	Approved as per Order of February 2021	Claim for FY 2021-22
Station Heat Rate (kCal/kWh)	2,150	2150

3.5.9. SHR for NRPP: As per Regulation 47.4 (ii) (b), the GSHR of new plants commissioned on or after 1st April 2019 for Gas-based plant

= "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....**

- ✓ The Guaranteed Heat Rate of NRPP at 98.4 MW combined cycle operation by OEM at NCV is 1705.8 kCal/kWh (attached in **Annexure 21**)
- ✓ The Guaranteed Heat Rate of NRPP at 98.4 MW combined cycle operation by OEM at GCV is (1705.8X1.11 kCal/kWh) = 1893.4 kCal/kWh
- ✓ As such combined cycle GSHR of NRPP as per Regulation= 1893.4X1.05 kCal/kWh=1988 kCal/kWh
- ✓ Further, the normative open cycle GSHR of NRPP is 2927 kCal/kWh

3.5.10. APGCL has claimed the weighted normative SHR for NRPP. The same has been computation in below mentioned table.

Table 21: SHR of NRPP for FY 2021-22

FY 2021-22	SHR	Running Hours	Normative Weighted Average SHR
Open Cycle	2927	523.53	2070.03
Combined Cycle	1988	5469.53	
Total		5993.06	

3.5.11. APGCL humbly submits to the Hon'ble Commission to kindly approve the gross station heat rate claimed by APGCL.

3.6. Auxiliary Energy Consumption

3.6.1. Auxiliary consumption for NTPS: As per Regulation 47.3 of the MYT Regulations, 2018 the Normative Auxiliary energy consumption, is 4.50% for FY 2021-22 for NTPS. It has achieved the actual auxiliary consumption of 5.69% which is higher than normative value. Hence, it has lost 1.87 MU on net generation due to higher auxiliary consumption than normative value.

3.6.2. APGCL has claimed the actual auxiliary consumption as shown in the table below.

Table 22: Auxiliary energy consumption of NTPS for FY 2021-22

NTPS	Approved as per order of February 2021	Claim for FY 2021-22
Auxiliary energy consumption (%)	4.50%	5.69%



3.6.3. Auxiliary consumption for LTPS: As per Regulation 47.3 of the MYT Regulations, 2018 the Normative Auxiliary energy consumption, is 5.50% for FY 2021-22 of LTPS. It has achieved the actual auxiliary consumption of 9.42% which is higher than normative value. Hence, it has lost 15.95 MU on net generation due to higher auxiliary consumption than normative value.

3.6.4. APGCL has claimed the actual auxiliary consumption as shown in the table below.

Table 23: Auxiliary energy consumption of LTPS for FY 2021-22

LTPS	Approved as per order of February 2021	Claim for FY 2021-22
Auxiliary energy consumption (%)	5.50%	9.42%

3.6.5. Auxiliary consumption for KLHEP: As per Regulation 49.1 of the MYT Regulations, 2018 the Normative Auxiliary energy consumption, is 0.5% for FY 2021-22 for KLHEP. It has achieved the actual auxiliary consumption within normative value.

3.6.6. APGCL has claimed the normative auxiliary consumption as shown in the table below.

Table 24: Auxiliary energy consumption of KLHEP for FY 2021-22

KLHEP	Approved as per order of February 2021	Claim for FY 2021-22
Auxiliary energy consumption (%)	0.50%	0.50%

3.6.7. Auxiliary consumption for LRPP: As per Regulation 47.3 of the Tariff Regulations, 2018 the Normative Auxiliary energy consumption, is 3.50% for gas engine-based generating station with gas booster compressor. It has achieved the actual auxiliary consumption within normative value.

3.6.8. APGCL has claimed the normative auxiliary consumption as shown in the table below.

Table 25: Auxiliary energy consumption of LRPP for FY 2021-22

LRPP	Approved as per order of February 2021	Claim for FY 2021-22
Auxiliary energy consumption (%)	3.50%	3.50%

3.6.9. Auxiliary consumption for NRPP: The Hon'ble Commission had approved the auxiliary consumption for NRPP at 5% in the Tariff Order dated March 2022. It has achieved the actual auxiliary consumption within normative value.

3.6.10. APGCL has claimed the normative auxiliary consumption as shown in the table below.

Table 26: Auxiliary energy consumption of NRPP for FY 2021-22

NRPP	Approved as per order of March 2022	Claim for FY 2021-22
Auxiliary energy consumption (%)	5.00%	5.00%



3.6.11. APGCL humbly to Hon'ble Commission to kindly approve the actual auxillary consumption claimed by APGCL.

4. Fixed Cost of the Plant

4.1. Annual fixed cost for FY 2021-22

4.1.1. The fixed cost of APGCL's power plants has been approved by AERC via Revised ARR order in Case No. 20,21,22,23,24,25/2020 dated 15th February 2021 and APR Order in Case No. 09/2021 dated 21st March 2022. Subsequently, the fixed cost for NRPP has been approved via tariff order in Case No. 10/2021 dated 21st March 2022.

4.1.2. As per regulation 42.1 of the AERC Tariff regulations, 2018 the following components of fixed cost have been considered for True-up of the tariff for the power plant:

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

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

4.2. Additional Capital Expenditure incurred in FY 2021-22 for Post COD for NRPP

4.2.1. The petitioner had incurred the following additional capital expenditure for NRPP in FY 2021-22 for post COD of the plant.

Table 27: Additional Capital Expenditure incurred in FY 2021-22 Post COD for NRPP

Rs. Cr

Particulars	Approved additional capital expenditure approved in order dated March 2022	Actual expenditure incurred in FY 2021-22
Additional Expenditure (Rs. Crore)	77.71	94.90
<i>Equity (Rs. Crore)</i>	23.31	28.47
<i>Loan (Rs. Crore)</i>	54.40	66.43
<i>Grant (Rs. Crore)</i>	0.00	0.00



4.2.2. We submit that the expenditure 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 prays to the Hon'ble Commission to approve the additional capitalization planned in FY 2021-22.

4.2.3. APGCL has considered the balance fund source of Additional Capital Expenditure in the normative allowed debt-equity ratio of 70:30 for FY 2021-22 as approved by the Commission in its order dated 21st March 2022.

4.3. Return on Equity (ROE)

4.3.1. The Cabinet Meeting of the Government of Assam (GOA) held on 24th December 2021 had approved the conversion of GOA Loan and Grant to APGCL into Equity. The copy of GOA order for conversion of Loan and Grant to equity has been attached in Annexure 5.

4.3.2. After conversion of Government of Assam grants and loans to equity, it has been observed that the actual equity after conversion was greater than 30% of approved GFA (Gross Fixed Assets) as on 31st March 2021 for FY 2020-21 by the Commission in Tariff Order dated 21st March 2022. Hence, APGCL has considered 30% of approved closing GFA of FY 2020-21 as opening equity base for FY 2021-22 for determination of return on equity.

4.3.3. Further, APGCL submits that it had claimed the additional return on equity for the FY 2015-16 and commission had approved the same in tariff order dated 24th July 2015. Hence, APGCL has claimed the revised Return on Equity following same principal adopted in FY 2015-16.

4.3.4. The details computation is shown in below table.

Table 28: Computation of opening equity base for FY 2021-22

Rs. Cr						
Sl. No.	Particulars	NTPS	LTPS	KLHEP	LRPP	Total
A	i. Grant conversion Proposed	13.16	65.50	54.66	215.96	349.28
	ii. Loan conversion Proposed	178.51	251.14	114.03	26.48	570.16
	Total Equity Conversion Proposed	191.67	316.64	168.69	242.44	919.44
B	Normative Equity:					
	i. Approved Closing GFA for FY 2020-21 in Tariff Order dated 21st March 2022	191.41	495.62	514.74	268.75	1470.52
	ii. Normative Equity (C x 30%)	57.42	148.69	154.42	80.63	441.16
C	Actual equity	128.54	136.53	68.11	25.97	359.16
	Actual equity after conversion	320.21	453.17	236.80	242.44	1252.62
D	Estimated equity for computation of RoE for FY 2021-22 (Min of B & C)	57.42	148.69	154.42	80.63	441.16



4.3.5. The Hon'ble Commission in its regulation 33 of the AERC Regulations, 2018 has considered the pre-tax return on equity at 15.50% of equity capital.

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

Table 29: Computation of Plant wise Return in Equity for FY 2021-22

Rs. Cr

Station	Particulars	Approved as per order of February 2021	Claim for FY 2021-22
NTPS	Opening Equity	55.00	57.42
	Addition during year	0.00	0.00
	Closing Equity	55.00	57.42
	Rate of Return	15.50%	15.50%
	Return on Equity	8.53	8.90
	Return on Equity for Effective Capacity	3.10	
LTPS	Opening Equity	143.08	148.69
	Addition during year	0.00	0.00
	Closing Equity	143.08	148.69
	Rate of Return	15.50%	15.50%
	Return on Equity	22.18	23.05
	Return on Equity for Effective Capacity	15.16	
KLHEP	Opening Equity	68.65	154.42
	Addition during year	0.00	0.00
	Closing Equity	68.65	154.42
	Rate of Return	15.50%	15.50%
	Return on Equity	10.64	23.94
	Return on Equity for Effective Capacity	10.64	
LRPP	Opening Equity	15.74	80.63
	Addition during year	0.00	0.00
	Closing Equity	15.74	80.63
	Rate of Return	15.50%	15.50%
	Return on Equity	2.44	12.50
	Return on Equity for Effective Capacity	2.44	
NRPP **	Opening Equity	195.37	195.37
	Addition during year	23.31	28.47
	Closing Equity	218.68	223.84
	Rate of Return	15.50%	15.50%
	Return on Equity	32.09	32.49
	Return on Equity for 259 working days	22.77	

** For NRPP, the approved numbers as per NRPP tariff order dated 21st March 2022

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



4.4. Interest on Loan Capital

- 4.4.1. As per Regulation 34 of the Tariff Regulations, 2018, the Hon'ble Commission will consider interest on Loan capital on normative basis with repayment equal to depreciation allowed for that year and rate of interest will be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year.
- 4.4.2. In view of the above, the Petitioner 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 weighted average rate of actual interest rate applicable to APGCL at the beginning of FY 2021-22.
- 4.4.3. The finance charges are shown separately plant wise for FY 2021-22. The table below summarizes the interest on loan and finance charges considered for True-up of FY 2021-22.

Table 30: Computation of Plant wise Interest and finance charges for FY 2021-22

Rs. Cr

Station	Particulars	Approved as per order of February 2021	Claim for FY 2021-22
NTPS	Net Normative Opening Loan	0.73	0.87
	Addition of normative loan during the year	1.90	0.51
	Normative Repayment during the year	1.48	1.35
	Net Normative Closing Loan	1.15	0.02
	Avg. Normative Loan	0.94	0.45
	Interest Rate	10.15%	11.60%
	Interest on Loan Capital	0.10	0.05
	Add: Bank Charges	0.00	0.51
	Net Interest on Loan Capital	0.10	0.56
	Net Interest on Loan Capital for Effective Capacity	0.03	
LTPS	Net Normative Opening Loan	0	0.00
	Addition of normative loan during the year	7.1	4.72
	Normative Repayment during the year	15.43	13.74
	Net Normative Closing Loan	0.00	0.00
	Avg. Normative Loan	0.00	0.00
	Interest Rate	10.15%	11.60%
	Interest on Loan Capital	0.00	0.00
	Add: Bank Charges	0.00	1.03
	Net Interest on Loan Capital	0.00	1.03
	Net Interest on Loan Capital for Effective Capacity	0.00	
KLHEP	Net Normative Opening Loan	187.89	174.25
	Addition of normative loan during the year	2.10	0.01
	Normative Repayment during the year	21.48	22.47
	Net Normative Closing Loan	168.51	151.79



Station	Particulars	Approved as per order of February 2021	Claim for FY 2021-22
	Avg. Normative Loan	178.20	163.02
	Interest Rate	10.15%	11.60%
	Interest on Loan Capital	18.09	18.90
	Add: Bank Charges	0.00	1.06
	Net Interest on Loan Capital	18.09	19.96
	Net Interest on Loan Capital for Effective Capacity	18.09	
LRPP	Net Normative Opening Loan	27.10	27.10
	Addition of normative loan during the year	0	2.38
	Normative Repayment during the year	2.68	13.56
	Net Normative Closing Loan	24.42	15.92
	Avg. Normative Loan	25.76	21.51
	Interest Rate	10.15%	11.60%
	Interest on Loan Capital	2.62	2.49
	Add: Bank Charges	0.00	0.00
	Net Interest on Loan Capital	2.62	2.49
	Net Interest on Loan Capital for Effective Capacity	2.62	
NRPP **	Net Normative Opening Loan	455.87	455.87
	Addition of normative loan during the year	54.40	66.43
	Normative Repayment during the year	34.22	29.74
	Net Normative Closing Loan	476.05	492.56
	Avg. Normative Loan	465.96	474.21
	Interest Rate	10.91%	11.60%
	Interest on Loan Capital	50.81	54.99
	Add: Bank Charges	0.00	0.00
	Net Interest on Loan Capital	50.81	54.99
	Net Interest on Loan Capital for effective Working days of 259 Days	36.05	

** For NRPP, the approved numbers as per NRPP tariff order dated 21st March 2022

4.4.4. APGCL submits that the loan details and interest rates applicable on PFC loans is submitted as part of Annexure No. 6 of this document.

4.4.5. APGCL prays to the Hon'ble Commission to kindly approve the total interest and finance charges as shown above.

4.5. Depreciation

4.5.1. The Hon'ble Commission in its Tariff Regulations, 2018 has considered the principle as laid out in Regulation 32.

4.5.2. In view of the above, the Petitioner has computed the Depreciation considering Capital Cost of the asset admitted by the Commission with 10% salvage value. The table below summarizes the plant wise Depreciation considered for True-up of FY 2021-22.



Table 31: Depreciation of NTPS for FY 2021-22

Rs. Cr

Particulars	FY 2021-22
Opening GFA	190.39
Addition during the year	0.51
Adjustment in GFA	0
Closing	190.90
Average GFA	190.64
Rate of Depreciation	0.71%
Total Depreciation	1.35
Grant	0.00
Additions during the year	0.00
Closing grant	0.00
Average grant	0.00
Rate of Depreciation	0.71%
Depreciation on grants	0.00
Net Depreciation	1.35

Table 32: Depreciation of LTPS for FY 2021-22

Rs. Cr

Particulars	FY 2021-22
Opening GFA	500.60
Addition during the year	4.72
Adjustment in GFA	-2.23
Closing	503.09
Average GFA	501.84
Rate of Depreciation	2.74%
Total Depreciation	13.74
Grant	0.00
Additions during the year	0.00
Closing grant	0.00
Average grant	0.00
Rate of Depreciation	2.74%
Depreciation on grants	0.00
Net Depreciation	13.74

Table 33: Depreciation of KLHEP for FY 2021-22

Rs. Cr

Particulars	FY 2021-22
Opening GFA	514.73
Addition during the year	0.01
Adjustment in GFA	-9.28
Closing	505.47
Average GFA	510.10



Particulars	FY 2021-22
Rate of Depreciation	4.41%
Total Depreciation	22.47
Grant	0.00
Additions during the year	0.00
Closing grant	0.00
Average grant	0.00
Rate of Depreciation	4.41%
Depreciation on grants	0.00
Net Depreciation	22.47

Table 34: Depreciation of LRPP for FY 2021-22

Rs. Cr

Particulars	FY 2021-22
Opening GFA	268.41
Addition during the year	2.38
Adjustment in GFA	-3.21
Closing	267.57
Average GFA	267.99
Rate of Depreciation	5.06%
Total Depreciation	13.56
Grant	0.00
Additions during the year	0.00
Closing grant	0.00
Average grant	0.00
Rate of Depreciation	5.06%
Depreciation on grants	0.00
Net Depreciation	13.56

Table 35: Depreciation of NRPP for FY 2021-22

Rs. Cr

Particulars	FY 2021-22
Opening GFA	0.00
Addition during the year	901.97
Adjustment in GFA	0.00
Closing	901.97
Average GFA	450.99
Rate of Depreciation	4.65%
Total Depreciation	29.74
Grant	0.00
Additions during the year	0.00
Closing grant	0.00
Average grant	0.00



Particulars	FY 2021-22
Rate of Depreciation	4.65%
Depreciation on grants	0.00
Net Depreciation	29.74

Table 36: Summary of Depreciation claimed for FY 2021-22

Rs. Cr

Station	Particulars	Approved as per order February 2021	Claim for FY 22
NTPS	Depreciation	1.64	1.35
	Less: Depreciation on assets funded by Grants	0.16	0.00
	Net Depreciation	1.48	1.35
	Net Depreciation for Effective Capacity	0.54	
LTPS	Depreciation	18.1	13.74
	Less: Depreciation on assets funded by Grants	2.68	0.00
	Net Depreciation	15.42	13.74
	Net Depreciation for Effective Capacity	10.55	
KLHEP	Depreciation	24.32	22.47
	Less: Depreciation on assets funded by Grants	2.84	0.00
	Net Depreciation	21.48	22.47
	Net Depreciation for Effective Capacity	21.48	
LRPP	Depreciation	13.72	13.56
	Less: Depreciation on assets funded by Grants	11.04	0.00
	Net Depreciation	2.68	13.56
	Net Depreciation for Effective Capacity	2.68	
NRPP **	Depreciation	34.22	29.74
	Less: Depreciation on assets funded by Grants	0.00	0.00
	Net Depreciation	34.22	29.74
	Net Depreciation for Effective Capacity	24.28	

** For NRPP, the approved numbers as per NRPP tariff order dated 21st March 2022

4.5.3. Further, APGCL humbly submits that entire depreciation claimed in True Up is at par with the depreciation charged in the Annual Accounts and any depreciation on decommissioned / retired units does not form part of the depreciation charged in the Annual Accounts. Hence, the depreciation claimed is already at the effective capacity and further reduction of depreciation citing effective capacity is not justifiable. We humbly pray to the Hon'ble Commission to consider the same while approving True Up claim for depreciation and allow full recovery of the depreciation charged after reduction of depreciation on grants only and not further reduce the depreciation citing effective capacity.

4.5.4. APGCL prays to the Hon'ble Commission to kindly approve the plant wise Depreciation for FY 2021-22 as shown above.



4.6. Interest on Working Capital

4.6.1. As per Regulation 34 of the Tariff Regulations, 2018, the interest on working capital will be considered on normative basis.

4.6.2. As per the above regulations, the Petitioner has claimed normative interest on working capital. However, as APGCL does not have liquid fuel stock facility, it has not considered working capital on storage of liquid fuel. The rate of interest has been considered as interest rate equivalent 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 i.e., 7.58% + 3.00 % = 10.58%. The plant wise interest on working capital considered is shown in the table below:

Table 37: Summary of Interest on working capital claimed for FY 2021-22

Rs. Cr

Station	Particulars	Approved as per order of February 2021	Claim for FY 2021-22
NTPS	Fuel Cost for one month	6.58	2.84
	O&M Expenses for one month	4.87	1.96
	Maintenance Spares-30% of O&M	17.53	7.04
	Receivables for two months	24.32	11.36
	Total Working Capital Requirement	53.30	23.19
	Rate of interest	10.00%	10.58%
	Interest on Working capital	5.33	
	Interest on Working capital at Effective Capacity	1.94	2.45
LTPS	Fuel Cost for one month	8.68	6.52
	O&M Expenses for one month	5.32	3.65
	Maintenance Spares-30% of O&M	19.15	13.14
	Receivables for two months	36.94	27.69
	Total Working Capital Requirement	70.09	50.99
	Rate of interest	10.00%	10.58%
	Interest on Working capital	7.01	
	Interest on Working capital at Effective Capacity	4.79	5.39
KLHEP	O&M Expenses for one month	2.68	2.69
	Maintenance Spares-30% of O&M	4.82	9.68
	Receivables for two months	15.17	17.46
	Total Working Capital Requirement	22.67	29.83
	Rate of interest	10.00%	10.58%
	Interest on Working capital	2.27	
	Interest on Working capital at Effective Capacity	2.27	3.15
LRPP	Fuel Cost for one month	4.86	7.41
	O&M Expenses for one month	1.89	1.89
	Maintenance Spares-30% of O&M	6.79	6.79



Station	Particulars	Approved as per order of February 2021	Claim for FY 2021-22
	Receivables for two months	15.29	25.49
	Total Working Capital Requirement	28.83	41.58
	Rate of interest	10.00%	10.58%
	Interest on Working capital	2.88	
	Interest on Working capital at Effective Capacity	2.88	4.40
NRPP	Fuel Cost for one month	4.32	5.05
	O&M Expenses for one month	1.84	2.52
	Maintenance Spares-30% of O&M	6.64	9.06
	Receivables for two months	32.59	37.51
	Total Working Capital Requirement	45.39	54.13
	Rate of interest	10.00%	10.58%
	Interest on Working capital	4.54	
	Interest on Working capital at Effective Capacity	3.22	5.72

4.6.3. APGCL prays to the Hon'ble Commission to kindly approve the plant wise interest on Working capital for FY 2021-22 as shown above.

4.7. Operation and Maintenance Expenses

4.7.1. As per Regulation of the Tariff Regulations, 2018 does not provide for separate approval of Employee expenses, A&G expenses, and R&M expenses.

4.7.2. APGCL submitted that the Commission in the Tariff Order of dated February 15, 2021, had approved normative O&M expenses of Rs. 58.44 Crore for NTPS, Rs 63.83 Crore for LTPS, Rs. 32.14 Crore for KLHEP and Rs. 22.64 Crore for LRPP for FY 2021-22, which works out to total of Rs. 177.05 Crore.

4.7.3. APGCL had submitted the Commission to amend Regulation 51.2 (a) in AERC MYT Regulations, 2021 to allow the actual O&M cost of NRPP at the time of True up after prudence check for FY 2021-22 and FY 2022-23. Further, APGCL requested the Commission to consider the Trued-up O&M Cost of FY 2021-22 and FY 2022-23 for arriving at normative O&M Cost for FY 2023-24 after escalation.

4.7.4. Based on the above submission, The Hon'ble Commission vide Order No. 03/2022 dated 20th August 2022 had given their judgement as reproduced below:

“ 7. After scrutinizing the Petition and related information submitted by APGCL, the Commission noted that the figures submitted by APGCL are estimations only. The Commission is of the view that in absence of actual O & M cost (Audited), it may not be prudent to revise the norms only on the basis of submissions of APGCL.

8. However, APGCL is at liberty to place their claim at the time of true up with proper documentary evidence during the control period from FY 2022-23 to FY 2024-25 based on the audited data of O&M expenses and the Commission shall decide on the basis of the actual audited data. “



4.7.5. Based on above Submission, APGCL has claimed the actual O&M cost of Rs. 30.20 Crore for 259 working days of NRPP for FY 2021-22.

4.7.6. APGCL prays to the hon'ble commission to approve the O&M expenses for FY 2021-22 as shown in the table below.

Table 38: Operation and Maintenance claimed for FY 2021-22

Station	Normative O&M cost approved in order February 2021	O&M approved in order dated February 2021	Approved O&M at effective capacity in order February 2021	Normative O&M cost approved in order March 2022	O&M approved in order dated March 2022	Amount Claim at actual effective capacity for FY 2021-22
	NTPS	58.44		21.27	58.65	
LTPS	63.83		43.63	64.06		43.79
KLHEP	32.14		32.14	32.25		32.25
LRPP	22.64		22.64	22.64		22.64
NRPP				22.12		30.20
Total	177.05		119.68	199.72		152.34

Rs. Cr

4.7.7. Further, APGCL has separately claimed Rs. 0.20 crore against capacity building and Rs. 5.76 crore against special R&M for FY 2021-22.

4.7.8. APGCL prays to the Hon'ble Commission to kindly approve the plant wise O&M expenses for FY 2021-22 as shown above.

4.8. Impact of AERC (Payment of Fees etc.) Regulation, 2020

4.8.1. The Hon'ble Commission has notified the new AERC (Payment of Fees etc.) Regulations, 2020 which has led to a substantial increase in the Filing Fees of APGCL payable to AERC.

4.8.2. The tentative impact of the increase in the filing fees has been shown below:

Table 39: Impact of increase in AERC Fees claimed for FY 2021-22

Station	Approved in Tariff Order dated February 2021	Actual claim for FY 2021-22
NTPS	0.10	0.10
LTPS	0.10	0.10
KLHEP	0.0	0.0
LRPP	0.10	0.10
NRPP	0.0	0.00
Total	0.30	0.30

Rs. Cr



4.9. Actual Tax Claim

4.9.1. As per regulation 35 of the Tariff Regulations 2018, income tax as will be reimbursed per actual income tax paid, based on the documentary evidence submitted at the time of truing up.

4.9.2. APGCL has determined that total amount of Rs. 43.49 Crores to be payable to Income Tax Department.

Table 40: Plant wise Tax on income claimed for FY 2021-22

Rs. Cr	
Station	Tax on income claimed for FY 2021-22
NTPS	3.85
LTPS	13.01
KLHEP	6.94
LRPP	8.35
NRPP	11.33
Total	43.39

4.9.3. The Petitioner prays to the Hon'ble Commission to kindly approve the plant wise tax on income for FY 2021-22 as shown in the table above.

4.10. Special R&M

4.10.1. As per regulation 29.5 (iii) of the Tariff Regulations 2018, special R&M expenditure is allowed for efficient operation of the stations.

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

Table 41: Details of Special R&M claimed for FY 2021-22

Rs. Cr				
Work Name	Approved as per Tariff Order dated February 2021	Approved as per Tariff Order dated March 2022	Claim in FY 2021-22	Remarks
Major Overhauling of KLHEP - Unit 1	0	0	1.84	It was first time approved for FY 2018-19 with amount of Rs. 25.90 Crore in Tariff Order dated 19th March 2019. Further, It was planned to be executed in January 2020. But due to impact of COVID, the work was completed in February 2021. Hence, APGCL had claimed Rs. 24.24 Crore in True-up of FY 2020-21. The Commission had allowed the same in tariff order dated 21 st March 2022. Rest pending



Work Name	Approved as per Tariff Order dated February 2021	Approved as per Tariff Order dated March 2022	Claim in FY 2021-22	Remarks
				amount of Rs. 1.84 Crore related to overhauling of U#1 was booked in annual account of FY 2021-22. Hence, APGCL has claimed the same amount in FY 2021-22.
Overhauling of LTPS Unit -7	15	0	0	Work has been shifted in FY 2022-23. The same was approved by Commission in Tariff Order dated 21 st March 2022.
Overhauling of Gas Compressor of GC #6 of LTPS	3	5	0	Work has been executed and completed in FY 2022-23. Hence, it will be claimed in FY 2022-23
Capital Overhauling of 50MW Francis type Fuji make Generator Turbine Unit-II – KLHEP	12	0	0	Work has been shifted for FY 2022-23. The same was approved by Commission in Tariff Order dated 21 st March 2022.
Additional Capital Investment for Renovation work of damaged assets due to Landslide for KLHEP Plant	0	12	0	Work was planned and executed in FY 2021-22 and few pending was completed in first quarter of FY 2022-23. Hence, APGCL has claimed Rs. 3.92 Crore for FY 2021-22 and rest amount of Rs. 8.08 Crore will be claimed for FY 2022-23.

4.10.3. In view of the above regulations, the approved and actual number for Special R&M for FY 2021-22 are shown in the table below.

Table 42: Plant wise Special R&M for FY 2021-22

Station	Approved as per order of February 2021	Approved as per order of March 2022	Actual claim for FY 2021-22
NTPS	0	0	0
LTPS	18	5	0
KLHEP	12	12	5.76
LRPP	0	0	0
NRPP	0	0	0
Total	30	17	5.76

Rs. Cr



4.10.4. APGCL prays to the Hon'ble Commission to kindly approve the plant wise Special R&M for FY 2021-22 as shown in the table above.

4.11. Capacity building

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

4.11.2. The list of capacity building activities undertaken in FY 2021-22 is shown below:

Sl. No.	Name of Training Programme	Organizing Institute	Period of Training		No. of Participants
			From	To	
1	Income Tax on Salary	SIERD, New Delhi	6/16/2021	6/16/2021	10
2	Partial Discharge Monitoring of Power Transformers, Gas Insulated Switch Gear, Cable & Rotating Machines	CBIP, New Delhi	6/17/2021	6/18/2021	10
3	Power System Communications SCADA & EMS	NPTI (PSTI), Bengaluru	6/21/2022	6/23/2022	14
4	Recruitment Rules & Reservation in Services for SC/ST/OBC/EWS & PWD	SIERD, New Delhi	6/28/2021	7/2/2021	3
5	Energy Storage including Pumped Storage	CBIP, New Delhi & CIGRE India	6/29/2021	6/30/2021	3
6	Quality Assurance & Quality Control in Civil Engineering	ESCI, Hyderabad	7/15/2021	7/17/2021	10
7	Cyber Security Best Practices for Manager & Executives	ESCI, Hyderabad	8/2/2021	8/6/2021	6
8	Best Practices in O&M of Industrial Valves & Actuators for Heavy Industries & Power Plants	ESCI, Hyderabad	8/10/2021	8/12/2021	13
9	Electrical Safety and Inspection of Electrical Installations, Accidents Prevention, Recent Trends	NPTI (PSTI), Bengaluru	8/16/2021	8/18/2021	9
10	Contract Management of Consultancy Contracts	ADB Bank	10/12/2021	10/12/2021	2
11	ADB Financial Management Reporting Requirements	ADB Bank	10/22/2021	10/22/2021	2
12	ADB Safeguard Procedures – Environmental	ADB Bank	11/23/2021	11/23/2021	2
13	ADB Safeguard Procedures - Involuntary Resettlement	ADB Bank	11/23/2021	11/23/2021	2
14	ADB Safeguard Procedures - Indigenous People	ADB Bank	11/24/2021	11/24/2021	2
15	ADB Safeguard Procedures - Occupational Safety & Health	ADB Bank	11/24/2021	11/24/2021	2
16	Best Practices in Power Distribution Systems	CBIP, New Delhi	12/22/2021	12/23/2021	4



Sl. No.	Name of Training Programme	Organizing Institute	Period of Training		No. of Participants
			From	To	
	including Demand Side Management and Smart Grid Technologies				
17	CCGT Simulator Training	NPTI Faridabad	11/22/2021	12/3/2021	5
18	Power Trading, Power Exchanges & Merchant Power Plants	ESCI, Hyderabad	2/8/2022	2/11/2022	3
19	Tendering & Contract Management	National Productivity Council, Jaipur	2/9/2022	2/10/2022	3
20	Basic Level Cyber Security Training & Certification	NPTI Faridabad	2/14/2018	2/18/2018	1
21	Industrial Safety - Electrical & Fire	NPTI Guwahati	2/21/2022	2/25/2022	3
22	Orientation & Training Session of EAP Portal	Govt. of Assam	3/16/2022	3/16/2022	2
23	Decision making for Effective Leadership	Assam Administrative Staff College	3/22/2022	3/24/2022	2
24	Disaster Management	NPTI Guwahati	3/23/2022	3/25/2022	8
25	Renewable Energy: Current Status and Emerging Policy, Regulatory Framework & Technologies	Asian Development Bank	3/24/2022	3/25/2022	2
26	Role of SLDC in Power Scenario	SLDC, AEGCL	3/24/2022	3/24/2022	3
			3/25/2022	3/25/2022	3
27	Dashboard Workshop	Sri Jatan Shah, Microsoft Certified Trainer & MOS Excel Expert	3/29/2022	4/2/2022	3
TOTAL					132

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

Table 43: Expenses under Capacity building for FY 2021-22

Station	Approved as per order of February 2021	Claim for FY 2021-22
NTPS	0.133	0.04
LTPS	0.133	0.08
KLHEP	0.133	0.08
LRPP	0.0	0
NRPP	0.0	0
Total	0.40	0.20



4.11.4. APGCL prays to the Hon'ble Commission to kindly approve the above-mentioned capacity building expenses for FY 2021-22.

4.12. Non-Tariff income

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

4.12.2. In view of the above regulations, the details of non-tariff income for FY 2021-22 are shown in the table below.

Table 44: Station-wise details of non-tariff income for FY 2021-22

Station	Approved as per order of February 2021	Actual claim for FY 2021-22
NTPS	7.13	6.58
LTPS	9.22	12.30
KLHEP	5.75	11.84
LRPP	0.00	0.00
NRPP	0.00	0.00
Total	22.09	30.72

Rs. Cr

4.12.3. As per audited accounts for FY 2021-22, total other income appeared as Rs. 45.39 Crore. But, due to written off amount of sundry credit balances relating to transportation charge (TC) bills between APGCL and AGCL (Please refer note no. 40 of annual account of FY 2021-22) of Rs. 14.67 Crore, APGCL has claimed 30.72 crore for FY 2021-22 as other Income.

4.12.4. APGCL prays to the Hon'ble Commission to approve the plant wise non-tariff income for FY 2021-22 as shown above.

5. Energy Charges

5.1. Fuel Price and Calorific Value

5.1.1. As per Regulation 10 of the Tariff Regulations 2018, 'Fuel Price' and 'Calorific Value of Fuel' are uncontrollable items. The actual values of 'Fuel Price' and 'Calorific Value of Fuel' are shown in the table below.

Table 45: Actual Plant wise GCV and Price for FY 2021-22

Station	Wt. Avg. Gross Calorific Value of Gas (kcal/SCM)	Wt. Avg. Price of Gas (Rs. /1000 SCM)
NTPS	9196.05	4765.23
LTPS	9599.78	5774.08
LRPP	9269.58	7515.95
NRPP	9196.05	5483.47



5.1.2. The Petitioner prays to the Hon'ble Commission to kindly approve the actual Price of Gas and GCV for NTPS, LTPS, LRPP and NRPP for FY 2021-22 as shown in the table above.

5.2. Fuel cost

5.2.1. The table below shows the plant wise approved fuel cost and the claimed fuel cost for FY 2021-22.

Table 46: Fuel cost of NTPS for FY 2021-22

Rs. Cr

Particulars	Unit	Approved as per order of February 2021	Claim for FY 2021-22
Gross Generation	MU	145.21	157.10
Heat Rate	kCal/kWh	3900.00	4181.66
GCV of gas	kCal/kWh	9147.27	9196.05
Overall Heat	G. cal.	566319.00	656922.40
Gas consumption	M. SCM	61.91	71.44
Price of Gas	Rs. /1000 SCM	3537.22	4765.23
Total cost of Gas	Rs. Crore	21.90	34.04

Table 47: Fuel cost of LTPS for FY 2021-22

Rs. Cr

Particulars	Unit	Approved as per order of February 2021	Claim for FY 2021-22
Gross Generation	MU	425.74	406.52
Heat Rate	kCal/kWh	3200.00	3200.00
GCV of gas	kCal/kWh	9419.27	9599.78
Overall Heat	G. cal.	1362368.00	1300870.66
Gas consumption	M. SCM	144.64	135.51
Price of Gas	Rs. /1000 SCM	4923.31	5774.08
Total cost of Gas	Rs. Crore	71.21	78.24

Table 48: Fuel cost of LRPP for FY 2021-22

Rs. Cr

Particulars	Unit	Approved as per order of February 2021	Claim for FY 2021-22
Gross Generation	MU	519.40	510.11
Heat Rate	kCal/kWh	2150.00	2150.00
GCV of gas	kCal/kWh	9419.27	9269.58
Overall Heat	G. cal.	1116710.00	1096744.46
Gas consumption	M. SCM	118.56	118.32
Price of Gas	Rs./1000 SCM	4923.31	7515.95
Total cost of Gas	Rs. Crore	58.37	88.93



Table 49: Fuel cost of NRPP of FY 2021-22

Rs. Cr

Particulars	Unit	Approved as per order of March 2022	Claim for FY 2021-22
Gross Generation	MU	503.17	490.56
Heat Rate	kCal/kWh	1951.00	2070.03
GCV of gas	kCal/kWh	9204.80	9196.05
Overall Heat	G. cal.	981684.67	1015473.69
Gas consumption	M. SCM	106.65	110.43
Price of Gas	Rs./1000 SCM	4699.56	5483.47
Total cost of Gas	Rs. Crore	50.12	60.55

5.2.2. The Petitioner prays to the Hon'ble Commission to kindly approve the actual fuel cost Price for NTPS, LTPS, LRPP and NRPP for FY 2021-22 as shown in the table above.

5.3. Incentives

5.3.1. Secondary charge for KLHEP: As per regulation 53.6 of the Tariff Regulations 2018, for a hydro power station if the actual saleable energy in a year exceeds Design energy the Energy Charge for such energy is billed equal to the lowest variable charges of the central sector thermal power generating stations in the northeast region.

5.3.2. For the FY 2021-22, APGCL has claimed towards secondary charge for KLHEP as mentioned in below table.

Table 50: Secondary Charge of KLHEP for FY 2021-22

Rs. Cr

Design Energy (Net Generation)	Actual Energy Sent out	Excess over D.E.	Ex-bus energy eligible for incentive	Secondary charge
1	2	3	4	7= 1.204x 4/10
388.05	405.21	17.16	17.16	2.07

5.3.3. As per regulation 53.2 of the Tariff Regulations 2018, incentive payable to hydro power plants for achieving higher availability than normative availability is inclusive of the Annual fixed cost.

5.3.4. APGCL has claimed an incentive for KLHEP for FY 2021-22 as mentioned in below table.

Table 51: Incentive Claim of KLHEP for FY 2021-22

Actual AFC for FY 22	Actual Availability	Normative Availability	Incentive claim
88.75	83.57%	85.00%	0.00



5.4. Revenue from sale of power

5.4.1. The plant wise Revenue from Sale of Power for FY 2021-22 are as shown in the tables below.

Table 52: Plant wise Revenue from Sale of Power for FY 2021-22

Rs. Cr

Particular	Fixed/Capacity charges	Variable charges	Total Revenue appeared in Accounts FY 22	Approved as per order of February 2021	Actual claim for FY 2021-22
NTPS	20.04	31.18	51.22	41.89	51.22
LTPS	83.16	89.83	172.99	154.35	172.99
LRPP	44.73	47.47	92.20	91.00	92.20
KLHEP	33.36	77.65	111.01	91.73	111.01
NRPP	82.86	67.80	150.66	152.15**	150.66
MSHEP	0.00	7.17	7.17	0	
Total	264.15	321.10	585.25	531.12	578.08
True up credit note adjustment in tariff recovery of FY 2021-22 as per Tariff Order dated 15.02.2021			-63.24		
Being the provision made for reversing revenue surplus after truing up for F.Y. 2020-21 as per MYT Order dated 21.03.2022			-32.32		
Total Amount (Rs. Crore)			489.69	531.12	578.08

**Net ARR approved for NRPP in tariff order dated 21st March 2022.

5.4.2. The Petitioner prays to the Hon'ble Commission to approve the plant wise Sale of Power for FY 2021-22 as discussed in the table above.

6. Summary of submissions for True-up of FY 2021-22

6.1. Net Annual Revenue Requirement

6.1.1. The plant wise Net Annual Revenue Requirements for FY 2021-22 are as shown in the tables below.

Table 53: Net Annual Revenue Requirements of NTPS for FY 2021-22

Rs. Cr

Sl. No	Particulars	Approved as per order February 2021	Claim for FY 2021-22
I	POWER GENERATION (MU)		
	Gross Generation	145.21	157.10
	Net Generation	138.68	148.16
	Auxiliary Consumption Loss %	4.50%	5.69%
I	Fixed Charges		
	Operation & Maintenance Expenditure	21.27	23.46
	Increase in AERC Filing Fees	0.10	0.10
	Interest & Finance Charges	0.03	0.56



Sl. No	Particulars	Approved as per order February 2021	Claim for FY 2021-22
	Interest on working Capital	1.94	2.45
	Depreciation	0.54	1.35
	Return on Equity	3.10	8.90
	Income taxes	0	3.85
	Special R&M	0.00	0.00
	Capacity Building	0.13	0.04
	<u>Less:</u> Other Income	-7.13	-6.58
II	Total Fixed Charges	19.99	34.14
III	Fuel Cost	21.90	34.04
IV	Total Revenue Requirement	41.89	68.18
V	Incentive for generation for FY 22		
VI	Total Cost	41.89	68.18
VII	Revenue from Sale of Power	41.89	51.22
VIII	Revenue Gap (+) / Surplus (-)		16.96

Table 54: Net Annual Revenue Requirements of LTPS for FY 2021-22

Rs. Cr

Sl. No	Particulars	Approved as per order of February 2021	Claim for FY 2021-22
I	POWER GENERATION (MU)		
	Gross Generation	425.74	406.52
	Net Generation	402.32	368.21
	Auxiliary Consumption Loss %	5.50%	9.42%
I	Fixed Charges		
	Operation & Maintenance Expenditure	43.63	43.79
	Increase in AERC Filing Fees	0.10	0.10
	Interest & Finance Charges	0.00	1.03
	Interest on working Capital	4.79	5.39
	Depreciation	10.54	13.74
	Return on Equity	15.16	23.05
	Income taxes	0	13.01
	Special R&M	18.00	0.00
	Capacity Building	0.13	0.08
	<u>Less:</u> Other Income	-9.22	-12.30
II	Total Fixed Charges	83.14	87.89
III	Fuel Cost	71.21	78.24
IV	Total Revenue Requirement	154.35	166.13
V	Incentive for generation for FY 22		
VI	Total Cost	154.35	166.13
VII	Revenue from Sale of Power	154.35	172.99
VIII	Revenue Gap (+) / Surplus (-)		-6.86



Table 55: Net Annual Revenue Requirements of KLHEP for FY 2021-22

Rs. Cr

Sl. No	Particulars	Approved as per order of February 2021	Claim for FY 2021-22
I	POWER GENERATION (MU)		
	Gross Generation	390.00	407.25
	Net Generation	388.05	405.21
	Auxiliary Consumption Loss %	0.50%	0.50%
I	Fixed Charges		
	Operation & Maintenance Expenditure	32.14	32.25
	Increase in AERC Filing Fees	0.00	0.00
	Interest & Finance Charges	18.09	19.96
	Interest on working Capital	2.27	3.15
	Depreciation	21.48	22.47
	Return on Equity	10.64	23.94
	Income taxes	0	6.94
	Special R&M	12.00	5.76
	Capacity Building	0.13	0.08
	<u>Less:</u> Other Income	-5.75	-11.84
II	Total Fixed Charges	91.00	102.72
III	Fuel Cost	0.00	0.00
IV	Total Revenue Requirement	91.00	102.72
V	Incentive for generation & Secondary energy generation		2.07
VI	Total Cost	91.00	104.78
VII	Revenue from Sale of Power	91.00	92.20
VIII	Revenue Gap (+) / Surplus (-)		12.58

Table 56: Net Annual Revenue Requirements for LRPP for FY 2021-22

Rs. Cr

Sl. No	Particulars	Approved as per order of February 2021	Claim for FY 2021-22
I	POWER GENERATION (MU)		
	Gross Generation	519.40	510.11
	Net Generation	501.22	492.26
	Auxiliary Consumption Loss %	3.50%	3.50%
I	Fixed Charges		
	Operation & Maintenance Expenditure	22.64	22.64
	Increase in AERC Filing Fees	0.10	0.10
	Interest & Finance Charges	2.61	2.49
	Interest on working Capital	2.88	4.40
	Depreciation	2.68	13.56



Sl. No	Particulars	Approved as per order of February 2021	Claim for FY 2021-22
	Return on Equity	2.44	12.50
	Income taxes	0	8.35
	Special R&M	0.00	0.00
	Capacity Building	0.00	0.00
	<u>Less: Other Income</u>	0.00	0.00
II	Total Fixed Charges	33.36	64.04
III	Fuel Cost	58.37	88.93
IV	Total Revenue Requirement	91.73	152.97
V	Incentive for generation for FY 22		
VI	Total Cost	91.73	152.97
VII	Revenue from Sale of Power	91.73	111.01
VIII	Revenue Gap (+) / Surplus (-)		41.96

Table 57: Net Annual Revenue Requirements of NRPP for FY 2021-22

Rs. Cr

Sl. No	Particulars	Approved as per order of March 2022	Claim for FY 2021-22
I	POWER GENERATION (MU)		
	Gross Generation	503.17	490.56
	Net Generation	478.01	466.03
	Auxiliary Consumption Loss %	5.00%	5.00%
I	Fixed Charges		
	Operation & Maintenance Expenditure	15.71	30.20
	Increase in AERC Filing Fees	0.00	0.00
	Interest & Finance Charges	36.05	54.99
	Interest on working Capital	3.22	5.72
	Depreciation	24.28	29.74
	Return on Equity	22.77	32.49
	Income taxes	0	11.33
	Special R&M	0.00	0.00
	Capacity Building	0.00	0.00
	<u>Less: Other Income</u>	0.00	0.00
II	Total Fixed Charges	102.03	164.48
III	Fuel Cost	50.12	60.55
IV	Total Revenue Requirement	152.15	225.03
V	Incentive for generation for FY 2021-22		
VI	Total Cost	152.15	225.03
VII	Revenue from Sale of Power	152.15	150.66
VIII	Revenue Gap (+) / Surplus (-)		74.37



6.2. Summary

6.2.1. The summary of the True-up for FY 2021-22 For APGCL is as shown below.

Table 58: True-up of APGCL as Whole for FY 2021-22

Rs. Cr

Sl. No	Particulars	Approved as per order of February 2021 except NRPP (As per Order dated 21 st March 2022)	Claim for FY 2021-22
I	POWER GENERATION (MU)		
	Gross Generation	1983.52	1971.54
	Net Generation	1908.28	1879.88
	Auxiliary Consumption Loss %	3.79%	4.6%
I	Fixed Charges		
	Operation & Maintenance Expenditure	135.39	152.34
	Increase in AERC Filing Fees	0.30	0.30
	Interest & Finance Charges	56.79	79.04
	Interest on working Capital	15.10	21.12
	Depreciation	59.52	80.87
	Return on Equity	54.11	100.87
	Income taxes	0.00	43.49
	Special R&M	30.00	5.76
	Capacity Building	0.40	0.20
	Less: Other Income	-22.09	-30.72
II	Total Fixed Charges	329.52	453.26
III	Fuel Cost	201.60	261.76
IV	Total Revenue Requirement	531.12	715.02
V	Incentive for generation and Secondary Energy generation	0.00	2.07
VII	Total Cost	531.12	717.09
VIII	Revenue from Sale of Power	531.12	578.08
X	Revenue Gap (+) / Surplus (-)		139.01

6.2.2. The Petitioner prays to the Hon'ble Commission to kindly approve the plant wise Net Annual Revenue Requirement for FY 2021-22 as discussed in the tables above.

6.3. Adjustment of Revenue Gap / Surplus

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



Table 59: Revenue Gap / Surplus amount of APGCL for FY 2021-22

Rs. Cr

Particulars	NTPS	LTPS	KLHEP	LRPP	NRPP	APGCL as a whole
	Amount claimed for True-Up					
Total Cost	68.18	166.13	104.78	152.97	225.03	717.09
Revenue from Sale of Power	51.22	172.99	92.20	111.01	150.66	578.08
Revenue Gap (+) / Surplus (-)	16.96	-6.86	12.58	41.96	74.37	139.01

6.3.2. In view of the above, APGCL has not claimed the carrying cost for APGCL as a whole. The Total True-up Claim is shown in the table below.

Table 60: Total True-up Claim of APGCL for FY 2021-22

Rs. Cr

True-up Claim	FY 2021-22
Revenue Gap for 2021-22	139.01
Carrying /(holding) cost for FY 2021-22 @ 10.58% (half Year)	7.35
Carrying /(holding) cost for FY 2022-23 @ 10.58% (Full Year)	14.71
Carrying /(holding) cost for FY 2023-24 @ 10.58% (half Year)	7.35
Cumulative Revenue Gap	168.42

6.3.3. We submit that the CAG Comments on Accounts for FY 2021-22 will be submitted in due course.

6.3.4. The Petitioner prays to the Hon'ble Commission to approve the total True-up Claim including carrying cost for FY 2021-22 as discussed in the table above.

6.4. Mechanism of recovery of Surplus/Gap of FY 2021-22

6.4.1. APGCL humbly submits that the revenue gap obtained for FY 2021-22 may be allowed to be recovered from APDCL in 12 equal monthly instalments in FY 2023-24, over and above the tariff for FY 2023-24.



REVISED CAPITAL INVESTMENT PLAN FOR FY 2022-23
TO
FY 2023-24 for NTPS, LTPS, KLHEP, LRPP and NRPP
To
ASSAM ELECTRICITY REGULATORY COMMISSION



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

7. Revised Capital Investment Plan of NTPS, LTPS, KLHEP, LRPP and NRPP for FY 2022-23 to FY 2023-24

7.1. Regulatory provisions

7.1.1. The Hon'ble Commission in its Tariff regulations 2021 has stated the following on Capital Investment Plan for generating companies for the control period from FY 2022-23 to FY 2024-25. The same is reproduced below for ready reference:

"6 Capital Investment Plan

6.1 The Generating Company, Transmission Licensee, SLDC Business and Distribution Licensee shall submit a Capital Investment Plan for the entire Control Period, as part of the MYT Petition as per the timeline specified in this Regulation and accompanied by the Fee required for processing of Investment plan, as specified in AERC (Payment of Fee) Regulations, 2020 as amended from time to time.

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

6.2.....

6.3.....

6.4.....

6.5.....

6.6.....

6.7.....

6.8.....

6.9.....

6.10.....

6.11.....

6.12.....

6.13.....

6.14.....

6.15 In case the capital expenditure is required for emergency work which has not been approved in the Capital Investment Plan, the licensee shall submit an application, containing all relevant information along with reasons justifying emergency nature of the proposed work, seeking approval by the Commission. The licensee shall take up the work prior to the approval of the Commission provided that the emergency nature of the scheme has been certified by its Board of Directors.

6.16 The generation company and the licensee shall submit all information / data as required by the Commission for necessary approval of the Capital Investment plan.

7.1.2. In accordance with the regulatory requirements, APGCL is submitting a revised Capital Expenditure Plan for APGCL for the Control Period FY 2022-23 to FY 2023-24 for approval from the Hon'ble Commission.



8. Capital Expenditure – Existing Projects

8.1. Capital Expenditure Plan of Existing Projects

8.1.1. In continuation of successful execution of earlier Renovation and Modernisation (R&M) schemes, it has been proposed for implementation of a comprehensive R&M schemes for LTPS, NTPS, KLHEP, LRPP and NRPP covering the period 2022-23 to 2023-24. These R&M schemes have been necessitated in order to ensure maximum reliability and availability of the existing units of NTPS, LTPS, KLHEP, LRPP & NRPP to maximize generation. The R&M of power stations has been considered to be the most attractive economic option for the Company. R&M schemes are aimed at improving generation and availability of generating units.

8.1.2. APGCL hereby petitions for a revised Capital Expenditure Plan for its Existing Plants to the Hon'ble Commission.

8.2. Revised Capital Expenditure Plan of NTPS

8.2.1. The following capital expenditure Plan is proposed for Namrup Thermal Power Station for the Period FY 2022-23 to 2023-24.

Table 61: R&M plan proposed of NTPS for FY 2022-23 to FY 2023-24

Rs. Lakhs

S. No	Approved Schemes	Approved as per Order dated March 2022		Revised Capital Expenditure		Remarks
		In Rs. Lakhs				
		FY 23	FY 24	FY 23	FY 24	
A	Electro-mechanical Work of NTPS					
1	100W LED Street Light/bay light (complete set) with separate clamps & pipe bend fitting etc.	10	10	14.5	15	Amount estimated based on revised offer
2	200W LED Street Light/bay light (complete set) with separate clamps & pipe bend fitting etc.	-	22.5		22.5	Same
3	30 M high Mast Lighting System (complete set)	-	12		12	Same
4	Renovation of damaged sludge removing system of water clariflocculation system at Dillighat water Intake for the purpose of better water treatment	12	12	16.9	16.9	Amount estimated based on revised offer
5	Supply, installation & commissioning of sulphuric Acid dilution tank at DM Plant	9.5	-	14		Amount estimated based on revised offer.
6	Renovation of damaged drinking water supply pipeline from D.M. plant to WHP residential colony & officers' colony at pahar line	12	-	17		Amount estimated based on revised offer
7	Overhauling (Electrical & Mechanical) of Overhead EOT crane	13	-	17		Amount estimated based on revised offer



S. No	Approved Schemes	Approved as per Order dated March 2022		Revised Capital Expenditure		Remarks
		In Rs. Lakhs				
		FY 23	FY 24	FY 23	FY 24	
	at GTMD side (MMM make, Shaw Box type)					
8	Overhauling (Electrical & Mechanical) of Overhead EOT crane at STMD side	5	-	11.39		Amount estimated based on revised offer
9	Procurement of 100 HP BCW pump motor for unit no. 6	4.2	-	8		Amount estimated based on revised offer
10	Renovation of the Spray Pond Piping System of GT Units	-	18.5		18.5	Same
11	Overhauling of ALCO Diesel engine no. 2 of Diesel Powerhouse including Procurement of Spares	-	18.85		18.85	Same
12	Construction of dedicated 2 (two) nos. of 33 KV APGCL Bay at 220 KV GSS, AEGCL, Namrup			160		Since the existing 66KV system of NTPS is going to be obsolete in near future, an alternative source of power for the 33KV Bus at NTPS must be needed as various essential feeders of NTPS to run auxiliaries, water supply etc. are fed from the existing 33KV Bus at NTPS.
Total Amount (Rs. Lakhs)		65.70	93.85	258.79	103.75	

8.3. Revised Capital Expenditure Plan of LTPS

8.3.1. The following capital expenditure Plan is proposed for Lakwa Thermal Power Station for the Period FY 2022-23 to 2023-24:

Table 62: R&M plan proposed of LTPS for FY 2022-23 to FY 2023-24

Rs. Lakhs

S. No	Approved Schemes	Approved as per Order dated March 2022		Revised Capital Expenditure		Remarks
		In Rs. Lakhs				
		FY 23	FY 24	FY 23	FY 24	
A	Electro-mechanical Work of LTPS					
1	Replacement of Fill Packs of 03 cells of Cooling Tower	170	-	181		Revised as per work order
2	New and Updated Human Machine Interface (HMI) System along with installation & commissioning charges	131.4	-	180		Revised as per work order
3	Overhauling of HPBFP with mandatory spares	-	140		140	Same



S. No	Approved Schemes	Approved as per Order dated March 2022		Revised Capital Expenditure		Remarks
		In Rs. Lakhs				
		FY 23	FY 24	FY 23	FY 24	
4	Overhauling of Cooling Water Pumps (CWP) along with supply of spares.	-	-	100		The Condenser Cooling Water Pump (CCWP) is one of the major equipment of a Steam Generating Plant. Failure of the CCWP may lead to discontinuation of operation of the STG, resulting in generation loss. Although our system contains three (03) CCWPs for redundancy, two (02) of them remain in service continuously since commissioning, and no overhauling has been conducted up to this point. It is, however, recommended that the pumps be overhauled every three years as per OEM guidelines (OEM Manual attached in Annexure 11). As such, it is proposed to go for overhauling of three of the pumps to enhance its service life. Overhauling work for two of the pump is proposed in R&M 2022-23 & overhauling of the remaining pump will be taken up in next year i.e 2023-24.
5	Condensate Extractor Pump Overhauling	50	-	50		Worked order placed
6	Replacement of critical MOVs with new & servicing of the remaining MOVs & servicing of Mechanical Valves	100	-	140		Revised as per estimate
7	Up gradation of main Battery Bank along with Charger, Cables, MS Stand & other accessories.	100	-	70		Revised as per work order
8	Intermediate Overhauling of 37.2 MW STG & procurement of spares	50	-	50		Same
9	Procurement of field instruments of Gas Turbine units of LTPS. (Unit #5)	-	-		70	Major Inspection of GT unit #5 is due in next 2022-2023, since the last Major inspection was done on 24/02/2014. Various field instruments are installed in the Gas Turbine units of Ph-II Powerhouse for control protection of the gas turbine units. These field instruments include servo valves, solenoid valves, Thermocouples, Pressure Transducers, Temperature Switches, Pressure Switches, Limit switches, Vibration sensors, Magnetic speed pick-up, and so forth. As, many of

S. No	Approved Schemes	Approved as per Order dated March 2022		Revised Capital Expenditure		Remarks
		In Rs. Lakhs				
		FY 23	FY 24	FY 23	FY 24	
						these field instruments will reach 48000 RH and hence have elapsed their service/operating life. Also, spare of some of the field instruments is not available at LTPS Store. Replacement of faulty field instruments with new instruments had to done from time to time in order to keep the control & protection of the Gas turbine units intact and hence increase the reliability of the units. In addition, these spares will also be required during emergency breakdown and maintenance work of the gas turbine units. Hence, unavailability of these GT instruments might lead to outage of the respective units and hence cause generation loss. In addition to the above, replacement of the existing old field instruments with state-of-the-art instruments are required to augment the control and protection of the overall system and thereby increasing the reliability of the system which will enable the scope of running the unit for another 48000 hrs. P.O. has already been issued to OEM M/s BGGTS and Copy attached in Annexure 13.
10	Up-gradation of Generators control & protection panel of 3 X 20MW, Ph-II units (1 unit in first phase) For unit # 5	-	150		150	Same
11	Procurement and installation and commissioning of 132 KV SF6 Breaker (05 nos.), spring charge mechanism along with up gradation of Control Panel.	-	350		350	Same
12	Procurement of auxiliary's motors and field instruments for 4RDS2 Dresser-Rand Gas Compressor units #6, # 7 and #8	73.33	-	200		The Commission had allowed the said amount for U#8 only and disallowed for Unit U#6&7 stating that it has already completed its useful life. However, In the interest of continuous power generation the unit are being operated and power plant will be operating for next 10 years at the minimum. Hence, proposed



S. No	Approved Schemes	Approved as per Order dated March 2022		Revised Capital Expenditure		Remarks
		In Rs. Lakhs				
		FY 23	FY 24	FY 23	FY 24	
						amount required for the procurement of minimum spare for U#6,7 &8.
13	Procurement of spares for 4RDS2 Dresser-Rand Gas Compressor # 6,7 & 8.	78	-	78		Same
14	Procurement of 01 no 23" LP cylinder suitable for 4RDS2 Dresser-Rand Gas compressor unit #6, 7 or 8.	118	-	118		Same
15	Procurement of Spares for Gas Compressor Unit #9	-	-	100		<p>The Ph-II Power House of LTPS has been using 01 nos Cameroon make Gas compressor since 201 for feeding of pressurized natural gas to its BHEL,GE Frame-V ,20 MW Gas turbines to produce power .The spare materials will be required for making the compressors available by performing different servicing, repairing and maintenance works along with replacement of required parts with the spares and thus such activities will provide longer life to the compressor .</p> <p>It is important to note here that, 29 % of the total outages of the Gas Turbine Units during the period from 01st April'22 to 28th Oct'22 was due to breakdown of Gas Compressors. Outage report attached in Annexure 12 for reference.</p> <p>P.O. were issued to M/s Hoerbiger India Private Limited and M/s Wilqo India Engineering for procurement of spares. P.O. copy attached in Annexure 14.</p>
16	Procurement, Erection , Testing and commissioning of EOT crane at Gas Compressor #9 , Capacity-10 T	-	-		45	<p>An EOT CRANE is very much essential in GC#9 Compressor House to perform both planned and breakdown maintenance works of the Compressor which is use to feed pressurized gas to 20MW BHEL Fram-V Gas Turbines. Gas compressor unit#9 had been commissioned in the year 2012 without an EOT crane in the Compressor house. Since that time any kind of maintenance is performed without EOT crane. Due to unavailability of EOT crane it takes longer than usual time to perform maintenance works. So, an EOT crane of maximum Capacity-10T is very much</p>

S. No	Approved Schemes	Approved as per Order dated March 2022		Revised Capital Expenditure		Remarks
		In Rs. Lakhs				
		FY 23	FY 24	FY 23	FY 24	
						needed to do maintenance works smoothly. The EOT crane will minimize maintenance period and provide safe work.
17	Procurement of Spares for Combustion Inspection of GT unit # 5 & 6	35	-	35		Same
18	Complete overhauling of one 7.5 MVA (R14) station transformers. Manufacturing year 1980	55	-	60		Revised as per work order
19	Procurement of 132kV Current transformers for station transformers and bus tie bay.	46.2	-			Cancelled
20	Procurement of 132kV Feeder Isolators.	59.4	-			Cancelled
21	Diversion of 11 KV Colony Feeder	35	-	35		Same
22	Servicing of Diverter Damper (DD) Complete & its actuator gearbox along with supply of spares	-	40		40	Same
23	Overhauling of Cooling Water Pumps (CWP) along with supply of spares.	-	30		50	Revised as per estimate
24	Procurement of a new Silica analyser for SWAS.	-	12		12	Same
25	Replacement of Motor Control Centre Panel for Raw Water Intake Pump House.		25		25	Same
26	Major overhauling of Generator transformer ,30 MVA 11/132KV of GT unit #5 and #6along with oil filtration	-	25		25	Same
27	Procurement of 05 sets of 132KV isolators for replacing the old existing isolators in phase II power house switchyard	-	50		50	Same
28	Testing and commissioning of transfer Bus of 132kV PH#II switchyard including switchyard auxiliaries.	-	40		40	Same



S. No	Approved Schemes	Approved as per Order dated March 2022		Revised Capital Expenditure		Remarks
		In Rs. Lakhs				
		FY 23	FY 24	FY 23	FY 24	
29	Major Overhauling of 7.5MVA 132/3.3kv Station transformer 1 &2.	-	20		20	Same
30	Renovation of Air Conditioning system of Phase-II Power Control room	-	50		50	Same
31	Procurement of Inlet Air filter for 20 MW frave-V Gas Turbine # 6 & 7- 01 set	-	15		15	Same
32	Modification of Hydran Point Pipe line of Fire Fighting system at PH-II power House	-	50		50	Same
33	Procurement of 33kV Current transformers.	-	20.79		20.79	Same
34	Procurement of Transformer 132kV Isolators.		36.3		36.3	Same
35	Procurement of 33kV Isolators.	-	28.05		28.05	Same
36	Procurement of 145kV Circuit Breaker	-	8.8		8.8	Same
37	Upgradation of the HGP and Combustion system of one GT Unit for LTPS				3608	<p>>The job will reduce the Cost of Maintenance as it will result in a reduction in maintenance costs as the intervals between combustion inspections can be increased.</p> <p>> The job will be done by upgrading both the combustion hardware and some of hot gas path components. The upgradation will maximise the operating firing temperature at parity of maintenance intervals with respect to the baseline.</p> <p>> APGCL has collected an offer of Rs. 29.12 Crore excluding GST and Freight Charge from the OEM BGGTS (BHEL-GE Gas Turbine Services Pvt. Ltd.) for the upgradation work for one unit of GT of LTPS. The offer letter attached has been attached in Annexure 15.</p> <p>>Prayer: APGCL most humbly prays to the Hon'ble Commission to approve the work of Upgradation of the HGP and Combustion system of one GT Unit for LTPS at an estimated cost of Rs. 36.08</p>



S. No	Approved Schemes	Approved as per Order dated March 2022		Revised Capital Expenditure		Remarks
		In Rs. Lakhs				
		FY 23	FY 24	FY 23	FY 24	
						Creore including freight and GST Charge for the FY 2023-24.
38	Procurement and commissioning of 02 nos of Water Intake pump (Make: Kirloskar Brothers Limited)				60	Presently only 01 no of pump out of the 02 nos. of Kirloskar pumps is in service due to lack of spares. From overall perspective of keeping the pumps availability always & reducing maintenance cost, it is proposed to procure new pumps. The spares from the existing pumps can be used as spare later on.
39	a) Procurement of 01 no. of Cooling Tower Make-up Pump b) Procurement of 03 nos. of Cooling Tower Fan Motor				15	a) There are 02 nos. of Cooling Tower (CT) Make-up pumps and presently only 01 no. of pump is in operation as the operation of the other pump is not reliable. Operation of CT Make up pump is very crucial for Steam turbine plant as it supply condenser cooling water to CT forebay. Its failure may lead to complete shutdown of steam turbine. There are 6 cells at the Cooling Tower and all of them remain in service 24*7 to provide cooling to both Waste Heat Recovery Plant and Phase-II Gas Turbines. Failure of 01 no. of cell will results in partial load drop (around 3 MW) in both of these powerhouses. The CT fan motors were in service since 2012 & recently 03 nos. of Fan Motors have failed and were locally repaired. Service of these locally repaired motors is not reliable and may fail anytime. To avoid partial generation loss and keep the machines in good conditions, these fans are very important.
40	Overhauling of 02 nos. of LPBFP				50	The LP Boiler Feed Pump is one of the major equipment's of the WHRP Plant. Failure of LPBFP may lead to discontinuation of operation of the STG resulting in generation loss. Since more than 50000 RH have crossed at 03 nos. of the LPBFPs out of 04 nos., as such overhauling of minimum of 02 nos. of LPBFPs along with procurement of mandatory spares is proposed. The OH works at the remaining BFPS will be taken up in subsequent years



S. No	Approved Schemes	Approved as per Order dated March 2022		Revised Capital Expenditure		Remarks
		In Rs. Lakhs				
		FY 23	FY 24	FY 23	FY 24	
41	Procurement of 05 nos. of 3.3KV Vacuum Circuit Breaker				55	Spares for 3.3KV VCBS are currently not available at LTPS store. These VCBS are used in major equipment's such as Condensate Extraction Pump, Condensate Cooling Water Pumps, Main Oil Pump, etc. As such, spare availability of these VCBS are of utmost importance for avoiding generation loss.
42	Servicing of Generator Transformer (48 MVA) & Station Transformer (7.5 MVA)				10	The 7.5 MVA Station Transformer and 48 MVA Generator Transformer requires oil filtration and servicing as they are in service since the commissioning of the plant. If any of these transformers fails, then total generation loss of WHRP will occur.
43	a) Electronic Water Level Indicator Card b) Pressure calibrator c) Omicron Relay Testing Kit Cable d) Clamp Meter, Procurement of Tan Delta Testing Kit				32	a) Water level indicating card (EWLI) of HRSG#3 has malfunctioned. This is required to precisely monitor water level in boiler drum. No spare is currently available at LTPS Store. b) Handheld pressure calibrator is important for calibration of various pressure indicating and transmitting devices. Precise values can be maintained only if calibration is done periodically. c) There is a relay testing kit at WHRP powerhouse. All kinds of relays can be tested in this device. Relay testing is required at times which is presently outsourced resulting in repeated incurring of cost & valuable time. If this cable is available relay testing can be carried out in house. d) Clamp Meter is required for measurement of current during monitoring & maintenance activities. There is no clamp meter in LTPS. Tan Delta Testing Kit is an important testing kit for periodic transformer testing. Currently, this work is being outsourced (generally to AEGCL) which incur repeated financial involvements (depending upon as and when required) as well as have to face delays due to non-availability of the concerned outsourced party. Availability of this testing kit at



S. No	Approved Schemes	Approved as per Order dated March 2022		Revised Capital Expenditure		Remarks
		In Rs. Lakhs				
		FY 23	FY 24	FY 23	FY 24	
						LTPS site will result in timely inspection and restoration in case any fault arises.
44	Revamping of Existing Natural Gas & Water Coolers of Gas Compressors No. 6,7 & 8 of LTPS				300	The existing Air Fin Coolers (AFC) of Gas Compressors at LTPS are in operation since commissioning of the plant. Due to aging the cooling efficiency of the existing AFCs has gone down drastically. This leads to frequent damage to GC internal spares, shutdowns caused by high crankcase oil temperatures, high lube oil consumption etc.. As such from the perspective of reliable and smooth operation, revamping of the existing coolers is extremely necessary.
45	Up gradation of Control Panel from analog system to PLC based system for Gas Compressors 6,7 & 8.				360	The Gas Compressors Units #6, #7 & #8 have basic analog-based control system. There is no facility to record the trend and it becomes very difficult to troubleshoot the problems after a trip. Moreover, it becomes difficult to procure some of the field instruments associated with the compressors as some of these have become obsolete. Replacement of the existing old field instruments with state-of-the-art instruments and up gradation of the control system is required to augment the control and protection of the overall system and thereby increasing the reliability of the system.
B	Civil Work of LTPS					
	Layout of LTPS Plant with supply of all proper drawings	6	-		6	Work can be carried out in the next FY 2023-24
46	Deep tube well water supply system inside the power plant at LTPS, Maibella (Including boring, supplying, and fitting of pump set up with all pipeline and fittings, construction of filter chamber and supply of all filter materials.)	55	-	55		Same
47	Construction of paver block road from main road in front of army canteen to newly constructed multi	25	-	25		Same



S. No	Approved Schemes	Approved as per Order dated March 2022		Revised Capital Expenditure		Remarks
		In Rs. Lakhs				
		FY 23	FY 24	FY 23	FY 24	
	storied building inside LTPS residential colony.					
48	Roof treatment of cooling water pump house panel room of WHRP at power plant of LTPS	1.5	-	1.8		Revised as per estimate
49	Construction of LTPS main gate	10	-		10	Work can be carried out in the next FY 2023-24
50	Repairing of Switchyard stored at power plant at LTPS	8	-	15		Revised as per estimate
51	Renovation of children park and construction of surrounding drain along with cover slabs at LTPS, Maibella	20	-		20	Work can be carried out in the next FY 2023-24
52	Development and repairing of roads inside LTPS residential colony.	15	15		15	Work can be carried out in the next FY 2023-24
53	Repairing of quarters at LTPS residential colony.	30	30	30	30	Same
54	Renovation of water supply pipelines and all fittings at LTPS residential colony and Power Plant	10	10		10	Work can be carried out in the next FY 2023-24
55	Repairing of water pump house building, development of surrounding areas of water supply system of LTPS	7	7		7	Work can be carried out in the next FY 2023-24
56	Supplying of filter chamber material of LTPS	8	8	8	8	Same
57	Development of boundary walls around LTPS Colony	20	20		20	Work can be carried out in the next FY 2023-24
58	Renovation of Erector's Hostel at LTPS	15	15	15	15	
59	Providing of boundary fencing for the residential quarters of LTPS	20	20		20	Work can be carried out in the next FY 2023-24
60	Repairing of Administrative office building of LTPS	15	15		15	Work can be carried out in the next FY 2023-24
Total Amount (Rs. Lakhs)		1366.83	1230.94	1546.80	5891.94	



8.4. Revised Capital Expenditure Plan of KLHEP

8.4.1. The following Revised Capital Expenditure Plan is proposed for Karbi Langpi Hydro Electric Power Station for the Period 2022-23 to 2023-24.

Table 63: R&M plan proposed of KLHEP for FY 2022-23 to FY 2023-24

Rs. Lakhs

S. No	Approved Schemes	Approved as per Order dated March 2022		Revised Capital Expenditure		Remarks
		In Rs. Lakhs				
		FY 23	FY 24	FY 23	FY 24	
A	Electro-mechanical Work of KLHEP					
1	Spare for Inspection & Repairing of KLHEP units	40	40	40	40	Same
2	Replacement of Broken Cable Tray in 220 KV Switchyard area.	20	20	20	20	Same
3	Replacement of SF6 Breakers, CT's, PT's, Isolators etc. of 220KV Switchyard at KLHEP	1,000	-	1,000		Same
4	Energy Meter for Office cum Guest House and Staff Quarter at Lengery.	5.15	-	5.15		Same
5	Marshalling Panel for 21MVA Generator Transformer	65	-	65		Same
6	3-Phase, 750KVA, 11/0.43KV Transformer used as Unit Auxiliary Transformer (UAT)	25	-	25		Same
7	Design, Supply and installation & Commissioning of extension in the existing 33 KV outdoor Switchyard for Power evacuation from 13.5 MW MSHEP and Station auxillary power supply to 2X50 MW KLHEP Powerhouse and Project Area	250	-	250		Same
8	CO2 Fire Protection for both the 50 MW Generator of KLHEP	40	-	40		Same
9	Silent 500KVA DG set for Powerhouse	-	65	-	65	Same
10	Mobile crane with 360 base rotationl and lifting capacity of 20 Ton	-	180	-	200	Revised as quotation collected
11	Renovation and Refurbishment of 130T EOT	-	60	-	80	Revised as quotation collected



S. No	Approved Schemes	Approved as per Order dated March 2022		Revised Capital Expenditure		Remarks
		In Rs. Lakhs				
		FY 23	FY 24	FY 23	FY 24	
	Crane with redesigned control system.					
12	Replacement of all 2X50 Mw Generator Control and Relay Panel	-	350	-	350	Same
13	Cooling water supply system for Generator Turbine and Transformer	-	150	-	150	Same
14	Capital Overhauling of 7 Nos of 21 MVA Generator Transformer				250	The 21 MVA Generator Transformer of KLHEP was manufactured in the year 1982 and commissioned in the year 2007. Due to sitting without charging for more than 20 years and continuously in service period for 15 years, the service life of the transformer has been completed and condition of the Transformer has started to deteriorate. Also, as per OEM, the overhauling of Transformer should be done in 15 years. The Tan-Delta & other recommended tests conducted by MRT & CPRI for 21 MVA Generator Transformer were not satisfactory due to ageing. The spares required for keeping equipment in healthy condition are not available with the vendor due to upgradation and modernization in the OEM workshop. 21 MVA Generator Transformer also effect the efficiency of power generation. Failure of any of the 7 Nos transformer will cause huge generation loss. so, for the smooth functioning, capital overhauling of 7 nos of Generator Transformer need to be done urgently.
15	25 MVA, 220/33 KV; (Double wound type; 3 Phase, YNyn0) Station Reserve Transformer for dedicated evacuation of Power from MSHEP				350	As of now the power from 13.5 MW MSHEP project is evacuated to 220 KV KLHEP Switchyard through the existing 25 MVA 220/33 KV Station Reserve Transformer (SRT) of KLHEP, which is also used for the Auxillary Power Supply to KLHEP Powerhouse and Project area, which creates lot of Electrical stress to the Transformer due to less stable LT network. But for considering reliability and redundancy of Power evacuation from MSHEP, a dedicated Transformer is required for evacuation of power is required for proper Energy Auditing.



S. No	Approved Schemes	Approved as per Order dated March 2022		Revised Capital Expenditure		Remarks
		In Rs. Lakhs				
		FY 23	FY 24	FY 23	FY 24	
						Hence, a dedicated Power Transformer is required to installed with all accessories and panels at 220 KV Switchyard of KLHEP.
16	03 Nos of 21 MVA Single Phase Generator Transformer for Unit#1 of KLHEP (Technical Specification: 21 MVA, HV 232/rt3/ LV 11, Single Phase, OFWF, CGL, Make)				100	The 21 MVA Generator Transformer of KLHEP was manufactured in the year 1982 and commissioned in the year 2007. Due to sitting without charging for more than 20 years and continuously in service period for 15 years, the service life of the transformer have been completed and condition of the Transformer has started to deteriorate. The Tan-Delta & other recommended tests conducted by MRT & CPRI for 21 MVA Generator Transformer were not satisfactory due to ageing. Also, spares required for keeping equipment in healthy condition are not available with the vendor due to upgradation and modernization in the OEM workshop. 21 MVA Generator Transformer also effect the efficiency of power generation. Failure of any of the transformer will cause huge generation loss. so, for the smooth functioning, renovation & modernization of the 03 Nos of 21 MVA 220/11 KV Generator Transformer need to be procured urgently.
17	Upgradation of Transformer capacity and installation of 750 KVA, 33/0.415 KV Substation near to O/o the General Manager, KLHEP Lengery for better power management and energy efficiency				90	The 500 KVA Transformer installed at Lengery is used for electrification of KLHEP GM's office and colony. The present transformer was tapped at 33/11 KV substation near Powerhouse which is about 15 KM distance away from the staff stationed at Lengery. The 11 KV line passes through inaccessible terrain and conjusted human habitat. Further, many DTRs and Lines are connected to APDCL customer which causes more cumbersome to maintain the lines and fault clearing during line fault. Frequent tripping was seen due to APDCL customer DTR and lines. As such, a new 33/0.43 KV Substation may be constructed at KLHEP, Lengery. The construction of new substation will



S. No	Approved Schemes	Approved as per Order dated March 2022		Revised Capital Expenditure		Remarks
		In Rs. Lakhs				
		FY 23	FY 24	FY 23	FY 24	
						minimise the outages, manpower and financial involvement as well.
18	Upgradation of existing overhead conductor & poles with underground cable for all residential quarter, Office, IB and Auditorium				100	The Overhead LT network of KLHEP colony was commissioned during pre-construction phase. Therefore, material strength of the poles and conductors are in deteriorated condition due to ageing. Frequent Snapping of the conductors and damaging of Poles are becoming hazardous for the Officers and Staff and their family members in the normal storm also. Considering all this facts a underground XLPE cable Transmission system with IP 65 Distribution Panel along with New Street Lighting System is to be installed colony area.
B	Civil Work of KLHEP					
19	TOE wall for all benches at excavated area, drains for all benches, riverbank, protection at upstream left bank, site clearance at Dam gallery etc	200	-	200		Same
20	Roof leakage treatment, Boundary wall and fencing, painting of penstock pipes, checking of penstock welding joints etc	40	-		40	The work can be executed in the next F.Y, i.e. 2023-24
21	Railing for protection around security rest room, toilets or urinals etc	15	-	15		Same
22	Repairing of filing potholes for bitumeneous road from Amtreng to Hatidubi Dam, road from zero point to powerhouse etc	30	-			The work needs to be abandoned as talks are ongoing with KAAC to hand over the road to PWD
23	Chain link fencing around the premises, repairing of old civil store at Amtreng etc	20	-		20	The work can be executed in the next F.Y, i.e. 2023-24
24	Colony road, quarter repairing, construction of new multi storey residential building etc	170	-		170	The work can be executed in the next F.Y, i.e. 2023-24
25	Renovation of tunnel for spalling areas at various locations of tunnel during	20	20	70		Revised as per estimated amount. Tunnel repairing works need to be carried out during the time of overhauling scheduled in the month of

S. No	Approved Schemes	Approved as per Order dated March 2022		Revised Capital Expenditure		Remarks
		In Rs. Lakhs				
		FY 23	FY 24	FY 23	FY 24	
	impounding or machine over hauling					December'2022 in one go and not yearly in a phase wise manner.
26	Security barrack, staircase or permanent foot bridge, hydraulic oil for powerpack, painting of radial gates, drain at quarry no. 1&2 etc	-	150		150	Same
27	Painting of powerhouse, maintenance of anchor blocks and saddles etc	-	35		35	Same
28	Repairing of security rest room, chain link fencing, around the premise etc	-	25		25	Same
29	Side drain along with Bitumeneous roads from zero point to Hatidubi Dam, cattle bridge, retaining walls etc	-	300		300	Same
30	Boundary wall around the premises, repairing of old electromechanical store etc	-	50		50	Same
31	New water supply system, water treatment plant etc	-	50		50	Same
Total Amount (Rs. Lakhs)		1940.15	1495.00	1730.15	2635.00	

8.5. Revised Capital Expenditure Plan of LRPP

8.5.1. The following Revised Capital Expenditure Plan is proposed for Lakwa Replacement Power Project for the Period 2022-23 to 2023-24.

Table 64: R&M plan proposed of LRPP for FY 2022-23 to FY 2023-24

Rs. Lakhs

S. No	Approved Schemes	Approved as per Order dated March 2022		Revised Capital Expenditure		Remarks
		In Rs. Lakhs				
		FY 23	FY 24	FY 23	FY 24	
A	Electro-mechanical Work of LRPP					
1	Procurement of 11 KV and 3.3 KV VCB Breaker		25		25	Same
B	Civil Work of LRPP					
2	Deep tube well water supply system for to support the river water	35			35	Work to be carried out in the next FY 2023-24



S. No	Approved Schemes	Approved as per Order dated March 2022		Revised Capital Expenditure		Remarks
		In Rs. Lakhs				
		FY 23	FY 24	FY 23	FY 24	
	supply system at LTPS, Maibella. (Including boring, supplying and fitting of pump set up with all pipeline and fittings)					
3	Water supply pipeline and reservoir for the newly constructed multistorey building at LTPS.	20	20	10		Revised as per Estimate
4	Development and repairing of roads inside LTPS residential colony.	10	10		10	Work to be carried out in the next FY 2023-24
Total Amount (Rs. Lakhs)		65	55	10	70	

8.6. Plant wise mandatory spare required for FY 2023-24

8.6.1. The non-availability of mandatory spares often leads to prolonged downtime in case of breakdowns. It is therefore very essential to keep the mandatory spares of the units in stock to ensure increased reliability and availability of the plant. The matter was also brought up by the MD, APGCL with the Hon'ble Commission during the 30th SAC meeting dated 12th October 2022 (attached **annexure in 10 A**). The details of spare requirement with its estimated cost have been attached in **Annexure 10 B**.

Table 65: Plant wise mandatory spare for FY 2023-24

Plant Name	Value
NTPS	281.00
LTPS	881.75
KLHEP	2003.59
LRPP	750.00
NRPP	2365.00
Total	6281.34

Rs. Lakhs

9. ERP implementation and Consultancy

9.1. Capital investment

9.1.1. As part of the ERP implementation with the funding of ADB, ERP Consultancy Services project is also going on.

9.1.2. Current Status of ERP implementation and Consultancy is shown in below table.



Package	Status
Lot 1: Supply, Configuration, Integration, Installation, Implementation & Support of ERP Application Software for APGCL	<ul style="list-style-type: none"> ✓ The work has been allotted to M/s Accenture Solutions Pvt. Ltd. ✓ Contract signed on 31st July 2019. ✓ Actual work has started from October'2019. • Data Digitization and Data Migration activity ongoing. • Presently, M/s Accenture team is preparing the Cut-Over and Transactional data for Go-Live. Cut-off date is yet to be proposed along with the Revised Go-Live date.
Lot 2: Managing and Hosting APGCL SAP ERP on Cloud	<ul style="list-style-type: none"> ✓ APGCL has awarded the contract to M/s CtrlS Datacentres Ltd., India. ✓ Contract Signed date: 18th January 2022. ✓ Effective date: 25th January 2022. • Creation and migration of existing email-ids completed- 900 email-ids (username specific). • DC Handover is complete and DR replication work in progress.
Lot 3: Supply, Installation, Commissioning and Warranty for desktop computers/ peripheral/ accessories/ local area networking equipment along with related systems software and cabling	<ul style="list-style-type: none"> • As per approval, the Notification of Award (NoA) was sent to M/s Interlace India Pvt. Ltd. for necessary action from their end via email dated 27th June 2022. M/s Interlace India Pvt. Ltd. via email dated 28th June 2022 sent their Acceptance Letter for the NoA. • The Contract Agreement with M/s Interlace India Pvt. Ltd. was signed on 24th August 2022. • Work is in progress.
Lot 4: Installation and establishing Network connectivity between Data Centre and APGCL Location	<ul style="list-style-type: none"> • Re-Bid of Lot-4 opened on 30-06-2022 in the e-tender portal. • Five numbers of bids received. • Clarification is sought from the bidders. Last date of reply was 27th September 2022. • Evaluation is in progress.

9.1.3. The total financial impact is shown in the table below:

Table 66: Financial impact of ERP implementation and Consultancy

Rs. Cr

Particulars	Approved By Commission		Revised Projection	
	FY 2022-23	FY 2023-24	FY 2022-23	FY 2023-24
	Grant	Grant	Grant	Grant
ERP Implantation	19.16	4.43	19.9	4.17
ERP Consultancy	0.82		0.88	
Total	19.98	4.43	20.78	4.17

9.1.4. The financial impact of ERP implementation and consultancy services is shown in the table below.

Table 67: Revised financial impact of ERP implementation and Consultancy plant wise

Rs. Cr

Particulars	Approved By Commission		Revised Projection	
	FY 2022-23	FY 2023-24	FY 2022-23	FY 2023-24
	Grant	Grant	Grant	Grant
NTPS	2.8	0.62	3.16	0.56
LTPS	6.26	1.39	6.41	1.32
KLHEP	6.44	1.43	6.60	1.35
LRPP	4.49	1.00	4.60	0.94
NRPP	0	0	0	0
Total	19.98	4.43	20.78	4.17

9.1.5. The financial impact of ERP implementation and Asset valuation services are capitalized station wise in the FY 2022-23 and FY 2023-24 as shown above.

10. SUMMARY OF THE REVISED CAPITAL EXPENDITURE PLAN

10.1. Proposed Capex

10.1.1. As per the proposals given in the above sections for existing projects, total proposed year wise revised capital expenditure during the period from 2022-23 to 2023-24 of APGCL is as given below:

Table 68: Summary of revised capital expenditure plan for FY 2022-23 to FY 2023-24

Rs. Cr

Existing Projects	FY 2022-23 (in Crores)			FY 2023-24 (in Crores)		
	Equity	Loan	Grant	Equity	Loan	Grant
R&M Cost including Mandatory Spare – A						
NTPS		2.59			3.85	
LTPS		15.47			67.74	
KLHEP		17.30			46.39	
LRPP		0.10			8.20	
NRPP		0.00			23.65	
Sub Total – A		35.46			149.82	
ERP Implementation – B			20.78			4.17
Grand Total (A+B)		35.46	20.78		149.82	4.17



**APPEAL FOR ANNUAL PERFORMANCE REVIEW FOR
FY 2022-23
To
ASSAM ELECTRICITY REGULATORY COMMISSION**



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



AFFIDAVIT – ANNUAL PERFORMANCE REVIEW

BEFORE THE ASSAM STATE ELECTRICITY REGULATORY
COMMISSION, GUWAHATI.

Petition No. –
Case No.
(to be filed by the Office)

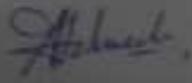
IN THE MATTER OF
Filing of Annual Performance Review of the FY 2022-23.
AND
IN THE MATTER OF
Assam Power Generation Corporation Limited
Bijulee Bhawan, Paltanbazar,
Guwahati-781 001. Petitioner

I, Sri Akshay Talukdar, Son of Late Debendra Nath Talukdar, age 51 years, residing at Santipur Hillside, PNGB Road, Guwahati - 781009, do solemnly affirm and say as follows:

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

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

Solemnly affirm at Guwahati on 24th November' 2022 that the contents of this affidavit are true to my knowledge, no part of it is false or no material has been concealed therefore and misleading material included therein.

Deponent

(Akshay Talukdar)
General Manager (HQ) i/c,
Assam Power Generation Corporation Ltd.

Place: Guwahati
Date: 24th November' 2022

PRAYER – ANNUAL PERFORMANCE REVIEW

BEFORE THE HON'BLE ASSAM ELECTRICITY REGULATORY COMMISSION

FILING NO

CASE NO

IN THE MATTER OF:

Petition for Annual Performance Review of the FY 2022-23

AND IN THE MATTER OF:

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

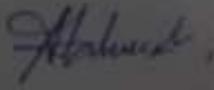
THE HUMBLE APPLICANT ABOVE NAMED MOST RESPECTFULLY SHEWETH:

- i. That Assam Power Generation Corporation Limited, hereinafter named as APGCL, is a successor corporate entity, formed in pursuant to the notification of the Government of Assam, notified under sub-sections (1), (2), (5), (6) and (7) of Section 131 and Section 133 of the Electricity Act 2003(Central Act 36 of 2003), for the purpose of transfer and vesting of functions, properties, interests, rights, obligations and liabilities, along with the transfer of Personnel of the Board to the successor corporate entities.
- ii. That APGCL is a company incorporated with the main objective of generation of electricity in the state of Assam.
- iii. That APGCL submitted petitions for ARR and tariff for the FY 2022-23 to the AERC on 30/11/2021.
- iv. That the AERC declared tariff for FY 2022-23 on 21/03/2022 with effectuation date from 01/04/2022.
- v. That APGCL is now filing the Petition for Annual Performance Review for FY 2022-23 as per the relevant regulation.

Place: Guwahati

Date: 24th November 2022

For and on behalf of
Assam Power Generating Corporation Limited



(Akshay Talukdar)
General Manager (HQ) i/c,
Assam Power Generation Corporation Ltd.

11. Present status of NTPS, LTPS, KLHEP, LRPP and NRPP

Table 69: Present Status of NTPS Units

Unit No.	Revised Installed Capacity (MW)	Available Capacity (In MW)	Present Status
2 (GT)	17	17	Capacity has been derated from original capacity 21 MW for GT U#2 to 17 MW, 21 MW for GT U#3 to 15 MW and 22.50 MW for WHRU U#6.
3 (GT)	15	15	
6 (WHRU with GTs 2 & 3)	9	9	
Total	41	41	CEA letter regarding the same has been attached in Annexure 16 .

Table 70: Present Status of LTPS Units

Unit No.	Revised Installed Capacity (MW)	Available Capacity (In MW)	Present Status
5 (GT)	20	20	Units are available and running normally as per availability of gas.
6 (GT)	20	20	
7 (GT)	20	20	
8 (STG)	37.2	37.20	
Total	97.20	97.20	

Table 71: Present Status of KLHEP Units

Unit No.	Installed Capacity (MW)	Available Capacity (In MW)	Present Status
1	50	50	Units are available and running normally as per availability of water
2	50	50	
Total	100	100	

Table 72: Present Status of LRPP Unit

Unit No.	Installed Capacity (MW)	Available Capacity (In MW)	Remarks
1	9.965	9.965	All units are running normally as per availability of gas
2	9.965	9.965	
3	9.965	9.965	
4	9.965	9.965	
5	9.965	9.965	
6	9.965	9.965	
7	9.965	9.965	
Total	69.755	69.755	

Table 73: Present Status of NRPP Units

Unit No.	Installed Capacity (MW)	Available Capacity (In MW)	Remarks
1 (GT)	62.25	62.25	Only GT is available for FY 2022-23 because of the fire accident occurred in STG building caused damage of STG. APGCL has intimated
2 (STG)	36.15	-	
Total	98.40	62.25	



Unit No.	Installed Capacity (MW)	Available Capacity (In MW)	Remarks
			regarding the same to AERC vide letter no. APGCL/CGM(G)/AERC/2018/115/Pt-XI/70 dated 25 th March 2022. The same has been attached in Annexure 17 for kind reference. Supply of materials for restoration work is ongoing and the unit will be restored by the end of March 2023-24.

12. Annual Performance Review of FY 2022-23

12.1. Regulatory provisions

12.1.1. The Hon'ble Commission in its regulation has stated the following on Annual Performance Review of various costs under the Assam Electricity Regulatory Commission (Terms and Conditions for determination of Multi Year Tariff) Regulations, 2021. The same is reproduced below for ready reference:

"9 Annual Performance Review and True Up

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

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

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

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

a) True Up: a comparison of the audited performance of the applicant for the previous financial year with the approved forecast for that financial year and truing up of expenses and revenue in line with Regulation 10 of this regulation including pass through of gain/loss pertaining to controllable and uncontrollable items;

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

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

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

....."



13. Norms of operations

13.1. Regulatory provisions

13.1.1. The Hon'ble Commission had set norms of operations under Regulation 47 of Tariff Regulations 2021.

13.1.2. The 6 months actual and 6 months estimated performance vis-a-vis norms of operations set is discussed below:

13.2. Installed and Effective Capacity in FY 2022-23

13.2.1. APGCL submits the following Installed & Effective Capacity for FY 2022-23

Table 74: Installed & Effective Capacity for FY 2022-23

Station	Installed Capacity (MW)	Revised Installed Capacity (MW)	No. of Units	Units Available for Generation & Capacity in MW	Effective Capacity
NTPS	119.5	41	3	GT 2/3 (21 MW) & WHRU U#6 (22.50 MW) - 29.06.2022 2 (17 MW), 3(15MW), 6 (9 MW- WHRU) - After 29.06.2022	39.89
LTPS	142.2	97.20	4	5,6,7(20 MW Each),8 (37.20 MW- WHRU)	97.2
KLHEP	100	100	2	1 (50), 2(50)	100
LRPP	69.755	69.755	7	1-7 (9.965 each)	69.755
NRPP	98.40	98.40	2	1(62.25, 2(36.15)	98.40

13.3. Snapshot of plant wise performance for FY 2022-23

13.3.1. The following table shows the operating performance parameters of Namrup thermal power station for FY 2022-23.

Table 75: Operating Performance of NTPS for FY 2022-23

NTPS	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Based on Normative	Claim for FY 2022-23	Remarks
Gross Energy in MU	195.09	87.77	89.79	177.56	177.56	Estimated based on 6 months actual
Aux. Power Cons. (%)	4.50%	5.50%	4.50%	4.50%	4.99%	It is expected that it may loss 0.88 MU on net generation due to higher auxillary consumption
Net Energy in MU	186.31	82.94	85.75	169.57	168.69	
Availability (%)	50.00%	59.44%	50.00%	50.00%	50.00%	Expected to achieve normative value



NTPS	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Based on Normative	Claim for FY 2022-23	Remarks
PLF (%) for incentive	50.00%	49.57%	50.00%	50.00%	49.79%	Expected to achieve lower than normative value
Gross Station Heat Rate on GCV (kcal/ kWh)	4300 (OC) 3900 (CC)	5052.03	4017.76	4300 (OC) 3900 (CC)	4017.76	Claimed at weighted average of normative
Wt. Avg. Price of Gas (Rs./1000 SCM)	5617.39	12672.10	17427.59	15049.85	15049.85	Claimed at actual estimated value

13.3.2. The following table shows the operating performance parameters of Lakwa thermal power station for FY 2022-23.

Table 76: Operating Performance of LTPS for FY 2022-23

LTPS + WHRU	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Based on Normative	Claim for FY 2022-23	Remarks
Gross Energy in MU	425.74	274.33	212.87	487.20	487.20	Estimated based on 6 months actual
Aux. Power Cons. (%)	5.50%	8.23%	5.50%	5.50%	7.04%	It is expected that it may loss 7.50 MU on net generation due to higher auxillary consumption
Net Energy in MU	402.32	251.74	201.16	460.40	452.90	
Availability (%)	50.00%	69.81%	50.00%	50.00%	50.00%	Expected to achieve normative value
PLF (%) for incentive	66.00%	62.40%	66.00%	66.00%	64.20%	Expected to achieve lower than normative value
Gross Station Heat	3900 (OC) 3200 (CC)	2355	3200	3200.00	3200	Claimed normative value

LTPS + WHRU	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Based on Normative	Claim for FY 2022-23	Remarks
Rate on GCV (kcal/ kWh)						
Wt. Avg. Price of Gas (Rs./1000 SCM)	7932.73	17865.44	23405.93	20635.69	20635.69	Claim at actual estimated value

13.3.3. The following table shows the operating performance parameters of Karbi Langpi hydroelectric power station for FY 2022-23.

Table 77: Operating Performance of KLHEP for FY 2022-23

KLHEP	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Based on Normative	Claim for FY 2022-23	Remarks
Gross Energy in MU	390.00	294.77	103.00	397.77	397.77	Estimated based on 6 months actual
Aux. Power Cons. (%)	0.50%	0.50%	0.50%	0.50%	0.5%	Expected to achieve auxillary consumption within normative
Net Energy in MU	388.05	293.30	102.49	395.78	395.78	
Availability (%)	85.00%	79.75%	85.00%	85.00%	82.37%	Expected to achieve lower than normative
PLF (%)	44.50%	67.12%	44.50%	44.50%	44.50%	Expected to achieve normative value

13.3.4. The following table shows the operating performance parameters of LRPP power station for FY 2022-23.

Table 78: Operating Performance of LRPP for FY 2022-23

LRPP	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Based on Normative	Claim for FY 2022-23	Remarks
Gross Energy in MU	519.40	243.64	259.70	503.34	503.34	Estimated based on 6 months actual
Aux. Power Cons. (%)	3.50%	1.62%	3.50%	3.50%	3.50%	Expected to achieve auxillary

LRPP	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Based on Normative	Claim for FY 2022-23	Remarks
Net Energy in MU	501.22	239.69	250.61	485.72	485.72	consumption within normative
Availability (%)	85.00%	91.70%	85.00%	85%	85.00%	Expected to achieve normative value
PLF (%)	90.00%	81.08%	90.00%	90%	85.54%	Expected to achieve lower than normative value
Gross Station Heat Rate on GCV (kcal/ kWh)	2150	2133	2150	2150	2150	Claimed normative value
Wt. Avg. Price of Gas (Rs./1000 SCM)	7932.73	20654.31	28869.07	24761.69	24761.69	Claim at actual estimated value

13.3.5. The following table shows the operating performance parameters of NRPP power station for FY 2022-23.

Table 79: Operating Performance of NRPP for FY 2022-23

NRPP	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Based on Normative	Claim for FY 2022-23	Remarks
Gross Energy in MU	732.69	217.30	231.76	449.05	449.05	Estimated based on 6 months actual
Aux. Power Cons. (%)	5.00%	3.28%	5.00%	5.00%	5.0%	Expected to achieve auxillary consumption within normative
Net Energy in MU	696.06	210.17	220.17	426.60	426.60	Expected to achieve lower than normative
Availability (%)	85.00%	52.27%	85.00%	85.00%	68.63%	Expected to achieve lower than normative
PLF (%)	90.00%	51.19%	85.00%	85.00%	68.10%	Expected to achieve lower than normative
Gross Station Heat	2927 (OC) 1951 (CC)	2830	2927	2927 (OC) 1988 (CC)	2927	Claimed normative value

NRPP	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Based on Normative	Claim for FY 2022-23	Remarks
Rate on GCV (kcal/ kWh)						
Wt. Avg. Price of Gas (Rs./1000 SCM)	5617.39	12739.04	17427.59	15083.32	15083.32	Claim at actual estimated value

13.4. Normative Annual Plant Availability Factor (NAPAF)

13.4.1. As per Regulation 48.1 of the MYT Regulations, 2021 the Normative Plant Availability factor for recovery of full fixed charges, is 50% for FY 2022-23 for NTPS. It is expected that NTPS will achieve the normative plant availability factor based on 6 months actual number.

13.4.2. In view of the above, APGCL prays to the Hon'ble Commission to approve the revised estimated availability for FY 2022-23 as shown in the table below.

Table 80: Availability of NTPS for FY 2022-23

NTPS	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Claim for FY 2022-23
Plant Availability Factor (%)	50.00%	59.44%	50.00%	50.00%

13.4.3. As per Regulation 48.1 of the MYT Regulations, 2021 the Normative Plant Availability factor for recovery of full fixed charges, is 50% for FY 2022-23 of LTPS. It is expected that LTPS will achieve the normative plant availability factor based on 6 months actual number.

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

Table 81: Availability of LTPS for FY 2022-23

LTPS	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Claim for FY 2022-23
Plant Availability Factor (%)	50.00%	69.81%	50.00%	50.00%

13.4.5. Further, Regulation 50, of MYT Regulations, 2021 specifies normative PAF for KLHEP as 85% for FY 2022-23. It is expected that KLHEP will not be able to achieve the normative plant availability factor based on 6 months actual number.

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



Table 82: Availability of KLHEP for FY 2022-23

KLHEP	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Claim for FY 2022-23
PLF (%)	85.00%	79.75%	85%	82.37%

13.4.7. The Hon'ble Commission had approved NAPAF of 85% for LRPP for FY 2022-23 in its order of March 2022. It is expected that LRPP will be able to achieve the normative plant availability factor based on 6 months actual number.

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

Table 83: Availability of LRPP for FY 2022-23

LRPP	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Claim for FY 2022-23
Plant Availability Factor (%)	85.00%	91.70%	85%	85%

13.4.9. The Hon'ble Commission had approved NAPAF of 85% for NRPP for FY 2022-23 in its order of March 2022. It is expected that NRPP will not be able to achieve the normative plant availability factor based on 6 months actual number.

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

Table 84: Availability of NRPP for FY 2022-23

NRPP	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Claim for FY 2022-23
Plant Availability Factor (%)	85.00%	52.27%	85%	68.63%

13.4.11. APGCL prays to Hon'ble Commission to kindly approve the estimated NAPAF for the plants shown above for recovery of fixed charges for FY 2022-23.

13.5. Normative Annual Plant Load Factor (NAPLF)

13.5.1. As per Regulation 48.2 of the Tariff Regulations, 2021 the Normative Plant Load factor for NTPS is 50% for FY 2022-23. The Hon'ble Commission had approved the same for NTPS in its order dated March 2022. It is expected that NTPS will not be able to achieve the normative plant load factor based on 6 months actual number. The approved and estimated numbers are shown in the table below.

Table 85: Plant Load Factor of NTPS for FY 2022-23

NTPS	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Claim for FY 2022-23
Plant Load Factor (%)	50.00%	49.57%	50%	49.79%



13.5.2. As per Regulation 48.2 of the Tariff Regulations, 2021 the Normative Plant Load factor for LTPS is 66% for FY 2022-23 The Hon'ble Commission had approved the same of LTPS in its order dated March 2022. It is expected that LTPS will not be able to achieve the normative plant load factor based on 6 months actual number. The approved and estimated numbers are shown in the table below.

Table 86: Plant Load Factor of LTPS FY for 2022-23

LTPS	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Claim for FY 2022-23
Plant Load Factor (%)	66.00%	62.40%	66%	64.20%

13.5.3. As per Regulation 50.1 of the Tariff Regulations, 2021, normative PLF for KLHEP as 44.5%. The Hon'ble Commission had approved the same for FY 2022-23 in its order dated March 2022. It is expected that KLHEP will be able to achieve the normative plant load factor based on 6 months actual number. The approved and estimated numbers are shown in the table below.

Table 87: Plant Load Factor of KLHEP for FY 2021-22

KLHEP	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Claim for FY 2022-23
Plant Load Factor (%)	44.50%	67.12%	44.5%	44.50%

13.5.4. The Hon'ble Commission had approved 90% as PLF for incentive for LRPP for FY 2022-23 in its order dated March 2022. It is expected that LRPP will not be able to achieve the normative plant load factor based on 6 months actual number. The approved and estimated numbers are shown in the table below.

Table 88: Plant Load Factor of LRPP for FY 2022-23

LRPP	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Claim for FY 2022-23
Plant Load Factor (%)	90.00%	81.08%	90%	85.54%

13.5.5. As per regulation 48.2(b) of tariff regulation 2021, the normative plant load factor for incentive of gas based generating station is 85%. It is expected that NRPP will not be able to achieve normative PLF based on 6 months actual number. The approved and estimated numbers are shown in the table below.

Table 89: Plant Load Factor of NRPP for FY 2022-23

NRPP	As per Regulation 2021	April - Sep (actual)	Oct - March (estimated)	Claim for FY 2022-23
PLF (%)	85%	51.19%	85%	68.10%

13.6. Gross Station Heat Rate (SHR)

13.6.1. As per Regulation 48.4, of the Tariff Regulations, 2021 the Normative Station Heat Rate, is 3900 kCal/kWh for FY 2022-23 for NTPS in combined cycle mode of operation.

13.6.2. We submit that the estimated SHR of NTPS is higher than the approved SHR in FY 2022-23 due to part loading of units, lower gas supply and evacuation constraints and old nature of the plant equipment and machinery. In view of the above, APGCL prays to the Hon'ble Commission to approve the weighted average of normative SHR for FY 2022-23.

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

Table 90: SHR of NTPS for FY 2022-23

NTPS	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Claim for FY 2022-23
Station Heat Rate (kCal/kWh)	3900	5052.03	4017.76	4017.76

13.6.4. The computation of actual weighted normative is shown in table below.

FY 2022-23	GSHR	Running Hours in Open Cycle Mode	Normative Weighted Average SHR
NTPS	Approved		
Open Cycle	4300.0	1200.80	4017.76
Closed Cycle	3900.0	2877.98	
Total		4078.783	

13.6.5. As per Regulation 48.4, of the Tariff Regulations, 2021 the Normative Station Heat Rate, is 3200 kCal/kWh for FY 2022-23 of LTPS in combined cycle mode of operation. APGCL has considered the SHR at actuals for the first 6 months and normative for rest of the year. The approved and estimated numbers are shown in the table below.

Table 91: SHR of LTPS for FY 2022-23

LTPS	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Claim for FY 2022-23
Station Heat Rate (kCal/kWh)	3200	2355	3200	3200

13.6.6. The Hon'ble Commission had approved SHR of 2,150 kCal/kWh for LRPP for FY 2022-23 in its order dated March 2022. The approved and estimated numbers are shown below:

Table 92: SHR of LRPP for FY 2022-23

LRPP	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Claim for FY 2022-23
Station Heat Rate (kCal/kWh)	2150	2133	2150	2150



13.6.7. SHR for NRPP: Since, NRPP was commissioned on 16th July 2021. Hence, as per Regulation 47.4 (ii) (b) of MYT Regulation 2018, the GSHR of new plants commissioned on or after 1st April 2019 for Gas-based plant

= "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....**

- ✓ The Guaranteed Heat Rate of NRPP at 98.4 MW combined cycle operation by OEM at NCV is 1705.8 kCal/kWh.
- ✓ The Guaranteed Heat Rate of NRPP at 98.4 MW combined cycle operation by OEM at GCV is (1705.8X1.11 KCal/kWh) = 1893.4 kCal/kWh
- ✓ As such combined cycle GSHR of NRPP as per Regulation= 1893.4X1.05 kCal/kWh=1988 kCal/kWh
- ✓ Further, the normative open cycle GSHR of NRPP is 2927 kCal/kWh

13.6.8. The approved and estimated numbers for NRPP are shown below:

Table 93: SHR of NRPP for FY 2022-23

NRPP	As per Regulation	April - Sep (actual)	Oct - March (estimated)	Claim for FY 2022-23
Station Heat Rate (kCal/kWh)	1988 (CC) 2927 (OC)	2830	2927	2927

13.6.9. APGCL humbly submits that due the occurrence of fire accident in STG room of NRPP plant, STG got damaged. So, it will not be available for FY 2022-23. Hence, NRPP will run at open cycle mode for FY 2022-23.

13.6.10. APGCL prays Hon'ble Commission to kindly approve the normative SHR of 2927 Kcal/KWh for FY 2022-23 for NRPP.

13.7. Auxiliary Energy Consumption

13.7.1. As per Regulation 48.3 of the Tariff Regulations, 2021 the Normative Auxiliary energy consumption is 4.50% for FY 2021-22 for NTPS. We submit that the auxiliary consumption of NTPS is estimated to be higher than the approved auxiliary consumption in FY 2022-23 due to part loading of units. The approved and estimated numbers are shown in the table below.

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

Table 94: Auxiliary energy consumption of NTPS for FY 2022-23

NTPS	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Claim for FY 2022-23
Aux. consumption (%)	4.50%	5.50%	4.50%	4.99%



13.7.3. As per Regulation 48.3 of the Tariff Regulations, 2021 the Normative Auxiliary energy consumption, is 5.50% for FY 2022-23 of LTPS. The same has been approved by the Hon'ble Commission in its order dated March 2022. It is expected that LTPS will achieve the auxiliary consumption higher than normative value. The approved and estimated numbers are shown in the table below.

Table 95: Auxiliary energy consumption of LTPS for FY 2022-23

LTPS	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Claim for FY 2022-23
Aux. consumption (%)	5.50%	8.23%	5.50%	7.04%

13.7.4. As per Regulation 50.1 of the Tariff Regulations, 2021 the Normative Auxiliary energy consumption, is 0.50% for KLHEP. The same has been approved by the Hon'ble Commission in its order dated March 2022. It is expected that KLHEP will achieve the auxiliary consumption within normative value. The approved and estimated numbers are shown in the table below.

Table 96: Auxiliary energy consumption of KLHEP for FY 2022-23

KLHEP	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Claim for FY 2022-23
Aux. consumption (%)	0.50%	0.50%	0.50%	0.50%

13.7.5. The Hon'ble Commission had approved Auxiliary Consumption of 3.5% for LRPP for FY 2022-23 in its order dated March 2022. It is expected that LRPP will achieve the auxiliary consumption lower than normative value. The approved and estimated numbers are shown in the table below:

Table 97: Auxiliary energy consumption of LRPP for FY 2022-23

LRPP	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Claim for FY 2022-23
Aux. consumption (%)	3.50%	1.62%	3.50%	3.50%

13.7.6. The Hon'ble Commission had approved Auxiliary Consumption of 5% for NRPP for FY 2022-23 in its order dated March 2022. It is expected that NRPP will achieve the auxiliary consumption higher within normative value. The approved and estimated numbers are shown in the table below:

Table 98: Auxiliary energy consumption of NRPP for FY 2022-23

NRPP	Approved as per Order of March 2022	April - Sep (actual)	Oct - March (estimated)	Claim for FY 2022-23
Aux. consumption (%)	5%	3.28%	5%	5%

13.7.7. The performance parameter certificate showing plant wise availability, generation, auxiliary consumption etc. issued by SLDC is attached as Annexure No. 8.

14. Fixed Cost of the Plant

14.1. Annual fixed cost for FY 2022-23

14.1.1. The fixed cost of APGCL's power plants has been approved by AERC via order in case no. 9/2021 & 10/2021 of dated 21st March 2022 for NTPS, LTPS, KLHEP, LRPP and NRPP.

14.1.2. As per regulation 43.1 of the AERC Tariff regulations, 2021 the following components have been considered for projecting of fixed cost for the power plants:

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

14.1.3. For the computation of the fixed components, the Petitioner has considered the principles provided in the Tariff Regulations, 2021. These components have been discussed in detail in the following sections of the petition.

14.2. Return on Equity (ROE)

14.2.1. The Hon'ble Commission in its regulation 34 of Tariff Regulations 2021 has considered the pre-tax return on equity at 15.5% of equity capital.

14.2.2. The Petitioner has determined the Return on Equity (RoE) at a rate of 15.5% in accordance with the AERC Regulations, 2021. The Petitioner submits that there has been no addition in Equity in FY 2022-23 for NTPS, LTPS, KLHEP, LRPP and NRPP.

14.2.3. The plant wise Return on Equity approved and claimed for FY 2022-23 has been shown in the table below:

Table 99: Computation of Plant wise Return in Equity for FY 2022-23

		Rs. Cr	
Station	Particulars	Approved as per order of March 2022	Claim for FY 2022-23
NTPS	Opening Equity	55.00	57.42
	Addition during year	0.00	0.00
	Closing Equity	55.00	57.42
	Rate of Return	15.50%	15.50%
	Return on Equity	8.53	8.90
	Return on Equity for Effective Capacity	3.10	
LTPS	Opening Equity	143.08	148.69
	Addition during year	0.00	0.00
	Closing Equity	143.08	148.69
	Rate of Return	15.50%	15.50%



Station	Particulars	Approved as per order of March 2022	Claim for FY 2022-23
	Return on Equity	22.18	23.05
	Return on Equity for Effective Capacity	15.16	
KLHEP	Opening Equity	68.65	154.42
	Addition during year	0.00	0.00
	Closing Equity	68.65	154.42
	Rate of Return	15.50%	15.50%
	Return on Equity	10.64	23.94
	Return on Equity for Effective Capacity	10.64	
LRPP	Opening Equity	15.74	80.63
	Addition during year	0.00	0.00
	Closing Equity	15.74	80.63
	Rate of Return	15.50%	15.50%
	Return on Equity	2.44	12.50
	Return on Equity for Effective Capacity	2.44	
NRPP	Opening Equity	218.69	223.84
	Addition during year	0.00	0.00
	Closing Equity	218.69	223.84
	Rate of Return	15.50%	15.50%
	Return on Equity	33.90	34.70
	Return on Equity for Effective Capacity	33.90	

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

14.3. Interest on Loan Capital

14.3.1. As per Regulation 35 of the Tariff Regulations, 2021, the Commission will consider interest on Loan capital on normative basis with repayment equal to depreciation allowed for that year and rate of interest will be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year.

14.3.2. In view of the above, the Petitioner has computed the Interest on long term Loan on normative basis for FY 2022-23. The Petitioner has considered normative loan portfolio and the repayment shown is considered equal to the depreciation for FY 2022-23. The interest rate has been considered as the expected weighted average rate of interest for FY 2022-23.

14.3.3. The finance charges are shown separately plant wise for FY 2022-23. The table below summarizes the interest on loan and finance charges considered for Annual Performance Review of FY 2022-23.



Table 100: Computation of Plant wise Interest and finance charges for FY 2022-23

Rs. Cr

Station	Particulars	Approved as per order of March 2022	Claim for FY 2022-23
NTPS	Net Normative Opening Loan	0.00	0.02
	Addition of normative loan during the year	0.66	2.59
	Normative Repayment during the year	1.28	1.42
	Net Normative Closing Loan	0.00	1.19
	Avg. Normative Loan	0.00	0.61
	Interest Rate	10.93%	12.09%
	Interest on Loan Capital	0.00	0.07
	Add: Bank Charges	0.00	0.00
	Net Interest on Loan Capital	0.00	
	Net Interest on Loan Capital for Effective Capacity	0.00	0.07
LTPS	Net Normative Opening Loan	0	0.00
	Addition of normative loan during the year	13.67	15.47
	Normative Repayment during the year	16.47	14.13
	Net Normative Closing Loan	0.00	1.34
	Avg. Normative Loan	0.00	0.67
	Interest Rate	10.93%	12.09%
	Interest on Loan Capital	0.00	0.08
	Add: Bank Charges	0.00	0.00
	Net Interest on Loan Capital	0.00	
	Net Interest on Loan Capital for Effective Capacity	0.00	0.08
KLHEP	Net Normative Opening Loan	153.46	151.79
	Addition of normative loan during the year	19.40	17.30
	Normative Repayment during the year	21.56	22.93
	Net Normative Closing Loan	151.30	146.16
	Avg. Normative Loan	152.38	148.98
	Interest Rate	10.93%	12.09%
	Interest on Loan Capital	16.65	18.01
	Add: Bank Charges	0.00	0.00
	Net Interest on Loan Capital	16.65	
	Net Interest on Loan Capital for Effective Capacity	16.65	18.01
	Net Normative Opening Loan	24.43	15.92
	Addition of normative loan during the year	0.65	0.10



Station	Particulars	Approved as per order of March 2022	Claim for FY 2022-23
LRPP	Normative Repayment during the year	2.69	13.56
	Net Normative Closing Loan	22.39	2.46
	Avg. Normative Loan	23.41	9.19
	Interest Rate	10.93%	12.09%
	Interest on Loan Capital	2.56	1.11
	Add: Bank Charges	0.00	0.00
	Net Interest on Loan Capital	2.56	
	Net Interest on Loan Capital for Effective Capacity	2.56	1.11
NRPP	Net Normative Opening Loan	476.05	492.56
	Addition of normative loan during the year	0.00	0.00
	Normative Repayment during the year	36.27	42.08
	Net Normative Closing Loan	439.78	450.48
	Avg. Normative Loan	457.92	471.52
	Interest Rate	10.93%	12.09%
	Interest on Loan Capital	50.05	57.02
	Add: Bank Charges	0.00	0.00
	Net Interest on Loan Capital	50.05	
	Net Interest on Loan Capital for Effective Capacity	50.05	57.02

14.3.4. APGCL submits that the loan details and interest rates applicable for the first 6 months on PFC loans is submitted as part of Annexure No. 9 of this document.

14.3.5. APGCL further submits that the document specifying the interest rates applicable on Assam govt. loans @ 10% is attached as Annexure No. 7 of this document.

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

14.4. Depreciation

14.4.1. The Hon'ble Commission in its Tariff Regulations, 2021 has provided the principles for determination of depreciation.

14.4.2. In view of the above, the Petitioner has computed the Depreciation considering Capital Cost of the asset admitted by the Commission with 10% salvage value. Also, depreciation on grants has been subtracted. The table below summarizes the plant wise Depreciation considered for Annual Performance Review of FY 2022-23.

Table 101: Depreciation of FY NTPS for 2022-23

Rs. Cr

Particulars	FY 2022-23
Opening GFA	190.90



Particulars	FY 2022-23
Addition during the year	2.59
Closing	193.48
Average GFA	192.19
Rate of Depreciation	0.74%
Total Depreciation	1.42
Grant	0.00
Additions during the year	0.00
Closing grant	0.00
Average grant	0.00
Rate of Depreciation	0.74%
Depreciation on grants	0.00
Net Depreciation	1.42

Table 102: Depreciation of LTPS for FY 2022-23

Rs. Cr

Particulars	FY 2022-23
Opening GFA	503.09
Addition during the year	15.47
Closing	518.55
Average GFA	510.82
Rate of Depreciation	2.77%
Total Depreciation	14.13
Grant	0.00
Additions during the year	0.00
Closing grant	0.00
Average grant	0.00
Rate of Depreciation	2.77%
Depreciation on grants	0.00
Net Depreciation	14.13

Table 103: Depreciation of KLHEP for FY 2022-23

Rs. Cr

Particulars	FY 2022-23
Opening GFA	505.47
Addition during the year	17.30
Closing	522.77
Average GFA	514.12
Rate of Depreciation	4.46%
Total Depreciation	22.93
Grant	0.00
Additions during the year	0.00
Closing grant	0.00
Average grant	0.00
Rate of Depreciation	4.46%



Particulars	FY 2022-23
Depreciation on grants	0.00
Net Depreciation	22.93

Table 104: Depreciation of LRPP for FY 2022-23

Rs. Cr

Particulars	FY 2022-23
Opening GFA	267.57
Addition during the year	0.10
Closing	267.67
Average GFA	267.62
Rate of Depreciation	5.07%
Total Depreciation	13.56
Grant	0.00
Additions during the year	0.00
Closing grant	0.00
Average grant	0.00
Rate of Depreciation	5.07%
Depreciation on grants	0.00
Net Depreciation	13.56

Table 105: Depreciation of NRPP for FY 2022-23

Rs. Cr

Particulars	FY 2022-23
Opening GFA	901.97
Addition during the year	0.00
Closing	901.97
Average GFA	901.97
Rate of Depreciation	4.67%
Total Depreciation	42.08
Grant	0.00
Additions during the year	0.00
Closing grant	0.00
Average grant	0.00
Rate of Depreciation	4.67%
Depreciation on grants	0.00
Net Depreciation	42.08

Table 106: Summary of Depreciation claimed for FY 2022-23

Rs. Cr

Station	Particulars	Approved as per Order of March 2022	Estimation for FY 2022-23
	Depreciation	1.37	1.42
	Less: Depreciation on assets funded by Grants	0.1	0.00



NTPS	Net Depreciation	1.28	1.42
	Net Depreciation for Effective Capacity	0.47	
LTPS	Depreciation	18.97	14.13
	Less: Depreciation on assets funded by Grants	2.5	0.00
	Net Depreciation	16.47	14.13
	Net Depreciation for Effective Capacity	11.26	
KLHEP	Depreciation	24.1	22.93
	Less: Depreciation on assets funded by Grants	2.53	0.00
	Net Depreciation	21.56	22.93
	Net Depreciation for Effective Capacity	21.56	
LRPP	Depreciation	13.73	13.56
	Less: Depreciation on assets funded by Grants	11.04	0.00
	Net Depreciation	2.69	13.56
	Net Depreciation for Effective Capacity	2.69	
NRPP	Depreciation	36.27	42.08
	Less: Depreciation on assets funded by Grants	0	0.00
	Net Depreciation	36.27	42.08
	Net Depreciation for Effective Capacity	36.27	

14.4.3. Further, APGCL humbly submits that entire depreciation claimed in True Up is at par with the depreciation charged in the Annual Accounts and any depreciation on decommissioned / retired units does not form part of the depreciation charged in the Annual Accounts. Hence, the depreciation claimed is already at the effective capacity and further reduction of depreciation citing effective capacity is not justifiable. We humbly pray to the Hon'ble Commission to consider the same while approving APR claim for depreciation and allow full recovery of the depreciation charged after reduction of depreciation on grants only and not further reduce the depreciation citing effective capacity.

14.4.4. APGCL prays to the Hon'ble Commission to kindly approve the plant wise Depreciation for FY 2022-23 as shown above.



14.5. Interest on Working Capital

14.5.1. As per Regulation 37 of the Tariff Regulations, 2021, the interest on working capital will be considered on normative basis.

14.5.2. As per the above regulations, the Petitioner has projected normative interest on working capital. However, as APGCL does not have liquid fuel stock facility, it has not considered working capital on storage of liquid fuel. The rate of interest has been considered equal to the normative interest rate of three hundred (300) basis points above the average State Bank of India MCLR (One Year Tenor) prevalent during the last available six months, which $7.00\% + 3.58\% = 10.58\%$.

Table 107: Summary of Interest on working capital claimed for FY 2022-23

Station	Particulars	Approved as per order of March 2022	Claim for FY 2022-23
NTPS	Fuel Cost for one month	3.78	9.67
	O&M Expenses for one month	3.52	1.78
	Maintenance Spares-30% of O&M	12.67	6.40
	Receivables for two months	16.09	24.64
	Total Working Capital Requirement	36.06	42.49
	Rate of interest	10.00%	10.58%
	Interest on Working capital	3.61	4.49
	Interest on Working capital on effective Capacity	1.31	
LTPS	Fuel Cost for one month	9.64	26.92
	O&M Expenses for one month	3.57	3.56
	Maintenance Spares-30% of O&M	12.86	12.80
	Receivables for two months	34.87	71.75
	Total Working Capital Requirement	60.96	115.03
	Rate of interest	10.00%	10.58%
	Interest on Working capital	6.10	12.16
	Interest on Working capital on effective Capacity	4.17	
KLHEP	O&M Expenses for one month	2.78	2.92
	Maintenance Spares-30% of O&M	5.00	10.50
	Receivables for two months	16.47	20.98
	Total Working Capital Requirement	24.25	34.40
	Rate of interest	10.00%	10.58%
	Interest on Working capital	2.42	3.64
LRPP	Fuel Cost for one month	7.91	24.18
	O&M Expenses for one month	2.52	2.52
	Maintenance Spares-30% of O&M	9.08	9.08
	Receivables for two months	28.41	65.18

Station	Particulars	Approved as per order of March 2022	Claim for FY 2022-23
	Total Working Capital Requirement	47.92	100.96
	Rate of interest	10.00%	10.58%
	Interest on Working capital	4.79	10.68
NRPP	Fuel Cost for one month	7.27	17.86
	O&M Expenses for one month	1.91	3.73
	Maintenance Spares-30% of O&M	6.87	13.44
	Receivables for two months	39.31	70.42
	Total Working Capital Requirement	55.36	105.45
	Rate of interest	10.00%	10.58%
	Interest on Working capital	5.54	11.15

14.5.3. APGCL prays to the Hon'ble Commission to kindly approve the plant wise Interest on Working capital for FY 2022-23 as shown above.

14.6. Operation and Maintenance Expenses (O&M Expenses)

14.6.1. We submit that the Hon'ble Commission had approved the normative O&M cost for MYT control period from FY 2022-23 to FY 2024-25 considering average of actual O&M cost including sharing of Gain/Losses for last 3 years (FY 2018-19 to FY 2020-21) based on the audited annual accounts in tariff order of dated 21st March 2022. Further, Commission had considered the escalation factor of 6.3% on O&M expenses on average value (FY 2019-20) to arrive at O&M expenses of base year i.e FY 2021-22 than considered the escalation of 5.25% (WPI: CP = 60:40) for subsequent MYT years.

14.6.2. From above points, it has been observed that normative O&M cost approved for MYT control period from FY 2022-23 to FY 2024-25 was actually the O&M cost at the effective capacity. Further, Hon'ble commission reduced it at the effective capacity. It implies that there is double deduction in O&M cost at the effective capacity.

14.6.3. APGCL humbly prays the Hon'ble commission to kindly consider the normative approved O&M cost including revision of pay (ROP) from FY 2018-19 to FY 2020-21 for determination of O&M cost for MYT control period from FY 2022-23 to FY 2024-25.

14.6.4. APGCL humbly submits the steps for revision of normative O&M cost for MYT control period from FY 2022-23 to FY 2024-25 as shown below.

Computation of Revised O&M Cost for MYT Control Period from FY 2022-23 to FY 2024-25

Step 1: The average of approved normative O&M expenses for the 3 years including revision of pay from FY 2018-19 to FY 2020-21 based on respective year's tariff order has been derived as shown below:

Plant Name	Head	FY 2018-19 (Approved)	FY 2019-20 (Approved)	FY 2020-21 (Approved)
NTPS	O&M Cost	42.73	51.72	55.17

Rs. Cr



Plant Name	Head	FY 2018-19 (Approved)	FY 2019-20 (Approved)	FY 2020-21 (Approved)
	ROP	9.19	2.49	
	Total	51.92	54.21	
LTPS	O&M Cost	29.15	56.49	60.26
	ROP	8.75	2.82	
	Total	37.90	59.31	
KLHEP	O&M Cost	23.84	28.44	30.34
	ROP	4.51	1.19	
	Total	28.35	29.63	
Reference		Table No. 36 Page No. 69 Tariff Order dated 07.03.2020	Table No. 45 Page No. 79 Tariff Order dated 15.02.2021	Table No. 46 Page No. 80 Tariff Order dated 21.03.2022

Step 2: The average of such O&M expenses is considered as O&M expenses for FY 2019-20 and has been escalated based on the escalation factor of 6.3% as considered by the commission for the FY 2020-21 to FY 2021-22 and to arrive at the O&M expenses for the base year of FY 2021-22.

Step 3: The O&M expenses for each subsequent year has been determined by escalating the base expenses at escalation factor equal to average of last three years CPI and WPI inflation considered in the ratio of 60:40 (i.e., 5.25%) to compute the normative O&M expenses for each subsequent year of the Control Period as shown in the table below:

Plant Name	Installed Capacity (MW)	FY 2021-22 (Base Year)	FY 2022-23 (Projection)	FY 2023-24 (Projection)	FY 2024-25 (Projection)
NTPS	119.50	60.75	63.94	67.30	70.83
LTPS	142.20	59.31	62.43	65.70	69.15
KLHEP	100	33.27	35.01	36.85	38.79

Rs. Cr

For NRPP:

- ✓ APGCL had submitted the Commission to amend Regulation 51.2 (a) in AERC MYT Regulations, 2021 to allow the actual O&M cost of NRPP at the time of True up after prudence check for FY 2021-22 and FY 2022-23. Further, APGCL requested the Commission to consider the Trued-up O&M Cost of FY 2021-22 and FY 2022-23 for arriving at normative O&M Cost for FY 2023-24 after escalation.
- ✓ Based on the above submission, The Hon'ble Commission vide Order No. 03/2022 dated 20th August 2022 had given their judgement as reproduced below:

" 7. After scrutinizing the Petition and related information submitted by APGCL, the Commission noted that the figures submitted by APGCL are estimations only. The Commission is of the view that in



absence of actual O & M cost (Audited), it may not be prudent to revise the norms only on the basis of submissions of APGCL.

8. However, APGCL is at liberty to place their claim at the time of true up with proper documentary evidence during the control period from FY 2022-23 to FY 2024-25 based on the audited data of O&M expenses and the Commission shall decide on the basis of the actual audited data. “

- ✓ APGCL has claimed the actual O&M cost of Rs. 30.20 Crore for 259 working days of NRPP for FY 2021-22. Based on the actual O&M cost, APGCL has computed the normative O&M cost for MYT control period with escalation of 5.25% (same as approved by Hon'ble Commission in tariff order dated 21st March 2022) as shown in below mentioned table.

Rs. Cr

Particulars	Formula	Value
Actual O&M cost for FY 2021-22 for 259 working days	A	30.20
Normative O&M Cost for FY 2021-22	B= Ax (365/259)	42.56
Normative O&M Cost for FY 2022-23	C= B x (1+5.25%)	44.79
Normative O&M Cost for FY 2023-24	D= C x (1+5.25%)	47.15
Normative O&M Cost for FY 2024-25	E= D x (1+5.25%)	49.62

Table 108: Revised Normative O&M Cost for MYT Control Period from FY 2022-23 to FY 2024-25

Rs. Cr

Plant Name	FY 2022-23 (Revised Projection)	FY 2023-24 (Revised Projection)	FY 2024-25 (Revised Projection)
NTPS	63.94	67.30	70.83
LTPS	62.43	65.70	69.15
KLHEP	35.01	36.85	38.79
LRPP	30.27	31.86	33.54
NRPP	44.79	47.15	49.62

4.8.8. APGCL humbly prays to the hon'ble commission to kindly approve the O&M expenses for FY 2022-23 as shown in the table below.

Table 109: Revised O&M Cost for FY 2022-23

Rs. Cr

Station	Approved in order of March 2022	Approved O&M Cost at effective Capacity	Revised normative O&M Cost at Installed Capacity	Amount Claim at the actual capacity for FY 2022-23
NTPS	42.24	15.38	63.94	21.35
LTPS	42.88	29.31	62.43	42.67
KLHEP	33.31	33.31	35.01	35.01
LRPP	30.27	30.27	30.27	30.27
NRPP	22.90	22.90	44.79	44.79
Total	171.60	131.17	236.44	174.09

Reason for Revision of O&M Cost for MYT Control Period from FY 2022-23 to FY 2024-25

- Exclusion of Revision of Pay:



- The effect of Revision of Pay was not considered while considering the actual O&M cost of the past period for setting the normative O&M cost for the MYT control period. In this regard APGCL most humbly submits the following:
- The Hon'ble CERC in the case of NTPC also granted liberty to seek enhancement of O&M expenses towards increased salary / wages due to pay revision. In one such order dated 01.12.2016 in petition no. 318/GT/2014 in respect of Rihand Super Thermal Power Station Stage-II (1000 MW), CERC observed as follows:

"40. The Petitioner in the petition has submitted that the salary / wage revision of the employees of the petitioner will be due with effect from 1.1.2017. The O&M expenses in the instant petition have been claimed by the petitioner based on CERC (Terms & Conditions of Tariff Regulations, 2014). The escalation of 6.35% provided in the O&M would not cover the enhanced employee cost w.e.f 1.1.2017. The petitioner, therefore, craves liberty of the Commission to seek enhancement in the O&M expenses with effect from 1.1.2017 towards the increased salary on account of salary revision due from 1.1.2017, based on the actual payments whenever paid by it.

41. The matter has been examined. On this issue, the Commission in the Statement of Reasons to the 2014 Tariff Regulations has observed as under:

.....

42. Accordingly, the prayer of the petitioner for enhancement of O&M expenses if any, due to pay revision may be examined by the Commission, on a case to case basis, subject to the implementation of pay revision as per DPE guidelines and the filing of an appropriate application by the petitioner in this regard."

- Further, the Hon'ble Appellate Tribunal of Electricity (Hon'ble Tribunal) vide its order dated 24.03.2015 in the batch matter of Appeal No. 55 of 2013 was pleased to uphold the decision of Hon'ble CERC with regard to the additional costs towards pay revision. Relevant extract from the said judgment is reproduced below:

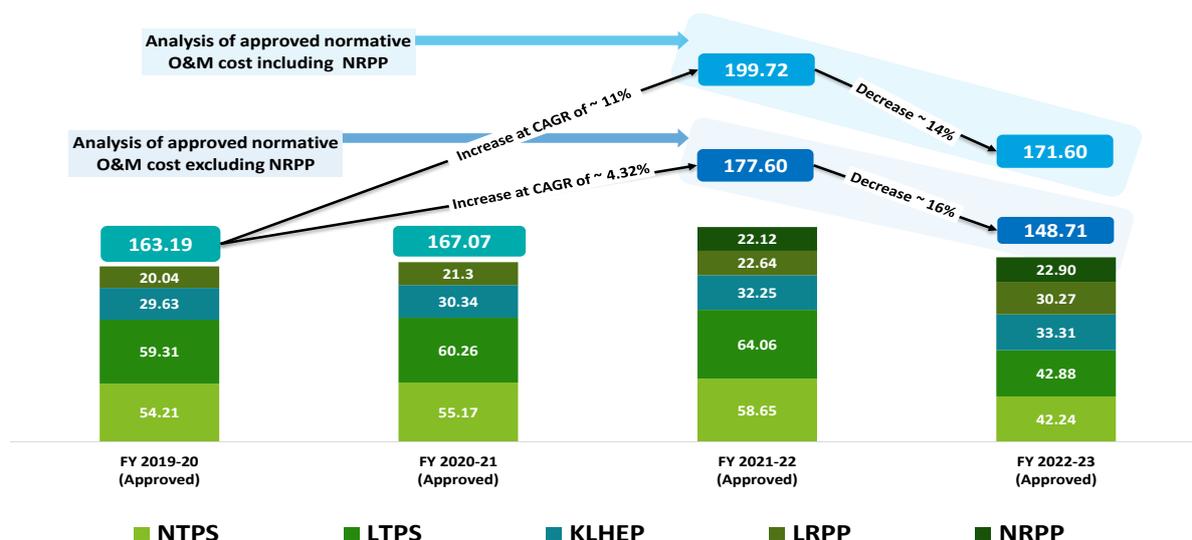
"26.08. On Issue No. D, relating to failure of the Central Commission to take note of the fact that tariff is a package and it cannot be amended in a piecemeal manner by modifying its individual components, we hold and observe that in view of the liberty granted to the power generating companies by the Central Commission vide order dated 09.05.2006 in Petition No. 160 of 2004 , the learned Central Commission, in the facts and circumstances of the present matters, legally, correctly and justly allowed the petitioners/respondents- power generation corporations like NTPC, NHPC & SJVNL to recover additional costs incurred towards the pay revision of the respective employees as the power generating corporations like NTPC etc could not be denied their legitimate claim on the hyper-technical grounds. Once the employees cost is recognized as part of the O & M expenses to be allowed, there cannot be any reason to object to the employees cost including the increase in employees cost to be allowed as a pass through in the tariff. In the matter of NTPC, since the impact of pay revision of employees during 2006-07 and 2007-08 which had not been accounted for while fixing the tariff for 2009-14, in the 2009 Tariff Regulations, there



was no option for the Central Commission except to pass the appropriate orders like the impugned orders under Regulations 12 and 13 of 2004 Tariff Regulations. Therefore, we find that there was no error in claiming such O & M expenses after the completion of control period 2004-09. The consideration of the increased salary effective from 01.01.2007 was not there at the time when the 2004 Tariff Regulations were notified, on account of the increase in the salary and wages having not been finalized and given effect to. Subsequently, the increase in the salary and wages of the employees of NTPC etc were given effect pursuant to the decision of the Department of Public Enterprises (DPE), Government of India and implemented by the generating companies like NHPC etc. with actual payment of the increased salary and wages to the respective employees. Thus, the recommendations of the Sixth Pay Commission and office memorandums of DPE were implemented by the NHPC at the relevant time and in accordance therewith, the learned Central Commission passed the impugned orders along with increase in employees cost under O & M expenses.”

➤ **The decreasing trend of normative cost on account of double deduction:**

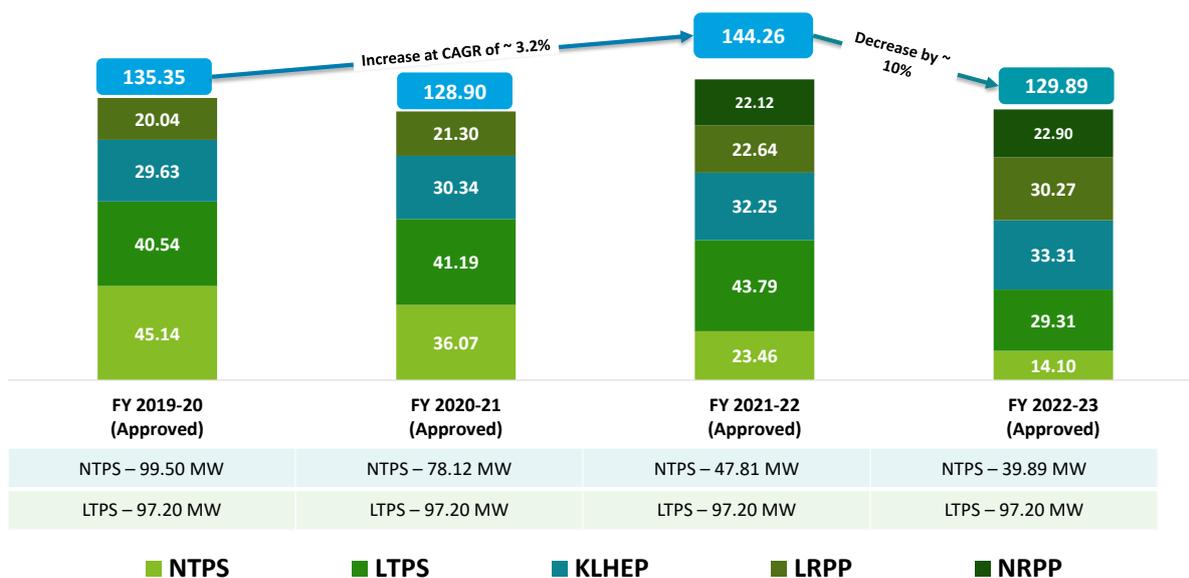
❖ **Analysis 1:** Based on the approved normative O&M cost including Revision of Pay (ROP) – (Rs. Crore)



- ✓ **Case 1 : Approved Normative O&M Cost including NRPP** - APGCL humbly submits the trends analysis of approved normative O&M Cost for past orders. It has been observed that approved normative O&M cost increased with CAGR of ~11% from FY 2019-20 to FY 2021-22. But approved normative O&M cost was drastically reduced by 14% from FY 2021-22 to FY 2022-23.
- ✓ **Case 2: Approved Normative O&M Cost excluding NRPP** - APGCL humbly submits the trends analysis of approved normative O&M Cost for past orders. It has been observed that approved normative O&M cost increased with CAGR of ~4.32% from FY 2019-20 to FY 2021-22. But approved normative O&M cost was drastically reduced by 16% from FY 2021-22 to FY 2022-23.



❖ **Analysis 2:** Based on approved O&M cost including ROP at actual effective capacity of respective years (Rs. Crore)



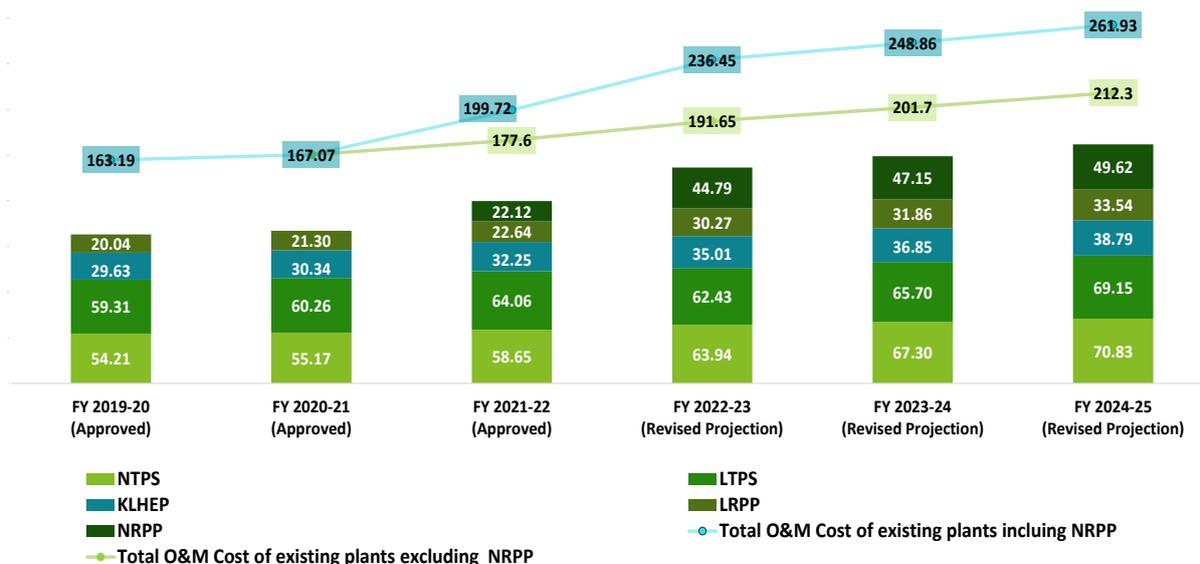
✓ **Case 3: Approved O&M Cost at effective capacity** - APGCL humbly submits the trends analysis of approved O&M Cost including ROP at actual effective capacity for past orders. It has been observed that approved O&M cost at effective capacity was increased with CAGR of ~3.2% from FY 2019-20 to FY 2021-22. But approved O&M cost at effective capacity was drastically reduced by 10% from FY 2021-22 to FY 2022-23.

- From the above analysis it can be seen that whereas there was an increasing trend of O&M cost, which is normal considering escalation on account of inflation and increase in Employee Cost due to addition of Dearness Allowances etc from the FY 2019 to 2021-22, the trend suddenly moved in the decreasing direction in the FY 2022-23. This happened because while setting the norm of O&M cost for the MYT Control period, double deduction happened on the actual cost which had already been incurred by APGCL considering the approved O&M cost at effective capacity in the past period. Thereafter, it was reduced again for effective capacity. As such, a cost which was already made as per norms at effective capacity was reduced further at effective capacity again.
- APGCL most humbly submits to the Hon’ble Commission that an increasing trend of O&M cost cannot suddenly start decreasing.

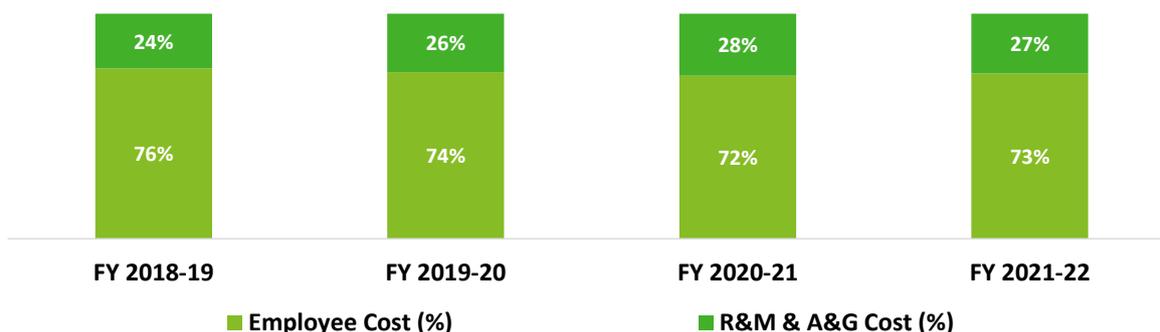
❖ The trend of Normative O&M cost as per the proposed methodology of APGCL is shown in the figure below.

- Approved normative O&M Cost from FY 2019-20 to FY 2021-22 (Rs. Crore)
- Revised normative MYT O&M cost projection from FY 2022-23 to FY 2024-25 (Rs. Crore)





- Further, APGCL most humbly submits to the Hon’ble commission that this decrease in the normative O&M Cost in the MYT control period will impact on the performance of APGCL’s power stations. In this regard APGCL would like to show the percentage share of Employee Cost of APGCL to the Total O&M Cost at actual from the FY 2018-19 to FY 2021-22 in the figure below:



- From the above figure it can be seen that from the FY 2018-19 to 2021-22 the percentage share of Employee Cost of APGCL to the total O&M Cost is 76%, 74%, 72% and 73% respectively, leaving between 24%-28% for Repair & Maintenance Cost and A&G Cost. With regard to the Employee Cost, APGCL submits that-

“The Hon’ble Supreme Court in the case of West Bengal Electricity Regulatory Commission v CESC Limited (2002) 8 SCC 715 also stated that the employee expenses are governed by lawful agreements and hence those are legitimate expenses to be allowed.”

- The share of employee cost to the total O&M cost can only be expected to increase in the coming years as most of the employees belonging to the old pension scheme are retired and the present employees of APGCL are going to serve in the organization for many years to come on account of the age factor. APGCL has already decreased its total number of employees from the time of its establishment in the FY 2003-04 till FY 2021-22 from



around 1500 employees to around 800 employees by not recruiting at the same numbers as the number of retired employees year on year. Thus, the addition of DAs etc is only going to increase the share of employee cost to the total O&M cost if the normative O&M cost is decreased as it has been done for the MYT control period. In this scenario, the maintenance of the machines will only suffer as APGCL is bound to pay its employees as per rules. Such a situation is adverse for APGCL's operational and financial stability as well as its survival.

14.6.5. In view of the above, APGCL feels that the submission by APGCL to revise the normative O&M cost for existing plants for the FY 2022-23 is justified and prays to the Hon'ble Commission to consider it while approving the O&M cost.

14.7. Incentives

14.7.1. Incentives will be claimed during True-up of FY 2022-23.

14.8. Special R&M

14.8.1. The Hon'ble Commission in its order dated 21st March 2022 had approved Special R&M for NTPS, LTPS, KLHEP and LRPP. The status of the approved and actual special R&M being conducted in FY 2022-23 has been shown in the table below:

Work Name	Approved as per Tariff Order March 2022	Claim in FY 2022-23	Remarks
For NTPS			
Procurement of Overseas spares for major overhauling of 2 nos. W301 Gas Turbine unit proposed to be carried out in 2023-24 used in GT #2 & #3	167.5	167.5	Same
Procurement of spares for major overhauling of WHT#6 proposed to be carried out in 2023-24	90	90	Same
For LTPS			
Overhauling of LTPS Unit - 7 in FY 2020-21	1500	1500	Same
Overhauling of Gas Compressor of GC #6 of LTPS		500	It has been approved for the FY 2021-22, but work was completed in first quarter of FY 2022-23. Hence, APGCL has claimed the approved amount in FY 2022-23.
Overhauling of LTPS Gas Compressor U#7		450	>The overhauling of LTPS Gas Compressor of Unit 7 was due (no



Work Name	Approved as per Tariff Order March 2022	Claim in FY 2022-23	Remarks
			<p>overhauling done since commissioning i.e 1994), It was decided to carry out the same from OEM on emergency basis after taking approval from APGCL's Board. Purchase order for spares for overhauling of GC unit#7 has been issued and work will be completed by 31st March 2023.</p> <p>>APGCL had requested to Hon'ble Commission vide letter no. APGCL/CGM(G)/Special R&M Expenses/2021-22/1 on dated 31st December 2021 for the approval of special R&M for overhauling of LTPS Gas Compressor of Unit 7 for FY 2022-23 of Rs. 500 Lakhs.</p> <p>>Further, APGCL had submitted the details of overhauling of LTPS Gas Compressor U#7 and Replacement of Runner for KLHEP U#2 in query reply as additional submission to the Hon'ble Commission. Based on the additional submission, Hon'ble Commission had allowed the special R&M expenses for replacement of runner of KLHEP U#2 but didn't allow the expenses for overhauling of LTPS Gas Compressor U#7.</p> <p>>Further, APGCL had requested for the approval for special R&M in the review petition. Based on submission, the Hon'ble Commission had disallowed at that time but given judgement that APGCL may undertake the same as per requirement, and if such expenditure is actually incurred in FY 2022-23, then the same may be submitted at the time of true-up with necessary justification.</p> <p>>Prayer: APGCL humbly prays to the Hon'ble Commission to kindly approve the special R&M expenses for overhauling of U#7 of LTPS of amount Rs. 450 Lakhs for FY 2022-23.</p>

Work Name	Approved as per Tariff Order March 2022	Claim in FY 2022-23	Remarks
For KLHEP			
Capital Overhauling of 50MW Francis type Fuji make Generator Turbine Unit-II – KLHEP	1200	1200	Same as per approved
Replacement of Runner of U#2	800	800	Same as per approved
Additional Capital Investment for Renovation work of damaged assets due to Landslide for KLHEP Plant		808	An amount of Rs. 12 crore was approved for FY 2021-22 in the tariff order dated 21st March 2022. APGCL had planned and executed the work in FY 2021-22, but few pending works were executed in first quarter of FY 2022-23. Hence, APGCL has claimed Rs. 3.92 crore in True up of FY 2021-22 and rest amount of Rs. 8.08 Crore (Rs. 12 crore – Rs. 3.92 Crore) in FY 2022-23.
For LRPP			
16,000 and 32,000 Running Hours Maintenance	2814	2814	Work in Progress and expected to be completed by February 2023
36,000 Running Hours Turbocharger Maintenance	458	458	Same as approved
For NRPP			
Special R&M for Combustion Inspection of the GT Unit of NRPP	0	1850	<p>> As per the OEM Guidelines attached in Annexure 18, the GT Unit of NRPP requires a mandatory Combustion Inspection (CI) at the completion of 12000 Running Hours (RH).</p> <p>>It is expected that the GT Unit of NRPP will complete 12000 RH by Jan'23.</p> <p>>The CI work of the GT Unit of NRPP is a very important work for the health of the Turbine and it is mandatory as per the OEM Guidelines. Delaying the work may result in the deterioration of the overall performance of the GT Unit. As NRPP is a newly commissioned station, timely completion of the maintenance works of its units are essential for seamless operation for the rest of the useful life of the project so that NRPP is able to generate reliable power in</p>

Work Name	Approved as per Tariff Order March 2022	Claim in FY 2022-23	Remarks
			<p>service to the people of Assam.</p> <p>>APGCL has collected an offer of Rs. 14.92 Crore excluding GST and Freight Charge from the OEM BGGTS (BHEL-GE Gas Turbine Services Pvt. Ltd.) for the spares and service of the CI of the GT Unit of NRPP. The offer letter attached has been attached in Annexure 19.</p> <p>> Prayer: APGCL most humbly prays to the Hon'ble Commission to approve the work of Combustion Inspection of the GT Unit of NRPP as Special R&M Plan at estimated cost Rs. 18.50 Crore including freight and GST Charge for the FY 2022-23.</p>

Table 110: Plant wise Special R&M for FY 2022-23

Rs. Cr

Station	Approved as per order of March 2022	Amount claimed for APR
NTPS	2.58	2.58
LTPS	15.00	24.50
KLHEP	20.00	28.08
LRPP	32.72	32.72
NRPP	0.00	18.50
Total	70.30	106.38

14.8.2. APGCL prays to the Hon'ble Commission to kindly approve the revised estimated Special R&M activities as mentioned above for FY 2022-23.

14.9. Non-Tariff Income

14.9.1. As per Regulation 46 of the Tariff Regulations, 2021, the non-tariff income shall be deducted from the Annual Fixed Cost in determining the Annual Fixed Cost of the Generation Company.

14.9.2. The Non-tariff income has been estimated at normatively approved numbers by Hon'ble Commission in its order dated March 2022. The same will be claimed at actuals during truing up for FY 2022-23.

14.9.3. The details of non-tariff income for FY 2022-23 are shown in the table below:



Table 111: Station-wise details of non-tariff income for FY 2022-23

Rs. Cr

Station	Approved as per order of March 2021	Claim for FY 2022-23
NTPS	7.13	7.13
LTPS	9.22	9.22
KLHEP	5.75	5.75
LRPP	0.00	0.00
NRPP	0.00	0.00
Total	22.09	22.09

14.9.4. APGCL prays to the Hon'ble Commission to kindly approve the plant wise Non-tariff income for FY 2022-23 as shown above.

15. Energy Charges

15.1. Fuel Price and Calorific Value

15.1.1. As per Regulation 10 of the Tariff Regulations 2021, 'Fuel Price' and 'Calorific Value of Fuel' are uncontrollable items. The actual values of 'Fuel Price' and 'Calorific Value of Fuel' are shown in the table below:

Table 112: Actual Plant wise GCV and Price for FY 2022-23

Station	Wt. Avg. Gross Calorific Value of Gas (kcal/SCM)	Wt. Avg. Price of Gas (Rs. /1000 SCM)	Wt. Avg. Price of Gas (Rs. /1000 SCM)	Wt. Avg. Price of Gas (Rs. /1000 SCM)
		April – Sept (Actual)	Oct -March (Estimated)	
NTPS	9251.93	12672.10	17427.59	15049.85
LTPS	9959.34	17865.44	23405.93	20635.69
LRPP	9235.46	20654.31	28869.07	24761.69
NRPP	9251.93	12739.04	17427.59	15083.32

15.1.2. The Petitioner prays to the Hon'ble Commission to kindly approve the Price of Gas and GCV for NTPS, LTPS, LRPP and NRPP for FY 2022-23 as shown in the table above.

15.2. Fuel cost

15.2.1. The Commission, in the Tariff Orders dated March 2022 had approved the Fuel Cost for FY 2022-23 for NTPS, LTPS, LRPP and NRPP. The table below shows the plant wise approved fuel cost, the actual total fuel cost incurred and the fuel cost on normative parameters for FY 2022-23. The average price of fuel and GSHR for April to September has been considered for the month of October – March.



Table 113: Fuel cost of NTPS for FY 2022-23

Particulars	Unit	Approved as per order of March 2022	April - Sep (actual)	Oct -March (estimated)	FY 2021-22 (Claim)
Gross Generation	MU	195.09	87.77	89.79	177.56
Heat Rate	kcal/kWh	3900	5052.03	4017.76	4017.76
GCV of gas	kcal/SCM	9204.8	9251.93	9251.93	9251.93
Overall Heat	G. cal.	760856.22	443411.68	360754.73	713389.56
Gas consumption	M. SCM	82.66	47.93	38.99	77.11
Price of Gas	Rs. /1000 SCM	5617.39	12672.10	17427.59	15049.85
Total cost of Gas	Rs. Crore	46.43	60.73	67.95	116.05

Table 114: Fuel cost of LTPS for FY 2022-23

Particulars	Unit	Approved as per order of March 2022	April - Sep (actual)	Oct -March (estimated)	FY 2021-22 (Claim)
Gross Generation	MU	425.74	274.33	212.87	487.20
Heat Rate	kcal/kWh	3200	2355.20	3200.00	3200.00
GCV of gas	kcal/SCM	9337.66	9959.34	9959.34	9959.34
Overall Heat	G. cal.	13,62,355.20	646096.19	681177.60	1559024.00
Gas consumption	M. SCM	145.9	64.87	68.40	156.54
Price of Gas	Rs. /1000 SCM	7932.73	17865.44	23405.93	20635.69
Total cost of Gas	Rs. Crore	115.74	115.90	160.09	323.03

Table 115: Fuel cost of LRPP for FY 2022-23

Particulars	Unit	Approved as per order of March 2022	April - Sep (actual)	Oct -March (estimated)	FY 2021-22 (Claim)
Gross Generation	MU	519.4	243.64	259.70	503.34
Heat Rate	kcal/kWh	2150	2132.68	2150.00	2150.00
GCV of gas	kcal/SCM	9337.66	9235.46	9235.46	9235.46
Overall Heat	G. cal.	11,16,700.82	519603.54	558350.41	1082174.04
Gas consumption	M. SCM	119.59	56.26	60.46	117.18
Price of Gas	Rs./1000 SCM	7932.73	20654.31	28869.07	24761.69
Total cost of Gas	Rs. Crore	94.87	116.20	174.53	290.15

Table 116: Fuel cost of NRPP for FY 2022-23

Particulars	Unit	Approved as per order of March 2022	April - Sep (actual)	Oct -March (estimated)	FY 2021-22 (Claim)
Gross Generation	MU	732.69	217.30	231.76	449.05
Heat Rate	kcal/kWh	1951.05	2830.15	2927.00	2927.00
GCV of gas	kcal/SCM	9204.8	9251.93	9251.93	9251.93
Overall Heat	G. cal.	14,29,505.60	614978.17	678352.01	1314375.22
Gas consumption	M. SCM	155.3	66.47	73.32	142.07
Price of Gas	Rs./1000 SCM	5617.39	12739.04	17427.59	15083.32
Total cost of Gas	Rs. Crore	87.24	84.68	127.78	214.28

15.2.2. The Petitioner prays to the Hon'ble Commission to kindly approve the estimated Fuel cost Price for NTPS, LTPS, LRPP and NRPP for FY 2022-23 as shown in the table above.

16. Summary of submissions for Annual Performance Review of FY 2022-23

16.1. Net Annual Revenue Requirement

16.1.1. The plant wise Net Annual Revenue Requirements for FY 2022-23 are as shown in the tables below.

Table 117: Net Annual Revenue Requirements of NTPS for FY 2022-23

Sl. No	Particulars	Approved as per order of March 2022	Claim for FY 2022-23
I	POWER GENERATION (MU)		
	Gross Generation	195.09	177.56
	Net Generation	186.31	168.69
	Auxiliary Consumption, Loss %	4.50%	4.99%
I	Fixed Charges		
	Operation & Maintenance Expenditure	15.38	21.35
	Increase in AERC Tariff Filing Fees	0.1	0.10
	Interest & Finance Charges	0.00	0.07
	Interest on working Capital	1.31	4.49
	Depreciation	0.47	1.42
	Return on Equity	3.10	8.90
	Income taxes	0	0
	Special R&M	2.58	2.58
	Capacity Building	0.00	0.00
	<u>Less: Other Income</u>	-7.13	-7.13
II	Total Fixed Charges	15.80	31.78
III	Fuel Cost	46.43	116.05
IV	Total Revenue Requirement	62.23	147.82
VII	Total Cost	62.23	147.82
VIII	Revenue from Sale of Power	62.23	83.60
IX	Revenue Gap (+) / Surplus (-)	0.00	64.23

Table 118: Net Annual Revenue Requirements of LTPS for FY 2022-23

Sl. No	Particulars	Approved as per order of March 2022	Claim for FY 2022-23
I	POWER GENERATION (MU)		
	Gross Generation	425.74	487.20



Sl. No	Particulars	Approved as per order of March 2022	Claim for FY 2022-23
	Net Generation	402.32	452.90
	Auxiliary Consumption, Loss %	5.50%	7.04%
I	Fixed Charges		
	Operation & Maintenance Expenditure	29.31	42.67
	Increase in AERC Tariff Filing Fees	0.1	0.10
	Interest & Finance Charges	0.00	0.08
	Interest on working Capital	4.17	12.16
	Depreciation	11.26	14.13
	Return on Equity	15.16	23.05
	Income taxes	0	0
	Special R&M	15.00	24.50
	Capacity Building	0.00	0.00
	<u>Less: Other Income</u>	-9.22	-9.22
II	Total Fixed Charges	65.78	107.47
III	Fuel Cost	115.74	323.03
IV	Total Revenue Requirement	181.52	430.50
VII	Total Cost	181.52	430.50
VIII	Revenue from Sale of Power	181.52	283.60
IX	Revenue Gap (+) / Surplus(-)	0.00	146.90

Table 119: Net Annual Revenue Requirements of KLHEP for FY 2022-23

Rs. Cr

Sl. No	Particulars	Approved as per order of March 2022	Claim for FY 2022-23
I	POWER GENERATION (MU)		
	Gross Generation	390.00	397.77
	Net Generation	388.05	395.78
	Auxiliary Consumption, Loss %	0.50%	0.50%
I	Fixed Charges		
	Operation & Maintenance Expenditure	33.31	35.01
	Increase in AERC Tariff Filing Fees	0	0.00
	Interest & Finance Charges	16.66	18.01
	Interest on working Capital	2.42	3.64
	Depreciation	21.56	22.93
	Return on Equity	10.64	23.94
	Income taxes	0	0
	Special R&M	20.00	28.08
	Capacity Building	0.00	0.00
	<u>Less: Other Income</u>	-5.75	-5.75



Sl. No	Particulars	Approved as per order of March 2022	Claim for FY 2022-23
II	Total Fixed Charges	98.85	125.86
III	Fuel Cost		
IV	Total Revenue Requirement	98.85	125.86
VII	Total Cost	98.85	125.86
VIII	Revenue from Sale of Power	98.85	98.17
IX	Revenue Gap (+) / Surplus (-)	0.00	27.68

Table 120: Net Annual Revenue Requirements of LRPP for FY 2022-23

Rs. Cr

Sl. No	Particulars	Approved as per order of March 2022	Claim for FY 2022-23
I	POWER GENERATION (MU)		
	Gross Generation	519.40	503.34
	Net Generation	501.22	485.72
	Auxiliary Consumption, Loss %	3.50%	3.50%
I	Fixed Charges		
	Operation & Maintenance Expenditure	30.27	30.27
	Increase in AERC Tariff Filing Fees	0.1	0.10
	Interest & Finance Charges	2.56	1.11
	Interest on working Capital	4.79	10.68
	Depreciation	2.69	13.56
	Return on Equity	2.44	12.50
	Income taxes	0	0
	Special R&M	32.72	32.72
	Capacity Building	0.00	0.00
	<u>Less:</u> Other Income	0.00	0.00
II	Total Fixed Charges	75.58	100.94
III	Fuel Cost	94.87	290.15
IV	Total Revenue Requirement	170.45	391.09
VII	Total Cost	170.45	391.09
VIII	Revenue from Sale of Power	170.45	237.02
IX	Revenue Gap (+) / Surplus (-)	0.00	154.07

Table 121: Net Annual Revenue Requirements of NRPP for FY 2022-23

Rs. Cr

Sl. No	Particulars	Approved as per order of March 2022	Claim for FY 2022-23
I	POWER GENERATION (MU)		
	Gross Generation	732.69	449.05
	Net Generation	696.06	426.60



Sl. No	Particulars	Approved as per order of March 2022	Claim for FY 2022-23
	Auxiliary Consumption, Loss %	5.0%	5.0%
I	Fixed Charges		
	Operation & Maintenance Expenditure	22.90	44.79
	Increase in AERC Tariff Filing Fees	0	0.00
	Interest & Finance Charges	50.05	57.02
	Interest on working Capital	5.54	11.15
	Depreciation	36.27	42.08
	Return on Equity	33.90	34.70
	Income taxes	0	0
	Special R&M	0.00	18.50
	Capacity Building	0.00	0.00
	Less: Other Income	0.00	0.00
II	Total Fixed Charges	148.65	208.23
III	Fuel Cost	87.24	214.28
IV	Total Revenue Requirement	235.88	422.52
VII	Total Cost	235.88	422.52
VIII	Revenue from Sale of Power	235.88	235.43
IX	Revenue Gap (+) / Surplus (-)	0.00	187.08

16.2. Summary

16.2.1. The summary of the APR for FY 2022-23 For APGCL is as shown below.

Table 122: APR of APGCL as Whole for FY 2022-23

Sl. No	Particulars	Approved as per order of March 2022	Claim for FY 2022-23
I	POWER GENERATION (MU)		
	Gross Generation	2262.92	2014.92
	Net Generation	2173.96	1929.70
	Auxiliary Consumption, Loss %	3.9%	4.2%
I	Fixed Charges		
	Operation & Maintenance Expenditure	131.17	174.09
	Increase in AERC Tariff Filing Fees	0.30	0.30
	Interest & Finance Charges	69.25	76.30
	Interest on working Capital	18.23	42.12
	Depreciation	72.24	94.12
	Return on Equity	65.24	103.07
	Income taxes	0.00	0.00

Sl. No	Particulars	Approved as per order of March 2022	Claim for FY 2022-23
	Special R&M	70.30	106.38
	Capacity Building	0.00	0.00
	Less: Other Income	-22.10	-22.10
II	Total Fixed Charges	404.65	574.28
III	Fuel Cost	344.28	943.50
IV	Total Revenue Requirement	748.93	1517.78
VII	Total Cost	748.93	1517.78
VIII	Revenue from Sale of Power	748.93	937.83
IX	Revenue Gap (+) / Surplus (-)	0.00	579.96

Table 123: Net Annual Revenue Requirements of APGCL for FY 2022-23

Rs. Cr

Particulars	Approved as per order of March 2022	Amount estimated for Annual Performance Review
Total Fixed Charges	404.65	574.28
Fuel Cost	344.28	943.50
Total Revenue Requirement	748.93	1517.78

16.2.2. We submit that since the figures for the FY 2022-23 are estimated and are subject to True-up, APGCL has not considered gap in the tariff for FY 2022-23. The same shall be considered at the time of True-up petition of FY 2022-23.

16.2.3. The Petitioner prays to the Hon'ble Commission to approve the plant wise Net Annual Revenue Requirement and for APGCL as a whole for FY 2022-23 as discussed in the tables above.

**APPEAL FOR AGGREGATE REVENUE REQUIREMENT
FOR FY 2023-24 for NTPS
&
DETERMINATION OF TARIFF FOR FY 2023-24
To
ASSAM ELECTRICITY REGULATORY COMMISSION**



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



AFFIDAVIT – NTPS

BEFORE THE ASSAM STATE ELECTRICITY REGULATORY
COMMISSION, GUWAHATI.

Petition No. –
Case No.
(to be filed by the Office)

IN THE MATTER OF

Filing of Petition for Revised Aggregate Revenue Requirement for the FY 2023-24

AND

Petition for Determination of Tariff for the FY 2022-23

AND

IN THE MATTER OF

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

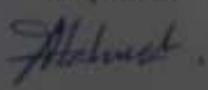
Petitioner

I, Sri Akshay Talukdar, Son of Late Debendra Nath Talukdar, age 51 years, residing at Santipur Hillside, PNGB Road, Guwahati - 781009, do solemnly affirm and say as follows:

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

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

Solemnly affirm at Guwahati on 24th November 2022 that the contents of this affidavit are true to my knowledge, no part of it is false or no material has been concealed therefore and misleading material included therein.

Deponent

(Akshay Talukdar)
General Manager (HQ) i/c,
Assam Power Generation Corporation Ltd.

Place: Guwahati

Date: 24th November 2022



PRAYER – NTPS

BEFORE THE HON'BLE ASSAM ELECTRICITY REGULATORY COMMISSION

FILING NO

CASE NO

IN THE MATTER OF:

Petition for Submission of Revised Aggregate Revenue Requirement and Determination of Tariff for the FY 2023-24

AND IN THE MATTER OF:

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

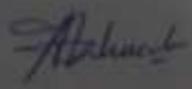
THE HUMBLE APPLICANT ABOVE NAMED MOST RESPECTFULLY SHEWETH:

1. That APGCL is a successor corporate entity of former ASEB, formed in pursuant to the notification of the Government of Assam, notified under sub-sections (1), (2), (5), (6) and (7) of Section 131 and Section 133 of the Electricity Act 2003(Central Act 36 of 2003), for the purpose of transfer and vesting of functions, properties, interests, rights, obligations and liabilities, along with the transfer of Personnel of the Board to the successor corporate entities.
2. That APGCL is a company incorporated with the main objective of generation of electricity in the state of Assam.
3. That NTPS, with its first of the six units commissioned in April 1965 and the last of the six units commissioned in March 1985, is an operating gas based thermal Power Station under the APGCL in the district of Dibrugarh, Assam.
5. That the Hon'ble Commission notified the AERC (Terms and Conditions for determination of Multi Year Tariff) Regulations, 2021 on 18th September, 2021.
6. That as per the Hon'ble Commission's this new MYT Regulations of 2021 APGCL is filing for approval of the Revised Aggregate Revenue Requirement and Determination of Tariff for NTPS for the FY 2023-24.

Place: Guwahati

Date: 24th November 2022

For and on behalf of
Assam Power Generating Corporation Limited



(Akshay Talukdar)
General Manager (HQ) i/c.
Assam Power Generation Corporation Ltd.

17. Revised ARR of NTPS for FY 2023-24

17.1. Regulatory provisions for Revised ARR

17.1.1. The Hon'ble Commission in its Tariff regulations, 2021 has stated the following on Revised ARR for the control period from FY 2022-23 to FY 2024-25. The same is reproduced below for ready reference:

"4 Multi-Year Tariff Framework

4.1 The Commission shall determine the tariff for matters covered under Regulation 3.3 above under a Multi-Year Tariff framework with effect from 1st April 2022.

4.2 The Multi-Year Tariff framework shall be based on the following elements, for calculation of

Aggregate Revenue Requirement and expected revenue from tariff and charges for Generating Companies, Transmission Licensee, SLDC, Distribution Wheeling Business and Retail Supply Business:

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

5 Control Period and Baseline

5.1 The first Control Period under these Regulations shall be of three financial years from April 1st, 2022 to March 31st, 2025 and for every block of three years thereafter or such other period as may be decided by the Commission.

Provided that in case any generating station gets commissioned after notification of these Regulations but before commencement of the first Control Period, the Commission may determine the tariff based on the norms as specified for such generating station under these Regulations, under special case through separate Order.

5.2 The Commission shall determine baseline values for various financial and operational parameters of ARR for the Control Period taking into consideration the figures approved by the Commission in the past, actual average figures of last three years, audited accounts, estimate of the figures for the relevant year, Industry benchmarks/norms and other factors considered appropriate by the Commission. Provided that in case of substantial difference between the estimates earlier provided considered for determination of baseline values and the actual audited accounts, the Commission may re-determine the baseline values for the base year suo-moto or on an application filed by the Applicant.



18. Norms of operations

18.1. Regulatory provisions

18.1.1. The Hon'ble Commission had set norms of operations under Tariff Regulations 2021.

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

18.2. Installed and Effective Capacity in FY 2023-24

18.2.1. APGCL submits the following Installed and Effective Capacity for FY 2023-24.

Table 124: Installed & Effective Capacity of NTPS for FY 2023-24

Station	Installed Capacity (MW)	Revised Installed Capacity (MW)	Unit Available (In MW)	Effective Capacity (In MW)
NTPS	119.5	41	GT U # 2 (17MW), GT U # 3(15 MW) & WHRU U # 6 (9 MW)	41

18.3. Snapshot of performance projection for FY 2023-24

18.3.1. The Commission in its order dated 21st March 2022 had approved the NAPAF of NTPS at 50% for FY 2023-24.

18.3.2. The following table shows the projection of performance parameters of gas based Namrup thermal power station for FY 2023-24.

Table 125: Projected Operating Performance of NTPS for FY 2023-24

NTPS	FY 2023-24	FY 2023-24
	Approved	Revised Projection
Gross Energy in MU	195.09	179.58
Aux. Power Cons. (%)	4.50%	4.5%
Net Energy in MU	186.31	171.50
Plant Availability Factor (%)	50.00%	50%
Plant Load Factor (%)	50.00%	50%
Gross Station Heat Rate on GCV (kcal / kWh)	4300 (OC) 3900 (CC)	4300 (OC) 3900 (CC)

18.4. Normative Annual Plant Availability Factor (NAPAF)

18.4.1. As per Regulation 48.1 of the Tariff Regulations, 2021 the Normative Plant Availability factor for recovery of full fixed charges, is 50% for FY 2023-24 for NTPS. The approved and projected numbers are shown in the table below.



Table 126: Projected Availability of NTPS for FY 2023-24

NTPS	FY 2023-24	
	Approved	FY 2023-24 Revised Projection
Plant Availability Factor (%)	50%	50%

18.5. Normative Annual Plant Load Factor (NAPLF)

18.5.1. As per Regulation 48.2 of the Tariff Regulations, 2021 the Normative Plant Load factor is 50% for FY 2023-24 for NTPS. The approved and projected numbers are shown in the table below.

Table 127: Projected PLF of NTPS for FY 2023-24

NTPS	FY 2023-24	
	Approved	FY 2023-24 Revised Projection
Plant Load Factor (%)	50%	50%

18.6. Gross Station Heat Rate (SHR)

18.6.1. As per Regulation 48.4, of the Tariff Regulations, 2021 the Normative Station Heat Rate, is 3900 kCal/kWh for FY 2023-24 for NTPS in combined cycle mode of operation.

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

Table 128: Projected SHR of NTPS for FY 2023-24

NTPS	FY 2023-24	
	Approved	FY 2023-24 Revised Projection
Gross Station Heat Rate on GCV (kcal/ kWh)	3900	3900

18.7. Auxiliary Energy Consumption

18.7.1. As per Regulation 48.3 of the Tariff Regulations, 2021 the Normative Auxiliary energy consumption is 4.50% for FY 2023-24 for NTPS. The same has been considered for projection. The approved and projected numbers are shown in the table below.

Table 129: Projected Auxiliary energy consumption of NTPS for FY 2023-24

NTPS	FY 2023-24	
	Approved	FY 2023-24 Revised Projection
Auxiliary Power Consumption (%)	4.50%	4.50%

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



19. Fixed Cost of the Plant

19.1. Annual fixed cost for FY 2023-24

19.1.1. As per regulation 43.1 of the AERC Tariff regulations, 2021 the following components have been considered for projecting of fixed cost under the Multi Year Tariff framework for the power plants:

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

33.1.2 For the computation of the fixed components, the Petitioner has considered the principles provided in the Tariff Regulations, 2021. These components have been discussed in detail in the following sections of the petition.

19.2. Return on Equity (ROE)

19.2.1. The Hon'ble Commission in its regulation has considered the pre-tax return on equity at 15.5% on equity capital. The Regulation 34 of the Tariff Regulations, 2021 is reproduced below for reference.

"34 Return on Equity Capital

34.1 Return on equity capital shall be computed on the equity capital determined in accordance with Regulation 32

.....

19.2.2. APGCL has projected the Return on Equity (RoE) at a rate of 15.5% in accordance with the Tariff Regulations, 2021. The Petitioner submits that there is no plan of addition in Equity in FY 2023-24 for the existing plants. Further, it is submitted that the actual tax paid would be claimed separately during True up of respective years.

Table 130: Projected Return on Equity capital of NTPS for FY 2023-24

Station	Particulars	Rs. Cr	
		FY 2023-24 Approved	FY 2023-24 Revised Projection
NTPS	Opening Equity	55.00	57.42
	Addition during Year	0	0.00
	Closing Equity	55.00	57.42
	Rate of Return	15.50%	15.50%
	Return on Equity	8.53	8.90
	Return on Equity at Effective Capacity	3.11	



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

19.3. Interest on Loan Capital

19.3.1. As per Regulation 35 of the Tariff Regulations, 2021, the Commission will consider interest on Loan capital on normative basis with repayment equal to depreciation allowed for that year and rate of interest will be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year.

19.3.2. In view of the above, the Petitioner has projected the Interest on long term Loan on normative basis for FY 2023-24. The Petitioner has considered normative loan portfolio and the repayment shown is considered equal to the depreciation for FY 2023-24. The interest rate has been considered as the weighted average rate of interest for FY 2023-24.

19.3.3. The finance charges are shown separately for FY 2023-24. The table below summarizes the interest on loan and finance charges considered for FY 2023-24.

Table 131: Projected Interest and Finance charges of NTPS for FY 2023-24

Rs. Cr

Station	Particulars	FY 2023-24 Approved	FY 2023-24 Revised Projection
NTPS	Net Normative Opening Loan	0.00	1.19
	Addition of normative loan during the year	0.94	3.85
	Normative Repayment during the year	1.25	1.52
	Net Normative Closing Loan	0.00	3.52
	Avg. Normative Loan	0.00	2.35
	Interest Rate	10.85%	11.64%
	Interest on Loan Capital	0.00	0.27
	Add: Bank Charges	0.00	0.00
	Net Interest on Loan Capital	0.00	
	Net Interest on Loan Capital at effective capacity	0.00	0.27

19.3.4. APGCL prays to the Hon'ble Commission to kindly approve the projected total interest and finance charges as shown above.

19.4. Depreciation

19.4.1. The Hon'ble Commission in its Tariff Regulations, 2021 has considered following principals for determination of depreciation.

"33 Depreciation

33.1 The value base for the purpose of depreciation shall be the Capital Cost of the asset admitted by the Commission.

Provided that depreciation shall not be allowed on assets funded through Consumer contribution and Capital Subsidies/Grants.



33.2 The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset.

.....”

19.4.2. In view of the above, the Petitioner has computed the Depreciation considering the Capital Cost of the asset admitted by the Commission and projected asset addition with 10% salvage value. Also, depreciation on grants has been subtracted. The table below summarizes the Depreciation projected for FY 2023-24.

Table 132: Projected Depreciation of NTPS for FY 2023-24

Rs. Cr

Particulars	FY 2023-24
	Revised Projection
Opening GFA	193.48
Addition during the year	3.85
Closing GFA	197.33
Average GFA	195.41
Rate of Depreciation	0.78%
Total Depreciation	1.52
Grant	0.00
Additions during the year	0.00
Closing grant	0.00
Average grant	0.00
Rate of Depreciation	0.78%
Depreciation on grants	0.00
Net Depreciation	1.52

Table 133: Summary of projected Depreciation of NTPS for FY 2023-24

Rs. Cr

Station	Particulars	FY 2023-24	FY 2023-24
		Approved	Revised Projection
NTPS	Depreciation	1.34	1.52
	Less: Depreciation on assets funded by Grants	0.1	0.00
	Net Depreciation	1.25	1.52
	Net Depreciation at effective capacity	0.46	

19.4.3. APGCL pray to the Hon'ble Commission to kindly approve the projected Depreciation for FY 2023-24 as shown above.



19.5. Interest on Working Capital

19.5.1. As per Regulation 37 of the Tariff Regulations, 2021, the interest on working capital will be considered on normative basis.

19.5.2. As per the above regulations, the Petitioner has projected normative interest on working capital. However, as APGCL does not have liquid fuel stock facility, it has not considered working capital on storage of liquid fuel. The rate of interest has been considered equal to the normative interest rate of three hundred (300) basis points above the average State Bank of India MCLR (One Year Tenor) prevalent during the last available six months, which $7\% + 3.58\% = 10.58\%$.

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

Table 134: Summary of Interest on working capital of NTPS for FY 2023-24

Rs. Cr

Station	Particulars	FY 2023-24	FY 2023-24
		Approved	Revised Projection
NTPS	Fuel Cost for one month	3.78	10.99
	O&M Expenses for one month	3.70	1.92
	Maintenance Spares-30% of O&M	13.34	6.93
	Receivables for two months	16.17	27.41
	Total Working Capital Requirement	37.00	47.26
	Rate of interest	10.00%	10.58%
	interest on Working capital	3.70	5.00
	interest on Working capital at effective capacity	1.35	

19.5.4. APGCL prays to the Hon'ble Commission to kindly approve the interest on Working capital for FY 2023-24 as shown above.

19.6. Operation and Maintenance Expenses

19.6.1. The operation and maintenance expense are to be projected as per Regulation 51.1 of the Tariff Regulations, 2021.

19.6.2. APGCL humbly submits that it has claimed the O&M cost for FY 2023-24 as per the revised MYT projection for O&M cost submitted in the APR petition for FY 2022-23.

Table 135: Revised O&M cost of NTPS for FY 2023-24

Rs. Cr

Station	Approved Normative O&M Cost	Approved O&M Cost at effective capacity	Revised Normative O&M Cost	Claim at Effective Capacity
NTPS	44.46	16.18	67.30	23.09

19.6.3. APGCL prays to the Hon'ble Commission to kindly approve the O&M expenses for FY 2023-24 as shown above on effective capacity.



19.7. Impact of AERC (Payment of Fees etc.) Regulation, 2020

19.7.1. The Hon'ble Commission has notified the new AERC (Payment of Fees etc.) Regulations, 2020 which has led to a substantial increase in the Filing Fees of APGCL payable to AERC.

19.7.2. The tentative impact of the increase in the filing fees has been shown below:

Table 136: Impact of increase in AERC Fees projected for FY 2023-24

Station	FY 2023-24	FY 2024-25
	Approved	Revised Projection
NTPS	0.10	0.10

Rs. Cr

19.8. Non-Tariff income

19.8.1. As per Regulation 46 of the Tariff Regulations, 2021, the non-tariff income shall be deducted from the Annual Fixed Cost in determining the Annual Fixed Cost of the Generation Company.

19.8.2. The non-tariff income for FY 2023-24 has been projected same as approved by Hon'ble Commission in its order dated 21st March 2022. The same is as shown in the table below:

Table 137: Station-wise non-tariff income projected for FY 2023-24

Station	FY 2023-24	FY 2023-24
	Approved	Revised Projection
NTPS	7.13	7.13

Rs. Cr

19.8.3. APGCL prays to the Hon'ble Commission to kindly approve the non-tariff income for FY 2023-24 as shown above.

20. Energy Charges

20.1. Fuel Price and Calorific Value

20.1.1. As per Regulation 10 of the Tariff Regulations 2021, 'Fuel Price' and 'Calorific Value of Fuel' are uncontrollable items. The projected values of 'Fuel Price' and 'Calorific Value of Fuel' are shown in the table below:

Table 138: Projected GCV and Price for FY 2023-24

Station	Wt. Avg. Gross Calorific Value of Gas (kcal/SCM)	Wt. Avg. Price of Gas (Rs./1000 SCM)
NTPS	9251.93	17427.59

20.1.2. The Petitioner prays to the Hon'ble Commission to kindly approve the projected Price of Gas and GCV for NTPS for FY 2023-24 as shown in the table above.



20.2. Fuel cost

20.2.1. The Hon'ble Commission, in the Tariff Order dated 21st March 2022 had approved the Fuel Cost for FY 2023-24. The table below shows the revised projected fuel cost for FY 2023-24.

Table 139: Fuel cost of NTPS for FY 2023-24

Particulars	Derivation	Unit	FY 2023-24	
			Approved	Revised Projection
Gross Generation	A	MU	195.09	179.58
Heat Rate	B	kcal/kWh	3900	3900.00
GCV of gas	C	kcal/SCM	9204.8	9251.93
Overall Heat	D=AxB	G. cal.	760856.22	700362.00
Gas consumption	E=D/C	M. SCM	82.66	75.70
Price of Gas	F	Rs./1000 SCM	5617.39	17427.59
Total cost of Gas	G=ExF/10000	Rs. Crore	46.43	131.93

20.2.2. The Petitioner prays to the Hon'ble Commission to kindly approve the projected Fuel cost Price of NTPS for FY 2023-24 as shown in the table above.

20.3. Incentives

20.3.1. APGCL submits that the Incentives for FY 2023-24 will be claimed in True-up as per Regulations.

21. Other expenses

21.1. Capacity building

21.1.1. The Hon'ble Commission had not approved any amount for the Capacity Building expenditure for FY2023-24 of NTPS in its order dated 21st March 2022.

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

Table 140: Expenses under capacity building

Plant Name	FY 2023-24	
	Approved	Revised Projection
NTPS	0.0	0.0

Rs. Cr

21.2. Special R&M

21.2.1. APGCL's plans to undertake Special R&M for the following units, cost of which will be claimed as shown below.



Table 141: Expenses under Special R&M

Rs. Cr

Plant Name	FY 2023-24	
	Approved	Revised Projection
NTPS	0.80	0.80

Sl. No.	Work Name	Approved (Rs. Crore)	Claim for FY 2023-24 (Rs. Crore)	Remarks
1	Overhauling of Gas Turbine Unit 6 (Execution Part) excluding procurement of spares.	0.80	0.80	Same as approved in Tariff Order dated 21 st March 2022

22. Summary of submissions for Revised ARR of FY 2023-24

22.1. Summary

22.1.1. The Summary of the Revised ARR of NTPS for FY 2023-24 is shown below.

Table 142: Revised ARR of NTPS for FY 2023-24

Rs. Cr

Sl. No	Particulars	FY 2023-24	
		Approved	Revised Projection
I	POWER GENERATION (MU)		
	Gross Generation	195.09	179.58
	Net Generation	186.31	171.50
	Auxiliary Consumption Loss %	4.50%	4.50%
I	Fixed Charges		
	Operation & Maintenance Expenditure	16.18	23.09
	Increase in AERC Tariff Filing Fees	0.10	0.10
	Interest & Finance Charges	0.00	0.27
	Interest on working Capital	1.35	5.00
	Depreciation	0.46	1.52
	Return on Equity	3.11	8.90
	Income taxes	0	0
	Special R&M	0.8	0.8
	Capacity Building	0	0
	<u>Less: Other Income</u>	-7.13	-7.13
II	Total Fixed Charges	14.86	32.56
III	Fuel Cost	46.43	131.93
IV	Total Revenue Requirement	61.29	164.48



22.2. Net Annual Revenue Requirement

22.2.1. The Net Annual Revenue Requirements for FY 2023-24 are as shown in the tables below.

Table 143: Net Annual Revenue Requirements of NTPS for FY 2023-24

Particulars	FY 2023-24	
	Approved	Revised Projection
Total Fixed Charges (Rs. Crore)	14.86	32.56
Fuel Cost (Rs. Crore)	46.43	131.93
Total Revenue Requirement (Rs. Crore)	61.29	164.48
Total Per unit cost (Rs/ KWh)	3.29	9.59

Rs. Cr

22.3. Tariff of NTPS for FY 2023-24

22.3.1. The tariff proposed of NTPS for FY 2023-24 is as shown below.

Table 144: Tariff proposed of NTPS for FY 2023-24

Particulars	NTPS
Annual fixed charges (Rs crore)	32.56
Monthly fixed charges (Rs crore)	2.71
Energy charge rate (Rs. / kWh)	7.69

22.3.2. The Petitioner prays to the Hon'ble Commission to approve the Net Annual Revenue Requirement for FY 2023-24 as discussed in the tables above.



**APPEAL FOR AGGREGATE REVENUE REQUIREMENT
FOR FY 2023-24 for LTPS
&
DETERMINATION OF TARIFF FOR FY 2023-24
To
ASSAM ELECTRICITY REGULATORY COMMISSION**



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



AFFIDAVIT – LTPS

BEFORE THE ASSAM STATE ELECTRICITY REGULATORY
COMMISSION, GUWAHATI.

Petition No. –

Case No.
(to be filed by the Office)

IN THE MATTER OF

Filing of Petition for Revised Aggregate Revenue Requirement for the FY 2023-24

AND

Petition for Determination of Tariff for the FY 2023-24

AND

IN THE MATTER OF

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

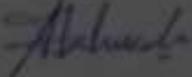
Petitioner

I, Sri Akshay Talukdar, Son of Late Debendra Nath Talukdar, age 51 years, residing at Santipur Hillside, PNGB Road, Guwahati - 781009, do solemnly affirm and say as follows:

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

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

Solemnly affirm at Guwahati on 24th November' 2022 that the contents of this affidavit are true to my knowledge, no part of it is false or no material has been concealed therefore and misleading material included therein.

Deponent

(Akshay Talukdar)
General Manager (HQ) i/c,
Assam Power Generation Corporation Ltd.

Place: Guwahati

Date: 24th November' 2022



PRAYER – LTPS

BEFORE THE HON'BLE ASSAM ELECTRICITY REGULATORY COMMISSION

FILING NO _____

CASE NO _____

IN THE MATTER OF:

Petition for Submission of Revised Aggregate Revenue Requirement and Determination of Tariff for the FY 2023-24

AND IN THE MATTER OF:

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

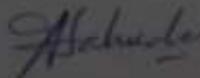
THE HUMBLE APPLICANT ABOVE NAMED MOST RESPECTFULLY SHEWETH:

1. That APGCL is a successor corporate entity of former ASEB, formed in pursuant to the notification of the Government of Assam, notified under sub-sections (1), (2), (5), (6) and (7) of Section 131 and Section 133 of the Electricity Act 2003(Central Act 36 of 2003), for the purpose of transfer and vesting of functions, properties, interests, rights, obligations and liabilities, along with the transfer of Personnel of the Board to the successor corporate entities.
2. That APGCL is a company incorporated with the main objective of generation of electricity in the state of Assam.
3. That LTPS, with its first of the eight units commissioned on 26/04/1981 and the last of the eight units commissioned on 17/01/2012, is an operating gas based thermal Power Station under the APGCL in the district of Charaideo (earlier Sivsagar), Assam.
5. That the Hon'ble Commission notified the AERC (Terms and Conditions for determination of Multi Year Tariff) Regulations, 2021 on 18th September, 2021.
6. That as per the Hon'ble Commission's this new MYT Regulations of 2021 APGCL is filing for approval of the Revised Aggregate Revenue Requirement and Determination of Tariff of LTPS for the FY 2023-24.

Place: Guwahati

Date: 29th November 2021

For and on behalf of
Assam Power Generating Corporation Limited



(Akshay Talukdar)
General Manager (HQ) i/c,
Assam Power Generation Corporation Ltd.

23. Revised ARR of LTPS for FY 2023-24

23.1. Regulatory provisions for Revised ARR

23.1.1. The Hon'ble Commission in its Tariff regulations, 2021 has stated the following on Revised ARR for the control period from FY 2022-23 to FY 2024-25. The same is reproduced below for ready reference:

"4 Multi-Year Tariff Framework

4.1 The Commission shall determine the tariff for matters covered under Regulation 3.3 above under a Multi-Year Tariff framework with effect from 1st April 2022.

4.2 The Multi-Year Tariff framework shall be based on the following elements, for calculation of

Aggregate Revenue Requirement and expected revenue from tariff and charges for Generating Companies, Transmission Licensee, SLDC, Distribution Wheeling Business and Retail Supply Business:

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

5 Control Period and Baseline

5.1 The first Control Period under these Regulations shall be of three financial years from April 1st, 2022 to March 31st, 2025 and for every block of three years thereafter or such other period as may be decided by the Commission.

Provided that in case any generating station gets commissioned after notification of these Regulations but before commencement of the first Control Period, the Commission may determine the tariff based on the norms as specified for such generating station under these Regulations, under special case through separate Order.

5.2 The Commission shall determine baseline values for various financial and operational parameters of ARR for the Control Period taking into consideration the figures approved by the Commission in the past, actual average figures of last three years, audited accounts, estimate of the figures for the relevant year, Industry benchmarks/norms and other factors considered appropriate by the Commission. Provided that in case of substantial difference between the estimates earlier provided considered for determination of baseline values and the actual audited accounts, the Commission may re-determine the baseline values for the base year suo-moto or on an application filed by the Applicant.



24. Norms of operations

24.1. Regulatory provisions

24.1.1. The Hon'ble Commission had set norms of operations under Tariff Regulations 2021.

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

24.2. Installed and Effective Capacity in FY 2023-24

24.2.1. APGCL submits the following Installed and Effective Capacity for FY 2023-24.

Table 145 : Installed & Effective Capacity of LTPS for FY2023-24

Station	Installed Capacity (MW)	Revised Installed Capacity	Units Available for Generation & Capacity in MW	Effective Capacity
LTPS	142.2	97.20	5,6,7(20 MW Each),8 (37.20 MW-WHRU)	97.2 MW

24.3. Snapshot of performance projection for FY 2023-24

24.3.1. The following table shows the projection of performance parameters of gas based Lakwa thermal power station for FY 2023-24.

Table 146: Projected Operating Performance of LTPS for FY 2023-24

LTPS	FY 2023-24 Approved	FY 2023-24 Projected
Gross Energy in MU	425.74	425.74
Aux. Power Cons. (%)	5.50%	5.50%
Net Energy in MU	402.32	402.32
Plant Availability Factor (%)	50.00%	50.0%
Plant Load Factor (%)	66.00%	66.0%
Gross Station Heat Rate on GCV (kcal / kWh)	3900 (OC) 3200 (CC)	3900 (OC) 3200 (CC)

24.4. Normative Annual Plant Availability Factor (NAPAF)

24.4.1. As per Regulation 48.1 of the Tariff Regulations, 2021 the Normative Plant Availability factor for recovery of full fixed charges, is 50% for FY 2023-24 for LTPS. The approved and projected numbers are shown in the table below.

Table 147: Projected Availability of LTPS for FY 2023-24

LTPS	FY 2023-24 Approved	FY 2023-24 Revised Projection
Plant Availability Factor (%)	50%	50%



24.5. Normative Annual Plant Load Factor (NAPLF)

24.5.1. As per Regulation 48.2 of the Tariff Regulations, 2021 the Normative Plant Load factor is 66% for FY 2023-24 for LTPS. The approved and projected numbers are shown in the table below.

Table 148: Projected PLF of LTPS for FY 2023-24

LTPS	FY 2023-24	
	Approved	Revised Projection
Plant Load Factor (%)	66%	66%

24.6. Gross Station Heat Rate (SHR)

24.6.1. As per Regulation 48.4, of the Tariff Regulations, 2021 the Normative Station Heat Rate, is 3200 kCal/kWh for FY 2023-24 for LTPS in combined cycle mode of operation.

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

Table 149: Projected SHR of LTPS for FY 2023-24

LTPS	FY 2023-24	
	Approved	Revised Projection
Gross Station Heat Rate on GCV (kcal/ kWh)	3200	3200

24.7. Auxiliary Energy Consumption

24.7.1. As per Regulation 48.3 of the Tariff Regulations, 2021 the Normative Auxiliary energy consumption is 5.50% for FY 2023-24 for LTPS. The same has been considered for projection. The approved and projected numbers are shown in the table below.

Table 150: Projected Auxiliary energy consumption of LTPS for FY 2023-24

LTPS	FY 2023-24	
	Approved	Revised Projection
Auxiliary Power Consumption (%)	5.50%	5.5%

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

25. Fixed Cost of the Plant

25.1. Annual fixed cost for FY 2023-24

25.1.1. As per regulation 43.1 of the AERC Tariff regulations, 2021 the following components have been considered for projecting of fixed cost under the Multi Year Tariff framework for the power plants:

- (a) Return on Equity Capital
- (b) Interest on Loan capital
- (c) Depreciation



- (d) Operation and Maintenance Expenses
- (e) Interest on Working Capital
- (f) Less: Non-Tariff Income

25.1.2. For the computation of the fixed components, the Petitioner has considered the principles provided in the Tariff Regulations, 2021. These components have been discussed in detail in the following sections of the petition.

25.2. Return on Equity (ROE)

25.2.1. The Hon'ble Commission in its regulation has considered the pre-tax return on equity at 15.5% on equity capital. The Regulation 34 of the Tariff Regulations, 2021 is reproduced below for reference.

*“34 Return on Equity Capital
34.1 Return on equity capital shall be computed on the equity capital determined in accordance with Regulation 32
.....”*

25.2.2. APGCL has projected the Return on Equity (RoE) at a rate of 15.5% in accordance with the Tariff Regulations, 2021. The Petitioner submits that there is no plan of addition in Equity in FY 2023-24 for the existing plants. Further, it is submitted that the actual tax paid would be claimed separately during True up of respective years.

Table 151: Projected Return on Equity capital for FY 2023-24

Rs. Cr

Station	Particulars	FY 2023-24	
		Approved	Revised Projection
LTPS	Opening Equity	143.08	148.69
	Closing Equity	143.08	148.69
	Rate of Return	15.50%	15.50%
	Return on Equity	22.18	23.05
	Return on Equity on effective capacity	15.16	

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

25.3. Interest on Loan Capital

25.3.1. As per Regulation 35 of the Tariff Regulations, 2021, the Commission will consider interest on Loan capital on normative basis with repayment equal to depreciation allowed for that year and rate of interest will be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year.



25.3.2. In view of the above, the Petitioner has projected the Interest on long term Loan on normative basis for FY 2023-24. The Petitioner has considered normative loan portfolio and the repayment shown is considered equal to the depreciation for FY 2023-24. The interest rate has been considered as the weighted average rate of interest for FY 2023-24.

25.3.3. The finance charges are shown separately for FY 2023-24. The table below summarizes the interest on loan and finance charges considered for FY 2023-24.

Table 152: Projected Interest and Finance charges for FY 2023-24

Rs. Cr

Station	Particulars	FY 2023-24 Approved	FY 2023-24 Revised Projection
LTPS	Net Normative Opening Loan	0	1.34
	Addition of normative loan during the year	12.31	67.74
	Normative Repayment during the year	17.4	15.90
	Net Normative Closing Loan	0.00	53.18
	Avg. Normative Loan	0.00	27.26
	Interest Rate	10.85%	11.64%
	Interest on Loan Capital	0.00	3.15
	Add: Bank Charges	0.00	0.00
	Net Interest on Loan Capital	0.00	3.17
	Net Interest on Loan Capital on effective capacity	0.00	

25.3.4. APGCL prays to the Hon'ble Commission to kindly approve the projected total interest and finance charges as shown above.

25.4. Depreciation

25.4.1. The Hon'ble Commission in its Tariff Regulations, 2021 has considered following principals for determination of depreciation.

"33 Depreciation

33.1 The value base for the purpose of depreciation shall be the Capital Cost of the asset admitted by the Commission.

Provided that depreciation shall not be allowed on assets funded through Consumer contribution and Capital Subsidies/Grants.

33.2 The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset.

....."

25.4.2. In view of the above, the Petitioner has computed the Depreciation considering the Capital Cost of the asset admitted by the Commission and projected asset addition with 10% salvage value. Also, depreciation on grants has been subtracted. The table below summarizes the Depreciation projected for FY 2023-24.



Table 153: Projected Depreciation of LTPS for FY 2023-24

Rs. Cr

Particulars	FY 2023-24	
	Revised Projection	
Opening GFA	518.55	
Addition during the year	67.74	
Closing GFA	586.29	
Average GFA	552.42	
Rate of Depreciation	2.88%	
Total Depreciation	15.90	
Grant	0.00	
Additions during the year	0.00	
Closing grant	0.00	
Average grant	0.00	
Rate of Depreciation	2.88%	
Depreciation on grants	0.00	
Net Depreciation	15.90	

Table 154: Summary of projected Depreciation for FY 2023-24

Rs. Cr

Station	Particulars	FY 2023-24	
		Approved	Revised Projection
LTPS	Depreciation	19.96	15.90
	Less: Depreciation on assets funded by Grants	2.56	0.00
	Net Depreciation	17.40	15.90
	Net Depreciation at effective capacity	11.89	

25.4.3. APGCL pray to the Hon'ble Commission to kindly approve the projected Depreciation for FY 2023-24 as shown above.

25.5. Interest on Working Capital

25.5.1. As per Regulation 37 of the Tariff Regulations, 2021, the interest on working capital will be considered on normative basis.

25.5.2. As per the above regulations, the Petitioner has projected normative interest on working capital. However, as APGCL does not have liquid fuel stock facility, it has not considered working capital on storage of liquid fuel. The rate of interest has been considered equal to the normative interest rate of three hundred (300) basis points above the average State Bank of India MCLR (One Year Tenor) prevalent during the last available six months, which $7\% + 3.58\% = 10.58\%$.

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



Table 155: Summary of Interest on working capital projected for FY 2023-24

Station	Particulars	FY 2023-24	
		Approved	Revised Projection
LTPS	Fuel Cost for one month	9.64	26.68
	O&M Expenses for one month	3.76	3.74
	Maintenance Spares-30% of O&M	13.54	13.47
	Receivables for two months	37.30	72.74
	Total Working Capital Requirement	64.25	116.64
	Rate of interest	10.00%	10.58%
	interest on Working capital	6.42	12.33
	interest on Working capital at effective capacity	4.39	

25.5.4. APGCL prays to the Hon'ble Commission to kindly approve the interest on Working capital for FY 2023-24 as shown above.

25.6. Operation and Maintenance Expenses (O&M Expenses)

25.6.1. The operation and maintenance expense are to be projected as per Regulation 51.1 of the Tariff Regulations, 2021.

25.6.2. APGCL humbly submits that it has claimed the O&M cost for FY 2023-24 as per the revised MYT projection for O&M cost submitted in the APR petition for FY 2022-23.

Table 156: Revised O&M cost for FY 2023-24

Station	Approved Normative O&M Cost	Approved O&M Cost at effective capacity	Revised Normative O&M Cost	Claim at Effective Capacity
LTPS	45.13	30.85	65.70	44.91

25.6.3. APGCL prays to the Hon'ble Commission to kindly approve the O&M expenses for FY 2023-24 as shown above on effective capacity.

25.7. Impact of AERC (Payment of Fees etc.) Regulation, 2020

25.7.1. The Hon'ble Commission has notified the new AERC (Payment of Fees etc.) Regulations, 2020 which has led to a substantial increase in the Filing Fees of APGCL payable to AERC.

25.7.2. The tentative impact of the increase in the filing fees has been shown below:

Table 157: Impact of increase in AERC Fees projected for FY 2023-24

Station	FY 2023-24		FY 2024-25
	Approved	Revised Projection	Revised Projection
LTPS	0.10	0.10	0.10



25.8. Non-Tariff income

25.8.1. As per Regulation 46 of the Tariff Regulations, 2021, the non-tariff income shall be deducted from the Annual Fixed Cost in determining the Annual Fixed Cost of the Generation Company.

25.8.2. The non-tariff income for FY 2023-24 has been projected same as approved by Hon'ble Commission in its order dated 21st March 2022. The same is as shown in the table below:

Table 158: Station-wise non-tariff income projected for FY 2023-24

Station	Rs. Cr	
	FY 2023-24 Approved	FY 2023-24 Revised Projection
LTPS	9.22	9.22

25.8.3. APGCL prays to the Hon'ble Commission to kindly approve the non-tariff income for FY 2023-24 as shown above.

26. Energy Charges

26.1. Fuel Price and Calorific Value

26.1.1. As per Regulation 10 of the Tariff Regulations 2021, 'Fuel Price' and 'Calorific Value of Fuel' are uncontrollable items. The projected values of 'Fuel Price' and 'Calorific Value of Fuel' are shown in the table below.

Table 159: Projected GCV and Price for FY 2023-24

Station	Wt. Avg. Gross Calorific Value of Gas (kcal/SCM)	Wt. Avg. Price of Gas (Rs./1000 SCM)
LTPS	9959.34	23405.99

26.1.2. The Petitioner prays to the Hon'ble Commission to kindly approve the projected Price of Gas and GCV for LTPS for FY 2023-24 as shown in the table above.

26.2. Fuel cost

26.2.1. The Hon'ble Commission, in the Tariff Order dated 21st March 2022 had approved the Fuel Cost for FY 2023-24. The table below shows the revised projected fuel cost for FY 2023-24.

Table 160: Fuel cost of LTPS for FY 2023-24

Particulars	Derivation	Unit	FY 2023-24	
			Approved	Revised Projection
Gross Generation	A	MU	425.74	425.74
Heat Rate	B	kcal/kWh	3200	3200.00
GCV of gas	C	kcal/SCM	9337.66	9959.34



Particulars	Derivation	Unit	FY 2023-24	FY 2023-24
			Approved	Revised Projection
Overall Heat	D= A x B	G. cal.	13,62,355.20	1362355.20
Gas consumption	E=D/C	M. SCM	145.9	136.79
Price of Gas	F	Rs./1000 SCM	7932.73	23405.99
Total cost of Gas	G= E x F/10000	Rs. Crore	115.74	320.17

26.2.2. The Petitioner prays to the Hon'ble Commission to kindly approve the projected Fuel cost Price for LTPS for FY 2023-24 as shown in the table above.

26.3. Incentives

26.3.1. APGCL submits that the Incentives for FY 2023-24 will be claimed in True-up as per Regulations.

27. Other expenses

27.1. Capacity building

27.1.1. The Hon'ble Commission had not approved any amount for the Capacity Building expenditure for FY2023-24 for LTPS in its order dated 21st March 2022.

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

Table 161: Expenses under capacity building

Plant Name	FY 2023-24	FY 2023-24
	Approved	Revised Projection
LTPS	0.0	0.0

Rs. Cr

27.2. Special R&M

27.2.1. APGCL's plans to undertake Special R&M for the following units, cost of which will be claimed as shown below.

Table 162: Expenses under Special R&M

Plant Name	FY 2023-24	FY 2023-24
	Approved	Revised Projection
LTPS	26.05	26.05

Rs. Cr

Sl. No.	Work Name	Approved (Rs. Crore)	Claim for FY 2023-24 (Rs. Crore)	Remarks
1	Major Inspection works of Gas Turbine unit # 5	145	145	



Sl. No.	Work Name	Approved (Rs. Crore)	Claim for FY 2023-24 (Rs. Crore)	Remarks
2	Overhauling of Generator and Exciter of GT unit # 5	100	100	Same amount as approved in Tariff Order dated 21 st March 2022
3	Procurement of spares for Major inspection of Gas Turbine unit # 5.	2360	2360	

28. Summary of submissions for Revised ARR of FY 2023-24

28.1. Summary

28.1.1. The Summary of the Revised ARR for FY 2023-24 for LTPS is shown below.

Table 163: Revised ARR of LTPS for FY 2023-24

Sl. No	Particulars	FY 2023-24	
		Approved	Revised Projection
I	POWER GENERATION (MU)	425.74	425.74
	Gross Generation	402.32	402.32
	Net Generation	5.50%	5.50%
	Auxiliary Consumption Loss %		
I	Fixed Charges		
	Operation & Maintenance Expenditure	30.85	44.91
	Increase in AERC Tariff Filing Fees	0.10	0.10
	Interest & Finance Charges	0.00	3.17
	Interest on working Capital	4.39	12.33
	Depreciation	11.89	15.90
	Return on Equity	15.16	23.05
	Income Taxes	0	0
	Special R&M	26.05	26.05
	Capacity Building	0	0
	<u>Less: Other Income</u>	-9.22	-9.22
II	Total Fixed Charges	79.23	116.29
III	Fuel Cost	115.74	320.17
IV	Total Revenue Requirement	194.97	436.47



28.2. Net Annual Revenue Requirement

28.2.1. The Net Annual Revenue Requirements for FY 2023-24 are as shown in the tables below.

Table 164: Net Annual Revenue Requirements of LTPS for FY 2023-24

Particulars	FY 2023-24	
	Approved	Revised Projection
Total Fixed Charges (Rs. Crore)	79.23	116.29
Fuel Cost (Rs. Crore)	115.74	320.17
Total Revenue Requirement (Rs. Crore)	194.97	436.47
Total Per unit cost (Rs/ KWh)	4.85	10.85

Rs. Cr

28.3. Tariff for LTPS for FY 2023-24

28.3.1. The tariff proposed for LTPS for FY 2023-24 is as shown below.

Table 165: Tariff proposed of LTPS for FY 2023-24

Particulars	LTPS
Annual fixed charges (Rs crore)	116.29
Monthly fixed charges (Rs crore)	9.69
Energy charge rate (Rs. / kWh)	7.96

28.3.2. The Petitioner prays to the Hon'ble Commission to approve the Net Annual Revenue Requirement for FY 2023-24 as discussed in the tables above.



**APPEAL FOR AGGREGATE REVENUE REQUIREMENT
FOR FY 2023-24 for KLHEP
&
DETERMINATION OF TARIFF FOR FY 2023-24
To
ASSAM ELECTRICITY REGULATORY COMMISSION**



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



AFFIDAVIT – KLHEP

BEFORE THE ASSAM STATE ELECTRICITY REGULATORY
COMMISSION, GUWAHATI.

Petition No. –
Case No.
(to be filed by the Office)

IN THE MATTER OF
Filing of Petition for Revised Aggregate Revenue Requirement for the FY 2023-24.
AND
Petition for Determination of Tariff for the FY 2023-24
AND
IN THE MATTER OF
Karbi Langpi Hydro Electric Project,
Assam Power Generation Corporation Limited,
Lengery, Dist. Karbi Anglong, Assam

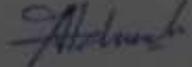
Petitioner

I, Sri Akshay Talukdar, Son of Late Debendra Nath Talukdar, age 51 years, residing at Santipur Hillside, PNGB Road, Guwahati - 781009, do solemnly affirm and say as follows:

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

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

Solemnly affirm at Guwahati on 24th November 2022 that the contents of this affidavit are true to my knowledge, no part of it is false or no material has been concealed therefore and misleading material included therein.

Deponent

(Akshay Talukdar)
General Manager (HQ) i/c,
Assam Power Generation Corporation Ltd.

Place: Guwahati
Date: 24th November 2022

PRAYER – KLHEP

BEFORE THE HON'BLE ASSAM ELECTRICITY REGULATORY COMMISSION

FILING NO

CASE NO

IN THE MATTER OF:

Petition for Submission of Revised Aggregate Revenue Requirement for the FY 2023-24 and Determination of Tariff for the FY 2023-24

AND IN THE MATTER OF:

Karbi Langpi Hydro Electric Project (hereinafter referred to as "KLHEP") of Assam Power Generation Corporation Limited (hereinafter referred to as "APGCL") incorporated under the provisions of the Companies Act, 1956 and having its registered office in the State of Assam

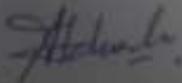
THE HUMBLE APPLICANT ABOVE NAMED MOST RESPECTFULLY SHEWETH:

1. That APGCL is a successor corporate entity of former ASEB, formed in pursuant to the notification of the Government of Assam, notified under sub-sections (1), (2), (5), (6) and (7) of Section 131 and Section 133 of the Electricity Act 2003(Central Act 36 of 2003), for the purpose of transfer and vesting of functions, properties, interests, rights, obligations and liabilities, along with the transfer of Personnel of the Board to the successor corporate entities.
2. That APGCL is a company incorporated with the main objective of generation of electricity in the state of Assam.
3. That KLHEP, with commercial operation of both of its units declared on 06/04/2007, is an operating hydro Power Station under the APGCL in the district of Karbi Anglong, Assam.
5. That the Hon'ble Commission notified the AERC (Terms and Conditions for determination of Multi Year Tariff) Regulations, 2021 on 18th September, 2021.
6. That as per the Hon'ble Commission's this new MYT Regulations of 2021 APGCL is filing for approval of the Revised Aggregate Revenue Requirement and Determination of Tariff for KLHEP for the FY 2023-24.

Place: Guwahati

Date: 24th November 2022

For and on behalf of
Assam Power Generating Corporation Limited



(Akshay Talukdar)
General Manager (HQ) Vc,
Assam Power Generation Corporation Ltd.

29. Revised ARR of KLHEP for FY 2023-24

29.1. Regulatory provisions for Revised ARR

29.1.1. The Hon'ble Commission in its Tariff regulations, 2021 has stated the following on Revised ARR for the control period from FY 2022-23 to FY 2024-25. The same is reproduced below for ready reference:

"4 Multi-Year Tariff Framework

4.1 The Commission shall determine the tariff for matters covered under Regulation 3.3 above under a Multi-Year Tariff framework with effect from 1st April 2022.

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

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

5 Control Period and Baseline

5.1 The first Control Period under these Regulations shall be of three financial years from April 1st, 2022 to March 31st, 2025 and for every block of three years thereafter or such other period as may be decided by the Commission.

Provided that in case any generating station gets commissioned after notification of these Regulations but before commencement of the first Control Period, the Commission may determine the tariff based on the norms as specified for such generating station under these Regulations, under special case through separate Order.

5.2 The Commission shall determine baseline values for various financial and operational parameters of ARR for the Control Period taking into consideration the figures approved by the Commission in the past, actual average figures of last three years, audited accounts, estimate of the figures for the relevant year, Industry benchmarks/norms and other factors considered appropriate by the Commission. Provided that in case of substantial difference between the estimates earlier provided considered for determination of baseline values and the actual audited accounts, the Commission may re-determine the baseline values for the base year suo-moto or on an application filed by the Applicant. "



30. Norms of operations

30.1. Regulatory provisions

30.1.1. The Hon'ble Commission had set norms of operations under Tariff Regulations 2021.

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

30.2. Installed and Effective Capacity in FY 2023-24

30.2.1. APGCL submits the following Installed and Effective Capacity for FY 2023-24.

Table 166: Installed & Effective Capacity of KLHEP for FY 2023-24

Station	Installed Capacity (MW)	No. of Units	Units Available for Generation & Capacity in MW	Effective Capacity
KLHEP	100	2	1 (50), 2(50)	100 MW

30.3. Snapshot of performance projection for FY 2023-24

30.3.1. The following table shows the projection of performance parameters of Karbi Langpi hydroelectric power station for FY 2023-24.

Table 167: Projected Operating Performance of KLHEP for FY 2023-24

KLHEP	FY 2023-24	FY 2023-24
	Approved	Revised Projection
Gross Energy in MU	390.00	390.00
Aux. Power Cons. (%)	0.50%	0.50%
Net Energy in MU	388.05	388.05
Plant Availability Factor (%)	85.00%	85.00%
Plant Load Factor (%)	44.50%	44.50%

30.4. Normative Annual Plant Availability Factor (NAPAF)

30.4.1. As per Regulation 50.1 of the Tariff Regulations, 2021 the Normative Plant Availability factor for recovery of full fixed charges, is 85% for FY 2023-24 for KLHEP. The approved and projected numbers are shown in the table below.

Table 168: Projected Availability of KLHEP for FY 2023-24

KLHEP	FY 2023-24	FY 2023-24
	Approved	Revised Projection
Plant Availability Factor (%)	85%	85%



30.5. Normative Annual Plant Load Factor (NAPLF)

30.5.1. As per Regulation 50.1 of the Tariff Regulations, 2021 the Normative Plant Load factor is 44.5% for FY 2023-24 for KLHEP. The approved and projected numbers are shown in the table below.

Table 169: Projected PLF of KLHEP for FY 2023-24

KLHEP	FY 2023-24	
	Approved	Revised Projection
Plant Load Factor (%)	44.5%	44.5%

30.6. Auxiliary Energy Consumption

30.6.1. As per Regulation 50.1 of the Tariff Regulations, 2021 the Normative Auxiliary energy consumption is 0.50% for FY 2023-24 for KLHEP. The same has been considered for projection. The approved and projected numbers are shown in the table below.

Table 170: Projected Auxiliary energy consumption of KLHEP for FY 2023-24

KLHEP	FY 2023-24	
	Approved	Revised Projection
Auxiliary Power Consumption (%)	0.50%	0.50%

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

31. Fixed Cost of the Plant

31.1. Annual fixed cost for FY 2023-24

31.1.1. As per regulation 43.1 of the AERC Tariff regulations, 2021 the following components have been considered for projecting of fixed cost under the Multi Year Tariff framework for the power plants:

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

31.1.2. For the computation of the fixed components, the Petitioner has considered the principles provided in the Tariff Regulations, 2021. These components have been discussed in detail in the following sections of the petition.



31.2. Return on Equity (ROE)

31.2.1. The Hon'ble Commission in its regulation has considered the pre-tax return on equity at 15.5% on equity capital. The Regulation 34 of the Tariff Regulations, 2021 is reproduced below for reference.

"34 Return on Equity Capital

34.1 Return on equity capital shall be computed on the equity capital determined in accordance with Regulation 32

.....

31.2.2. APGCL has projected the Return on Equity (RoE) at a rate of 15.5% in accordance with the Tariff Regulations, 2021. The Petitioner submits that there is no plan of addition in Equity in FY 2023-24 for the existing plants. Further, it is submitted that the actual tax paid would be claimed separately during True up of respective years.

Table 171: Projected Return on Equity capital for FY 2023-24

Rs. Cr

Station	Particulars	FY 2023-24	
		Approved	Revised Projection
KLHEP	Opening Equity	68.65	154.42
	Closing Equity	68.65	154.42
	Rate of Return	15.50%	15.50%
	Return on Equity	10.64	23.94
	Return on Equity on effective capacity		

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

31.3. Interest on Loan Capital

31.3.1. As per Regulation 35 of the Tariff Regulations, 2021, the Commission will consider interest on Loan capital on normative basis with repayment equal to depreciation allowed for that year and rate of interest will be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year.

31.3.2. In view of the above, the Petitioner has projected the Interest on long term Loan on normative basis for FY 2023-24. The Petitioner has considered normative loan portfolio and the repayment shown is considered equal to the depreciation for FY 2023-24. The interest rate has been considered as the weighted average rate of interest for FY 2023-24.

31.3.3. The finance charges are shown separately for FY 2023-24. The table below summarizes the interest on loan and finance charges considered for FY 2023-24.



Table 172: Projected Interest and Finance charges for FY 2023-24

Rs. Cr

Station	Particulars	FY 2023-24 Approved	FY 2023-24 Revised Projection
KLHEP	Net Normative Opening Loan	151.30	146.16
	Addition of normative loan during the year	14.95	46.39
	Normative Repayment during the year	21.74	24.13
	Net Normative Closing Loan	144.51	168.42
	Avg. Normative Loan	147.91	157.29
	Interest Rate	10.85%	11.64%
	Interest on Loan Capital	16.05	18.31
	Add: Bank Charges	0.00	0.00
	Net Interest on Loan Capital		
	Net Interest on Loan Capital on effective capacity	16.05	18.31

31.3.4. APGCL prays to the Hon'ble Commission to kindly approve the projected total interest and finance charges as shown above.

31.4. Depreciation

31.4.1. The Hon'ble Commission in its Tariff Regulations, 2021 has considered following principals for determination of depreciation.

"33 Depreciation

33.1 The value base for the purpose of depreciation shall be the Capital Cost of the asset admitted by the Commission.

Provided that depreciation shall not be allowed on assets funded through Consumer contribution and Capital Subsidies/Grants.

33.2 The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset.

....."

31.4.2. In view of the above, the Petitioner has computed the Depreciation considering the Capital Cost of the asset admitted by the Commission and projected asset addition with 10% salvage value. Also, depreciation on grants has been subtracted. The table below summarizes the Depreciation projected for FY 2023-24.

Table 173: Projected Depreciation of KLHEP for FY 2023-24

Rs. Cr

Particulars	FY 2023-24 (Revised Projection)
Opening GFA	522.77
Addition during the year	46.39
Closing GFA	569.16
Average GFA	545.96



Particulars	FY 2023-24
	(Revised Projection)
Rate of Depreciation	4.42%
Total Depreciation	24.13
Grant	0.00
Additions during the year	0.00
Closing grant	0.00
Average grant	0.00
Rate of Depreciation	4.42%
Depreciation on grants	0.00
Net Depreciation	24.13

Table 174: Summary of projected Depreciation for FY 2023-24

Rs. Cr

Station	Particulars	FY 2023-24	FY 2023-24
		Approved	Revised Projection
KLHEP	Depreciation	24.21	24.13
	Less: Depreciation on assets funded by Grants	2.46	0.00
	Net Depreciation	21.74	24.13
	Net Depreciation on effective capacity		

31.4.3. APGCL pray to the Hon'ble Commission to kindly approve the projected Depreciation for FY 2023-24 as shown above.

31.5. Interest on Working Capital

31.5.1. As per Regulation 37 of the Tariff Regulations, 2021, the interest on working capital will be considered on normative basis.

31.5.2. As per the above regulations, the Petitioner has projected normative interest on working capital. However, as APGCL does not have liquid fuel stock facility, it has not considered working capital on storage of liquid fuel. The rate of interest has been considered equal to the normative interest rate of three hundred (300) basis points above the average State Bank of India MCLR (One Year Tenor) prevalent during the last available six months, which $7\% + 3.58\% = 10.58\%$.

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

Table 175 : Summary of Interest on working capital projected for FY 2023-24

Rs. Cr

Station	Particulars	FY 2023-24	FY 2023-24
		Approved	Revised Projection
KLHEP	O&M Expenses for one month	2.92	3.07
	Maintenance Spares-30% of O&M	5.26	11.06
	Receivables for two months	13.31	16.79
	Total Working Capital Requirement	21.49	30.92
	Rate of interest	10.00%	10.58%



Station	Particulars	FY 2023-24	FY 2023-24
		Approved	Revised Projection
	Interest on Working capital		
	Interest on Working capital on effective capacity	2.15	3.27

31.5.4. APGCL prays to the Hon'ble Commission to kindly approve the interest on Working capital for FY 2023-24 as shown above.

31.6. Operation and Maintenance Expenses

31.6.1. The operation and maintenance expense are to be projected as per Regulation 51.1 of the Tariff Regulations, 2021.

31.6.2. APGCL humbly submits that it has claimed the O&M cost for FY 2023-24 as per the revised MYT projection for O&M cost submitted in the APR petition for FY 2022-23.

Table 176: Revised O&M cost of KLHEP for FY 2023-24

Station	Approved	Approved	Revised	Claim at
	Normative O&M Cost	amount at effective capacity	Normative O&M Cost	Effective Capacity
KLHEP	35.06	35.05	36.85	36.85

Rs. Cr

31.6.3. APGCL prays to the Hon'ble Commission to kindly approve the O&M expenses for FY 2023-24 as shown above on effective capacity.

31.7. Non-Tariff income

31.7.1. As per Regulation 46 of the Tariff Regulations, 2021, the non-tariff income shall be deducted from the Annual Fixed Cost in determining the Annual Fixed Cost of the Generation Company.

31.7.2. The non-tariff income for FY 2023-24 has been projected same as approved by Hon'ble Commission in its order dated 21st March 2022. The same is as shown in the table below:

Table 177 : Station-wise non-tariff income projected for FY 2023-24

Station	FY 2023-24	FY 2023-24
	Approved	Revised Projection
KLHEP	5.75	5.75

Rs. Cr

31.7.3. APGCL prays to the Hon'ble Commission to kindly approve the non-tariff income for FY 2023-24 as shown above.



31.8. Incentives

31.8.1. APGCL submits that the Incentives for FY 2023-24 will be claimed in True-up as per Regulations.

32. Other expenses

32.1. Capacity building

32.1.1. The Hon'ble Commission had not approved any amount for the Capacity Building expenditure for FY2023-24 for KLHEP in its order dated 21st March 2022.

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

Table 178: Expenses under capacity building

Plant Name	FY 2023-24	
	Approved	Revised Projection
KLHEP	0.0	0.0

Rs. Cr

32.2. Special R&M

32.2.1. The Hon'ble commission had not approved any items under special R&M for FY 2023-24 as per tariff order dated 21st March 2022. Hence, APGCL has not claim any amount under special R&M for FY 2023-24.

33. Summary of submissions for Revised ARR of FY 2023-24

33.1. Summary

33.1.1. The Summary of the revised ARR for FY 2023-24 for KLHEP is shown below.

Table 179: Revised ARR of KLHEP for FY 2023-24

Sl. No	Particulars	FY 2023-24	
		Approved	Revised Projection
I	POWER GENERATION (MU)		
	Gross Generation	390.00	390.00
	Net Generation	388.05	388.05
	Auxiliary Consumption Loss %	0.5%	0.5%
I	Fixed Charges		
	Operation & Maintenance Expenditure	35.06	36.85
	Increase in AERC Tariff Filing Fees	0	0.00
	Interest & Finance Charges	16.05	18.31

Rs. Cr



Sl. No	Particulars	FY 2023-24	
		Approved	Revised Projection
	Interest on working Capital	2.15	3.27
	Depreciation	21.74	24.13
	Return on Equity	10.64	23.94
	Income Taxes	0	0
	Special R&M	0	0
	Capacity Building	0	0
	<u>Less: Other Income</u>	-5.75	-5.75
II	Total Fixed Charges	79.89	100.74
III	Fuel Cost		
IV	Total Revenue Requirement	79.89	100.74

33.2. Net Annual Revenue Requirement

33.2.1. The Net Annual Revenue Requirements for FY 2023-24 are as shown in the tables below.

Table 180: Net Annual Revenue Requirements of KLHEP for FY 2023-24

Rs. Cr

Particulars	FY 2023-24	
	Approved	Revised Projection
Total Fixed Charges (Rs. Crore)	79.89	100.74
Fuel Cost (Rs. Crore)		
Total Revenue Requirement (Rs. Crore)	79.89	100.74
Total Per unit cost (Rs/ KWh)	2.06	2.60

33.3. Tariff for KLHEP for FY 2023-24

33.3.1. The tariff proposed for KLHEP for FY 2023-24 is as shown below.

Table 181: Tariff proposed of KLHEP for FY 2023-24

Particulars	KLHEP
Annual fixed charges (Rs crore)	100.74
Annual Capacity Charge (Rs crore)	50.37
Energy charge rate (Rs. / kWh)	1.30

33.3.2. The Petitioner prays to the Hon'ble Commission to approve the Net Annual Revenue Requirement for FY 2023-24 as discussed in the tables above.



**APPEAL FOR AGGREGATE REVENUE REQUIREMENT
FOR FY 2023-24 for LRPP
&
DETERMINATION OF TARIFF FOR FY 2023-24
To
ASSAM ELECTRICITY REGULATORY COMMISSION**



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



AFFIDAVIT – LRPP

BEFORE THE ASSAM STATE ELECTRICITY REGULATORY
COMMISSION, GUWAHATI,

Petition No. –

Case No.
(to be filed by the Office)

IN THE MATTER OF

Filing of Petition for Revised Aggregate Revenue Requirement for the FY 2023-24

AND

Petition for Determination of Tariff for the FY 2023-24

AND

IN THE MATTER OF

Lakwa Replacement Power Plant,
Assam Power Generation Corporation Limited,
Maibella, Charaideo,
Safry-785689

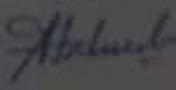
Petitioner

I, Sri Akshay Talukdar, Son of Late Debendra Nath Talukdar, age 51 years, residing at Santipur Hillside, PNGB Road, Guwahati - 781009, do solemnly affirm and say as follows:

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

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

Solemnly affirm at Guwahati on 24th Novemberth 2022 that the contents of this affidavit are true to my knowledge, no part of it is false or no material has been concealed therefore and misleading material included therein.

Deponent

(Akshay Talukdar)
General Manager (HQ) /c,
Assam Power Generation Corporation Ltd.

Place: Guwahati
Date: 24th Novemberth 2022



PRAYER – LRPP

BEFORE THE HON'BLE ASSAM ELECTRICITY REGULATORY COMMISSION

FILING NO

CASE NO

IN THE MATTER OF:

Petition for Submission of Revised Aggregate Revenue Requirement and Determination of Tariff for the FY 2023-24

AND IN THE MATTER OF:

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

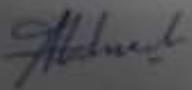
THE HUMBLE APPLICANT ABOVE NAMED MOST RESPECTFULLY SHEWETH:

- 1 That APGCL is a successor corporate entity of former ASEB, formed in pursuant to the notification of the Government of Assam, notified under sub-sections (1), (2), (5), (6) and (7) of Section 131 and Section 133 of the Electricity Act 2003(Central Act 36 of 2003), for the purpose of transfer and vesting of functions, properties, interests, rights, obligations and liabilities, along with the transfer of Personnel of the Board to the successor corporate entities.
- 2 That APGCL is a company incorporated with the main objective of generation of electricity in the state of Assam.
- 3 That LRPP, commissioned on 26-04-2018, is an operating gas engine based thermal power station under the APGCL in the district of Charaideo, Assam.
- 5 That the Hon'ble Commission notified the AERC (Terms and Conditions for determination of Multi Year Tariff) Regulations, 2021 on 18th September, 2021.
- 6 That as per the Hon'ble Commission's this new MYT Regulations of 2021 APGCL is filing for approval of the Revised Aggregate Revenue Requirement and Determination of Tariff for LRPP for the FY 2023-24.

Place: Guwahati

Date: 24th November 2022

For and on behalf of
Assam Power Generating Corporation Limited



(Akshay Talukdar)
General Manager (HQ) i/c,
Assam Power Generation Corporation Ltd.

34. Revised ARR of LRPP for FY 2023-24

34.1. Regulatory provisions for Revised ARR

34.1.1. The Hon'ble Commission in its Tariff regulations, 2021 has stated the following on Revised ARR for the control period from FY 2022-23 to FY 2024-25. The same is reproduced below for ready reference:

"4 Multi-Year Tariff Framework

4.1 The Commission shall determine the tariff for matters covered under Regulation 3.3 above under a Multi-Year Tariff framework with effect from 1st April 2022.

4.2 The Multi-Year Tariff framework shall be based on the following elements, for calculation of

Aggregate Revenue Requirement and expected revenue from tariff and charges for Generating Companies, Transmission Licensee, SLDC, Distribution Wheeling Business and Retail Supply Business:

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

5 Control Period and Baseline

5.1 The first Control Period under these Regulations shall be of three financial years from April 1st, 2022 to March 31st, 2025 and for every block of three years thereafter or such other period as may be decided by the Commission.

Provided that in case any generating station gets commissioned after notification of these Regulations but before commencement of the first Control Period, the Commission may determine the tariff based on the norms as specified for such generating station under these Regulations, under special case through separate Order.

5.2 The Commission shall determine baseline values for various financial and operational parameters of ARR for the Control Period taking into consideration the figures approved by the Commission in the past, actual average figures of last three years, audited accounts, estimate of the figures for the relevant year, Industry benchmarks/norms and other factors considered appropriate by the Commission. Provided that in case of substantial difference between the estimates earlier provided considered for determination of baseline values and the actual audited accounts, the Commission may re-determine the baseline values for the base year suo-moto or on an application filed by the Applicant.



35. Norms of operations

35.1. Regulatory provisions

35.1.1. The Hon'ble Commission had set norms of operations under Tariff Regulations 2021.

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

35.2. Installed and Effective Capacity in FY 2023-24

35.2.1. APGCL submits the following Installed and Effective Capacity for FY 2023-24.

Table 182: Installed & Effective Capacity of LRPP for FY 2023-24

Station	Installed Capacity (MW)	No. of Units	Units Available for Generation & Capacity in MW	Effective Capacity
LRPP	69.755	7	1-7 (9.965 each)	69.755 MW

35.3. Snapshot of performance projection for FY 2023-24

35.3.1. The following table shows the projection of performance parameters of gas based Lakwa replacement power station for FY 2023-24.

Table 183: Projected Operating Performance of LRPP for FY 2023-24

LRPP	FY 2023-24	FY 2023-24
	Approved	Revised Projection
Gross Energy in MU	519.40	519.40
Aux. Power Cons. (%)	3.50%	3.50%
Net Energy in MU	501.22	501.22
Plant Availability Factor (%)	85.00%	85.00%
Plant Load Factor (%)	90.00%	90.00%
Gross Station Heat Rate on GCV (kcal / kWh)	2150	2150

35.4. Normative Annual Plant Availability Factor (NAPAF)

35.4.1. The Hon'ble Commission had approved 85% for NAPAF for LRPP for FY 2023-24 in its order dated 21st March 2022. The approved and projected numbers are shown in the table below.

Table 184: Projected Availability of LRPP for FY 2023-24

LRPP	FY 2023-24	FY 2023-24
	Approved	Revised Projection
Plant Availability Factor (%)	85%	85%



35.5. Normative Annual Plant Load Factor (NAPLF)

35.5.1. The Hon'ble Commission had approved 90% for NAPLF for LRPP for FY 2023-24 in its order dated 21st March 2022. The approved and projected numbers are shown in the table below.

Table 185: Projected PLF of LRPP for FY 2023-24

LRPP	FY 2023-24	
	Approved	Revised Projection
Plant Load Factor (%)	90%	90%

35.6. Gross Station Heat Rate (SHR)

35.6.1. The Hon'ble Commission had approved GSHR of 2150 kCal/kWh for LRPP for FY 2023-24 in its order dated 21st March 2022. The approved and projected numbers are shown in the table below.

35.6.2. The actual and projected numbers are shown in the table below.

Table 186: Projected SHR of LRPP for FY 2023-24

LRPP	FY 2023-24	
	Approved	Revised Projection
Gross Station Heat Rate on GCV (kcal/ kWh)	2150	2150

35.7. Auxiliary Energy Consumption

35.7.1. The Hon'ble Commission had approved 3.5% for auxiliary consumption for LRPP for FY 2023-24 in its order dated 21st March 2022. The approved and projected numbers are shown in the table below.

Table 187: Projected Auxiliary energy consumption of LRPP for FY 2023-24

LRPP	FY 2023-24	
	Approved	Revised Projection
Auxiliary Power Consumption (%)	3.50%	3.5%

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

36. Fixed Cost of the Plant

36.1. Annual fixed cost for FY 2023-24

36.1.1. As per regulation 43.1 of the AERC Tariff regulations, 2021 the following components have been considered for projecting of fixed cost under the Multi Year Tariff framework for the power plants:

- (a) Return on Equity Capital
- (b) Interest on Loan capital



- (c) Depreciation
- (d) Operation and Maintenance Expenses
- (e) Interest on Working Capital
- (f) Less: Non-Tariff Income

36.1.2. For the computation of the fixed components, the Petitioner has considered the principles provided in the Tariff Regulations, 2021. These components have been discussed in detail in the following sections of the petition.

36.2. Return on Equity (ROE)

36.2.1. The Hon'ble Commission in its regulation has considered the pre-tax return on equity at 15.5% on equity capital. The Regulation 34 of the Tariff Regulations, 2021 is reproduced below for reference.

"34 Return on Equity Capital

34.1 Return on equity capital shall be computed on the equity capital determined in accordance with Regulation 32

.....

36.2.2. APGCL has projected the Return on Equity (RoE) at a rate of 15.5% in accordance with the Tariff Regulations, 2021. Further, it is submitted that the actual tax paid would be claimed separately during True-up of respective years.

Table 188: Projected Return on Equity capital for FY 2023-24

Rs. Cr

Station	Particulars	FY 2023-24	
		Approved	Revised Projection
LRPP	Opening Equity	15.74	80.63
	Closing Equity	15.74	80.63
	Rate of Return	15.50%	15.50%
	Return on Equity	2.44	12.50
	Return on Equity at effective capacity		

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

36.3. Interest on Loan Capital

36.3.1. As per Regulation 35 of the Tariff Regulations, 2021, the Commission will consider interest on Loan capital on normative basis with repayment equal to depreciation allowed for that year and rate of interest will be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year.



36.3.2. In view of the above, the Petitioner has projected the Interest on long term Loan on normative basis for FY 2023-24. The Petitioner has considered normative loan portfolio and the repayment shown is considered equal to the depreciation for FY 2023-24. The interest rate has been considered as the weighted average rate of interest for FY 2023-24.

36.3.3. The finance charges are shown separately for FY 2023-24. The table below summarizes the interest on loan and finance charges considered for FY 2023-24.

Table 189: Projected Interest and Finance charges for FY 2023-24

Rs. Cr

Station	Particulars	FY 2023-24 Approved	FY 2023-24 Revised Projection
LRPP	Net Normative Opening Loan	22.38	2.46
	Addition of normative loan during the year	0.55	8.20
	Normative Repayment during the year	2.72	13.78
	Net Normative Closing Loan	20.21	0.00
	Avg. Normative Loan	21.30	1.23
	Interest Rate	10.85%	11.64%
	Interest on Loan Capital	2.31	0.14
	Add: Bank Charges	0.00	0.00
	Net Interest on Loan Capital		
	Net Interest on Loan Capital at effective capacity	2.31	0.14

36.3.4. APGCL prays to the Hon'ble Commission to kindly approve the projected total interest and finance charges as shown above.

36.4. Depreciation

36.4.1. The Hon'ble Commission in its Tariff Regulations, 2021 has considered following principals for determination of depreciation.

"33 Depreciation

33.1 The value base for the purpose of depreciation shall be the Capital Cost of the asset admitted by the Commission.

Provided that depreciation shall not be allowed on assets funded through Consumer contribution and Capital Subsidies/Grants.

33.2 The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset.

....."



36.4.2. In view of the above, the Petitioner has computed the Depreciation considering the Capital Cost of the asset admitted by the Commission and projected asset addition with 10% salvage value. Also, depreciation on grants has been subtracted. The table below summarizes the Depreciation projected for FY 2023-24.

Table 190: Projected Depreciation of LRPP for FY 2023-24

Rs. Cr

Particulars	FY 2023-24
	Revised Projection
Opening GFA	267.67
Addition during the year	8.20
Closing GFA	275.87
Average GFA	271.77
Rate of Depreciation	5.07%
Total Depreciation	13.78
Grant	0.00
Additions during the year	0.00
Closing grant	0.00
Average grant	0.00
Rate of Depreciation	5.07%
Depreciation on grants	0.00
Net Depreciation	13.78

Table 191 : Summary of projected Depreciation for FY 2023-24

Rs. Cr

Station	Particulars	FY 2023-24	FY 2023-24
		Approved	Revised Projection
LRPP	Depreciation	13.74	13.78
	Less: Depreciation on assets funded by Grants	11.02	0.00
	Net Depreciation	2.72	13.78
	Net Depreciation at effective capacity		

36.4.3. APGCL pray to the Hon'ble Commission to kindly approve the projected Depreciation for FY 2023-24 as shown above.

36.5. Interest on Working Capital

36.5.1. As per Regulation 37 of the Tariff Regulations, 2021, the interest on working capital will be considered on normative basis.



36.5.2. As per the above regulations, the Petitioner has projected normative interest on working capital. However, as APGCL does not have liquid fuel stock facility, it has not considered working capital on storage of liquid fuel. The rate of interest has been considered equal to the normative interest rate of three hundred (300) basis points above the average State Bank of India MCLR (One Year Tenor) prevalent during the last available six months, which $7\% + 3.58\% = 10.58\%$.

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

Table 192 : Summary of Interest on working capital projected for FY 2023-24

Station	Particulars	FY 2023-24	
		Approved	Revised Projection
LRPP	Fuel Cost for one month	7.91	29.09
	O&M Expenses for one month	2.66	2.66
	Maintenance Spares-30% of O&M	9.56	9.56
	Receivables for two months	24.69	71.46
	Total Working Capital Requirement	44.81	112.76
	Rate of interest	10.00%	10.58%
	Interest on Working capital		
	Interest on Working capital at effective capacity	4.48	11.92

Rs. Cr

36.5.4. APGCL prays to the Hon'ble Commission to kindly approve the interest on Working capital for FY 2023-24 as shown above.

36.6. Operation and Maintenance Expenses

36.6.1. The operation and maintenance expense are to be projected as per Regulation 51.1 of the Tariff Regulations, 2021.

36.6.2. APGCL humbly submits that it has claimed the O&M cost for FY 2023-24 as per the revised MYT projection for O&M cost submitted in the APR petition for FY 2022-23.

Table 193: Revised O&M cost for FY 2023-24 for LRPP

Station	Approved Normative O&M Cost	Approved O&M Cost at effective capacity	Revised Normative O&M Cost	Claim at Effective Capacity
LRPP	31.86	31.86	31.86	31.86

Rs. Cr

36.6.3. APGCL prays to the Hon'ble Commission to kindly approve the O&M expenses for FY 2023-24 as shown above on effective capacity.



36.7. Impact of AERC (Payment of Fees etc.) Regulation, 2020

36.7.1. The Hon'ble Commission has notified the new AERC (Payment of Fees etc.) Regulations, 2020 which has led to a substantial increase in the Filing Fees of APGCL payable to AERC.

36.7.2. The tentative impact of the increase in the filing fees has been shown below:

Table 194: Impact of increase in AERC Fees projected for FY 2023-24

Rs. Cr

Station	FY 2023-24	FY 2023-24
	Approved	Revised Projection
LRPP	0.10	0.10

36.8. Non-Tariff income

36.8.1. As per Regulation 46 of the Tariff Regulations, 2021, the non-tariff income shall be deducted from the Annual Fixed Cost in determining the Annual Fixed Cost of the Generation Company.

36.8.2. The non-tariff income for FY 2023-24 has been projected same as approved by Hon'ble Commission in its order dated 21st March 2022. The same is as shown in the table below:

Table 195: Station-wise non-tariff income projected for FY 2023-24

Rs. Cr

Station	FY 2023-24	FY 2023-24
	Approved	Revised Projection
LRPP	0	0

36.8.3. APGCL prays to the Hon'ble Commission to kindly approve the non-tariff income for FY 2023-24 as shown above.

37. Energy Charges

37.1. Fuel Price and Calorific Value

37.1.1. As per Regulation 10 of the Tariff Regulations 2021, 'Fuel Price' and 'Calorific Value of Fuel' are uncontrollable items. The projected values of 'Fuel Price' and 'Calorific Value of Fuel' are shown in the table below.

Table 196 : Projected GCV and Price for FY 2023-24

Station	Wt. Avg. Gross Calorific Value of Gas (kcal/SCM)	Wt. Avg. Price of Gas (Rs./1000 SCM)
LRPP	9235.46	28869.07

37.1.2. The Petitioner prays to the Hon'ble Commission to kindly approve the projected Price of Gas and GCV for LRPP for FY 2023-24 as shown in the table above.



37.2. Fuel cost

37.2.1. The Hon'ble Commission, in the Tariff Order dated 21st March 2022 had approved the Fuel Cost for FY 2023-24. The table below shows the revised projected fuel cost for FY 2023-24.

Table 197 : Fuel cost of LRPP for FY 2023-24

Particulars	Derivation	Unit	FY 2023-24	FY 2023-24
			Approved	Revised Projection
Gross Generation	A	MU	519.4	519.40
Heat Rate	B	kcal/kWh	2150	2150.00
GCV of gas	C	kcal/SCM	9337.66	9235.46
Overall Heat	D=A x B	G. cal.	11,16,700.82	1116700.82
Gas consumption	E=D/C	M. SCM	119.59	120.91
Price of Gas	F	Rs./1000 SCM	7932.73	28869.07
Total cost of Gas	G=E x F/10000	Rs. Crore	94.87	349.07

37.2.2. The Petitioner prays to the Hon'ble Commission to kindly approve the projected Fuel cost Price for LRPP for FY 2023-24 as shown in the table above.

37.3. Incentives

37.3.1. APGCL submits that the Incentives for FY 2023-24 will be claimed in True-up as per Regulations.

38. Other expenses

38.1. Capacity building

38.1.1. The Hon'ble Commission had not approved any amount for the Capacity Building expenditure for FY2023-24 for LRPP in its order dated 21st March 2022.

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

Table 198: Expenses under capacity building

Plant Name	FY 2023-24	FY 2023-24
	Approved	Revised Projection
LRPP	0.0	0.0

Rs. Cr

38.2. Special R&M

38.2.1. APGCL's plans to undertake Special R&M for the following units, cost of which will be claimed as shown below.

Table 199: Expenses under Special R&M



Rs. Cr

Plant Name	FY 2023-24	
	Approved	Revised Projection
LRPP	937	937

Sl. No.	Work Name	Approved (Rs. Crore)	Claim for FY 2023-24 (Rs. Crore)	Remarks
1	48,000 Running Hours Turbocharger Maintenance	777	777	Same as approved in Tariff Order dated 21 st March 2022
2	Procurement of Special measuring instruments for Electrical Maintenance Works	160	160	

39. Summary of submissions for Revised ARR of FY 2023-24

39.1. Summary

39.1.1. The Summary of the revised ARR for FY 2023-24 for LRPP is shown below.

Table 200: Revised ARR of LRPP for FY 2023-24

Rs. Cr

Sl. No	Particulars	FY 2023-24	
		Approved	Revised Projection
I	POWER GENERATION (MU)		
	Gross Generation	519.40	519.40
	Net Generation	501.22	501.22
	Auxiliary Consumption Loss %	3.50%	3.50%
I	Fixed Charges		
	Operation & Maintenance Expenditure	31.86	31.86
	Increase in AERC Tariff Filing Fees	0.10	0.10
	Interest & Finance Charges	2.31	0.14
	Interest on working Capital	4.48	11.92
	Depreciation	2.72	13.78
	Return on Equity	2.44	12.50
	Income Taxes	0	0
	Special R&M	9.37	9.37
	Capacity Building	0	0
	<u>Less: Other Income</u>	0	0
II	Total Fixed Charges	53.28	79.67
III	Fuel Cost	94.87	349.07
IV	Total Revenue Requirement	148.15	428.74



39.2. Net Annual Revenue Requirement

39.2.1. The Net Annual Revenue Requirements for FY 2023-24 are as shown in the tables below.

Table 201 : Net Annual Revenue Requirements for LRPP for FY 2023-24

Particulars	FY 2023-24	
	Approved	Revised Projection
Total Fixed Charges (Rs. Crore)	53.28	79.67
Fuel Cost (Rs. Crore)	94.87	349.07
Total Revenue Requirement (Rs. Crore)	148.15	428.74
Total Per unit cost (Rs/ KWh)	2.96	8.55

Rs. Cr

39.3. Tariff for LRPP for FY 2023-24

39.3.1. The tariff proposed for LRPP for FY 2023-24 is as shown below

Table 202 : Tariff proposed for LRPP for FY 2023-24

Particulars	LRPP
Annual fixed charges (Rs crore)	79.67
Monthly fixed charges (Rs crore)	6.64
Energy charge rate (Rs. / kWh)	6.96

39.3.2. The Petitioner prays to the Hon'ble Commission to approve the Net Annual Revenue Requirement for FY 2023-24 as discussed in the tables above.



**APPEAL FOR AGGREGATE REVENUE REQUIREMENT
FOR FY 2023-24 for NRPP
&
DETERMINATION OF TARIFF FOR FY 2023-24
To
ASSAM ELECTRICITY REGULATORY COMMISSION**



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



AFFIDAVIT – NRPP

BEFORE THE ASSAM STATE ELECTRICITY REGULATORY
COMMISSION, GUWAHATI.

Petition No. –
Case No.
(to be filed by the Office)

IN THE MATTER OF

Filing of Petition for Revised Aggregate Revenue Requirement for the FY 2023-24.

AND

Petition for Determination of Tariff for the FY 2023-24.

AND

IN THE MATTER OF

Namrud Replacement Power Plant,
Assam Power Generation Corporation Limited,
Namrud, Dibrugarh-786622

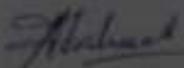
Petitioner

I, Sri Akshay Talukdar, Son of Late Debendra Nath Talukdar, age 51 years, residing at Santipur Hillside, PNGB Road, Guwahati - 781009, do solemnly affirm and say as follows:

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

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

Solemnly affirm at Guwahati on 24th November 2022 that the contents of this affidavit are true to my knowledge, no part of it is false or no material has been concealed therefore and misleading material included therein.

Deponent

(Akshay Talukdar)
General Manager (HQ) i/c,
Assam Power Generation Corporation Ltd.

Place: Guwahati

Date: 24th November 2022



PRAYER – NRPP

BEFORE THE HON'BLE ASSAM ELECTRICITY REGULATORY COMMISSION

FILING NO

CASE NO

IN THE MATTER OF:

Petition for Submission of Revised Aggregate Revenue Requirement for the FY 2023-24 and Determination of Tariff for the FY 2023-24

AND IN THE MATTER OF:

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

THE HUMBLE APPLICANT ABOVE NAMED MOST RESPECTFULLY SHEWETH:

1. That APGCL is a successor corporate entity of former ASEB, formed in pursuant to the notification of the Government of Assam, notified under sub-sections (1), (2), (5), (6) and (7) of Section 131 and Section 133 of the Electricity Act 2003(Central Act 36 of 2003), for the purpose of transfer and vesting of functions, properties, interests, rights, obligations and liabilities, along with the transfer of Personnel of the Board to the successor corporate entities.
2. That APGCL is a company incorporated with the main objective of generation of electricity in the state of Assam.
3. That NRPP, commissioned on 16-07-2021, is an operating gas turbine based thermal power station under the APGCL in the district of Dibrugarh, Assam.
5. That Hon'ble Commission notified the AERC (Terms and Conditions for determination of Multi Year Tariff) Regulations, 2021 on 18th September, 2021.
6. That as per the Hon'ble Commission's this new MYT Regulations of 2021 APGCL is filing for approval of the Revised Aggregate Revenue Requirement and Determination of Tariff for NRPP for FY 2023-24.

Place: Guwahati

Date: 24th November, 2022

For and on behalf of
Assam Power Generating Corporation Limited



(Akshay Talukdar)
General Manager (HQ) i/c,
Assam Power Generation Corporation Ltd.

40. Revised ARR of NRPP for FY 2023-24

40.1. Regulatory provisions for Revised ARR

40.1.1. The Hon'ble Commission in its Tariff regulations, 2021 has stated the following on Revised ARR for the control period from FY 2022-23 to FY 2024-25. The same is reproduced below for ready reference:

"4 Multi-Year Tariff Framework

4.1 The Commission shall determine the tariff for matters covered under Regulation 3.3 above under a Multi-Year Tariff framework with effect from 1st April 2022.

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:

- (xxi) 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.*
- (xxii) A detailed Capital Investment Plan for each year of the Control Period, shall be submitted by the applicant for the Commission's approval.*
- (xxiii) The applicant shall submit operating norms and trajectories of performance parameters for each year of the Control Period, for the Commission's approval.*
- (xxiv) 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.*
- (xxv) In its tariff petition, a generating company shall submit information to support the determination of tariff for each generating station"*

5 Control Period and Baseline

5.1 The first Control Period under these Regulations shall be of three financial years from April 1st, 2022 to March 31st, 2025 and for every block of three years thereafter or such other period as may be decided by the Commission.

Provided that in case any generating station gets commissioned after notification of these Regulations but before commencement of the first Control Period, the Commission may determine the tariff based on the norms as specified for such generating station under these Regulations, under special case through separate Order.

5.2 The Commission shall determine baseline values for various financial and operational parameters of ARR for the Control Period taking into consideration the figures approved by the Commission in the past, actual average figures of last three years, audited accounts, estimate of the figures for the relevant year, Industry benchmarks/norms and other factors considered appropriate by the Commission. Provided that in case of substantial difference between the estimates earlier provided considered for determination of baseline values and the actual audited accounts, the Commission may re-determine the baseline values for the base year suo-moto or on an application filed by the Applicant.



41. Norms of operations

41.1. Regulatory provisions

41.1.1. The Hon'ble Commission had set norms of operations under Tariff Regulations 2021.

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

41.2. Installed and Effective Capacity in FY 2023-24

41.2.1. APGCL submits the following Installed and Effective Capacity for FY 2023-24.

Table 203: Installed & Effective Capacity of NRPP for FY 2023-24

Station	Installed Capacity (MW)	No. of Units	Units Available for Generation & Capacity in MW	Effective Capacity
NRPP	98.4	2	1(62.25), 2(36.15)	98.40

41.3. Snapshot of performance projection for FY 2023-24

41.3.1. The following table shows the projection of performance parameters of gas based Namrup replacement power station for FY 2023-24.

Table 204: Projected Operating Performance of NRPP for FY 2023-24

NRPP	FY 2023-24	FY 2023-24
	As per Regulation	Revised Projection
Gross Energy in MU	732.69	732.69
Aux. Power Cons. (%)	5.00%	5.00%
Net Energy in MU	696.06	696.05
Plant Availability Factor (%)	85.00%	85.00%
Plant Load Factor (%)	85.00%	85.00%
Gross Station Heat Rate on GCV (kcal / kWh)	1988	1988

41.4. Normative Annual Plant Availability Factor (NAPAF)

41.4.1. The Hon'ble Commission had approved 85% for NAPAF for NRPP for FY 2023-24 in its order dated 21st March 2022. The approved and projected numbers are shown in the table below.

Table 205: Projected Availability of NRPP for FY 2023-24

NRPP	FY 2023-24	FY 2023-24
	Approved	Revised Projection
Plant Availability Factor (%)	85%	85%



41.5. Normative Annual Plant Load Factor (NAPLF)

41.5.1. As per regulation 48.2(b) of AERC Tariff Regulation, 2021 the normative plant load factor for incentive of Gas based generating station is 85%. The approved and projected numbers are shown in the table below.

Table 206: Projected PLF for FY 2023-24 of NRPP

NRPP	FY 2023-24	
	As per Regulation	Revised Projection
Plant Load Factor (%)	85%	85%

41.6. Gross Station Heat Rate (SHR)

41.6.1. SHR for NRPP: Since, NRPP was commissioned on 16th July 2021. Hence, as per Regulation 47.4 (ii) (b) of Tariff Regulation 2018, the GSHR of new plants commissioned on or after 1st April 2019 for Gas-based plant

= "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....**

- ✓ The Guaranteed Heat Rate of NRPP at 98.4 MW combined cycle operation by OEM at NCV is 1705.8 kCal/kWh.
- ✓ The Guaranteed Heat Rate of NRPP at 98.4 MW combined cycle operation by OEM at GCV is (1705.8X1.11 KCal/kWh) = 1893.4 kCal/kWh
- ✓ As such combined cycle GSHR of NRPP as per Regulation= 1893.4X1.05 kCal/kWh=1988 kCal/kWh

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

Table 207: Projected SHR of NRPP for FY 2023-24

NRPP	FY 2023-24	
	As per Regulation	Revised Projection
Gross Station Heat Rate on GCV (kcal/ kWh)	1988	1988

41.7. Auxiliary Energy Consumption

41.7.1. The Hon'ble Commission had approved 5.00% for auxiliary consumption for NRPP for FY 2023-24 in its order dated 21st March 2022. The approved and projected numbers are shown in the table below.

Table 208: Projected Auxiliary energy consumption of NRPP for FY 2023-24

NRPP	FY 2023-24	
	Approved	Revised Projection
Auxiliary Power Consumption (%)	5.00%	5.00%



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

42. Fixed Cost of the Plant

42.1. Annual fixed cost for FY 2023-24

42.1.1. As per regulation 43.1 of the AERC Tariff regulations, 2021 the following components have been considered for projecting of fixed cost under the Multi Year Tariff framework for the power plants:

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

42.1.2. For the computation of the fixed components, the Petitioner has considered the principles provided in the Tariff Regulations, 2021. These components have been discussed in detail in the following sections of the petition.

42.2. Return on Equity (ROE)

42.2.1. The Hon'ble Commission in its regulation has considered the pre-tax return on equity at 15.5% on equity capital. The Regulation 34 of the Tariff Regulations, 2021 is reproduced below for reference.

"34 Return on Equity Capital

34.1 Return on equity capital shall be computed on the equity capital determined in accordance with Regulation 32

.....

42.2.2. APGCL has projected the Return on Equity (RoE) at a rate of 15.5% in accordance with the Tariff Regulations, 2021. Further, it is submitted that the actual tax paid would be claimed separately during True-up of respective years.

Table 209: Projected Return on Equity capital for FY 2023-24

Rs. Cr

Station	Particulars	2023-24	2023-24
		Approved	Revised Projection
NRPP	Opening Equity	218.69	223.84
	Closing Equity	218.69	223.84
	Rate of Return	15.50%	15.50%
	Return on Equity	33.90	34.70
	Return on Equity at effective capacity		



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

42.3. Interest on Loan Capital

42.3.1. As per Regulation 35 of the Tariff Regulations, 2021, the Commission will consider interest on Loan capital on normative basis with repayment equal to depreciation allowed for that year and rate of interest will be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year.

42.3.2. In view of the above, the Petitioner has projected the Interest on long term Loan on normative basis for FY 2023-24. The Petitioner has considered normative loan portfolio and the repayment shown is considered equal to the depreciation for FY 2023-24. The interest rate has been considered as the weighted average rate of interest for FY 2023-24.

42.3.3. The finance charges are shown separately for FY 2023-24. The table below summarizes the interest on loan and finance charges considered for FY 2023-24.

Table 210 : Projected Interest and Finance charges for FY 2023-24

Rs. Cr

Station	Particulars	FY 2023-24	FY 2023-24
		Approved	Revised Projection
NRPP	Net Normative Opening Loan	439.79	450.48
	Addition of normative loan during the year	0.00	23.65
	Normative Repayment during the year	36.27	42.70
	Net Normative Closing Loan	403.52	431.43
	Avg. Normative Loan	421.66	440.96
	Interest Rate	10.85%	11.64%
	Interest on Loan Capital	45.74	51.32
	Add: Bank Charges	0.00	0.00
	Net Interest on Loan Capital		
	Net Interest on Loan Capital at effective capacity	45.74	51.32

42.3.4. APGCL prays to the Hon'ble Commission to kindly approve the projected total interest and finance charges as shown above.

42.4. Depreciation

42.4.1. The Hon'ble Commission in its Tariff Regulations, 2021 has considered following principals for determination of depreciation.

"33 Depreciation

33.1 The value base for the purpose of depreciation shall be the Capital Cost of the asset admitted by the Commission.



Provided that depreciation shall not be allowed on assets funded through Consumer contribution and Capital Subsidies/Grants.

33.2 The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset.

.....”

42.4.2. In view of the above, the Petitioner has computed the Depreciation considering the Capital Cost of the asset admitted by the Commission and projected asset addition with 10% salvage value. Also, depreciation on grants has been subtracted. The table below summarizes the Depreciation projected for FY 2023-24.

Table 211 : Projected Depreciation of NRPP for FY 2023-24

Rs. Cr

Particulars	FY 2023-24
	Revised Projection
Opening GFA	901.97
Addition during the year	23.65
Closing GFA	925.62
Average GFA	913.80
Rate of Depreciation	4.67%
Total Depreciation	42.70
Grant	0.00
Additions during the year	0.00
Closing grant	0.00
Average grant	0.00
Rate of Depreciation	4.67%
Depreciation on grants	0.00
Net Depreciation	42.70

Table 212 : Summary of projected Depreciation for FY 2023-24

Rs. Cr

Station	Particulars	FY 2023-24	
		Approved	Revised Projection
NRPP	Depreciation	36.27	42.70
	Less: Depreciation on assets funded by Grants	0	0.00
	Net Depreciation	36.27	42.70
	Net Depreciation at effective capacity		

42.4.3. APGCL pray to the Hon'ble Commission to kindly approve the projected Depreciation for FY 2023-24 as shown above.



42.5. Interest on Working Capital

42.5.1. As per Regulation 37 of the Tariff Regulations, 2021, the interest on working capital will be considered on normative basis.

42.5.2. As per the above regulations, the Petitioner has projected normative interest on working capital. However, as APGCL does not have liquid fuel stock facility, it has not considered working capital on storage of liquid fuel. The rate of interest has been considered equal to the normative interest rate of three hundred (300) basis points above the average State Bank of India MCLR (One Year Tenor) prevalent during the last available six months, which $7\% + 3.58\% = 10.58\%$.

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

Table 213 : Summary of Interest on working capital projected for FY 2023-24

Rs. Cr

Station	Particulars	FY 2023-24	
		Approved	Revised Projection
NRPP	Fuel Cost for one month	7.27	22.86
	O&M Expenses for one month	2.01	3.93
	Maintenance Spares-30% of O&M	7.23	14.14
	Receivables for two months	38.80	89.67
	Total Working Capital Requirement	55.30	130.61
	Rate of interest	10.00%	10.58%
	interest on Working capital		
	interest on Working capital at effective capacity	5.54	13.81

42.5.4. APGCL prays to the Hon'ble Commission to kindly approve the interest on Working capital for FY 2023-24 as shown above.

42.6. Operation and Maintenance Expenses

42.6.1. The operation and maintenance expense are to be projected as per Regulation 51.1 of the Tariff Regulations, 2021.

42.6.2. APGCL humbly submits that it has claimed the O&M cost for FY 2023-24 as per the revised MYT projection for O&M cost submitted in the APR petition for FY 2022-23.

Table 214: Revised O&M cost of NRPP for FY 2023-24

Rs. Cr

Station	Approved Normative O&M Cost	Approved O&M Cost at effective capacity	Revised Normative O&M Cost	Claim at Effective Capacity
NRPP	24.10	24.10	47.15	47.15

42.6.3. APGCL prays to the Hon'ble Commission to kindly approve the O&M expenses for FY 2023-24 as shown above on effective capacity.



42.7. Impact of AERC (Payment of Fees etc.) Regulation, 2020

42.7.1. The Hon'ble Commission has notified the new AERC (Payment of Fees etc.) Regulations, 2020 which has led to a substantial increase in the Filing Fees of APGCL payable to AERC.

42.7.2. The tentative impact of the increase in the filing fees has been shown below:

Table 215: Impact of increase in AERC Fees projected for FY 2023-24

Station	FY 2023-24	FY 2024-25
	Approved	Revised Projection
NRPP	0.00	0.00

Rs. Cr

42.8. Non-Tariff income

42.8.1. As per Regulation 46 of the Tariff Regulations, 2021, the non-tariff income shall be deducted from the Annual Fixed Cost in determining the Annual Fixed Cost of the Generation Company.

42.8.2. The non-tariff income for FY 2023-24 has been projected same as approved by Hon'ble Commission in its order dated 21st March 2022. The same is as shown in the table below:

Table 216 : Station-wise non-tariff income projected for FY 2023-24

Station	FY 2023-24	FY 2023-24
	Approved	Revised Projection
NRPP	0	0

Rs. Cr

42.8.3. APGCL prays to the Hon'ble Commission to kindly approve the non-tariff income for FY 2023-24 as shown above.

43. Energy Charges

43.1. Fuel Price and Calorific Value

43.1.1. As per Regulation 10 of the Tariff Regulations 2021, 'Fuel Price' and 'Calorific Value of Fuel' are uncontrollable items. The projected values of 'Fuel Price' and 'Calorific Value of Fuel' are shown in the table below.

Table 217 : Projected GCV and Price for FY 2023-24

Station	Wt. Avg. Gross Calorific Value of Gas (kcal/SCM)	Wt. Avg. Price of Gas (Rs./1000 SCM)
NRPP	9251.93	17427.59

43.1.2. The Petitioner prays to the Hon'ble Commission to kindly approve the projected Price of Gas and GCV for LRPP for FY 2023-24 as shown in the table above.



43.2. Fuel cost

43.2.1. The Hon'ble Commission, in the Tariff Order dated 21st March 2022 had approved the Fuel Cost for FY 2023-24. The table below shows the revised projected fuel cost for FY 2023-24.

Table 218 : Fuel cost of NRPP for FY 2023-24

Particulars	Derivation	Unit	FY 2023-24	
			Approved	Revised Projection
Gross Generation	A	MU	732.69	732.69
Heat Rate	B	kcal/kWh	1,951.05	1988.00
GCV of gas	C	kcal/SCM	9,204.80	9251.93
Overall Heat	D=AxB	G. cal.	14,29,505.60	1456580.56
Gas consumption	E=D/C	M. SCM	155.3	157.44
Price of Gas	F	Rs./1000 SCM	5,617.39	17427.59
Total cost of Gas	G=ExF/10000	Rs. Crore	87.24	274.37

43.2.2. The Petitioner prays to the Hon'ble Commission to kindly approve the projected Fuel cost Price of NRPP for FY 2023-24 as shown in the table above.

43.3. Incentives

43.3.1. APGCL submits that the Incentives for FY 2023-24 will be claimed in True-up as per Regulations.

44. Other expenses

44.1. Capacity building

44.1.1. The Hon'ble Commission had not approved any amount for the Capacity Building expenditure for FY2023-24 for NRPP in its order dated 21st March 2022.

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

Table 219: Expenses under capacity building

Plant Name	FY 2023-24	
	Approved	Revised Projection
NRPP	0.0	0.0

Rs. Cr

44.2. Special R&M

44.2.1. APGCL's plans to undertake Special R&M for the following units, cost of which will be claimed as shown below.



Table 220: Expenses under Special R&M

Rs. Cr

Plant Name	FY 2023-24	FY 2023-24
	Approved	Revised Claim
NRPP	0	74

Sl. No.	Work Name	Approved (Rs. Crore)	Claim for FY 2023-24 (Rs. Crore)
1	HGPI for GT Unit of NRPP	0	74

Remarks/Justification

The Combustion Inspection (CI) is planned to be carried out in the month of Jan'23 and the Hot Gas Path Inspection (HGPI) is scheduled to be carried out tentatively in the month of July'24 which will be in the FY 2024-25. It has been proposed to use Advanced Gas Path (AGP) components for the HGPI as the bidding process for NRPP was done in the year 2007 and the present Frame 6FA technology of the gas turbine installed at NRPP is already an old technology of the decade 2000. To upgrade the present equipment's of the GT unit of NRPP APGCL wishes to do the regular special repair & maintenance work of HGPI at 24000 Running Hours with the upto date technology so that it doesn't face the problem of obsolescence. Further, the HGPI with AGP components will eliminate the CI at every 12000 Running Hours as such decreasing maintenance cost.

The HGPI work of the GT Unit of NRPP is a very important work for the health of the Turbine and it is mandatory as per the OEM Guidelines. Delaying the work may result in the deterioration of the overall performance of the GT Unit. As NRPP is a newly commissioned plant, timely completion of the maintenance works of its units are essential for seamless operation for the rest of the useful life of the project so that NRPP is able to generate reliable power in service to the people of Assam.

The first HGPI with AGP components after 24000 Running Hours of the GT unit of NRPP will cost around Rs. 148 Crore as per offer of Rs. 119.78 Crore excluding GST and Freight Charge collected by APGCL from the OEM BGGTS (BHEL-GE Gas Turbine Services Pvt. Ltd.) for the spares and service. The offer letter attached has been attached in **Annexure 20**. The subsequent HGPI after every 24000 Running Hours will cost less due to the use of refurbished components.

The total financial involvement is Rs. 148 Crores including freight and GST Charge which has been split equally in two parts i.e., FY 2023-24 and FY 2024-25 to avoid excessive loading on the consumer. The procurement will be started in the FY 2023-24 and will be complete in FY 2024-25 and the execution will be done in FY 2024-25.



45. Summary of submissions for Revised ARR of FY 2023-24

45.1. Summary

45.1.1. The Summary of the Revised ARR for FY 2023-24 for NRPP is shown below.

Table 221: Revised ARR of NRPP for FY 2023-24

Rs. Cr

Sl. No	Particulars	FY 2023-24	FY 2023-24
		Approved	Revised Projection
I	POWER GENERATION (MU)		
	Gross Generation	732.69	732.69
	Net Generation	696.06	696.05
	Auxiliary Consumption Loss %	5.0%	5.0%
I	Fixed Charges		
	Operation & Maintenance Expenditure	24.10	47.15
	Increase in AERC Tariff Filing Fees	0	0
	Interest & Finance Charges	45.74	51.32
	Interest on working Capital	5.54	13.81
	Depreciation	36.27	42.70
	Return on Equity	33.90	34.70
	Income Taxes	0	0
	Special R&M	0	74
	Capacity Building	0	0
	<u>Less: Other Income</u>	0	0
II	Total Fixed Charges	145.54	263.67
III	Fuel Cost	87.24	274.37
IV	Total Revenue Requirement	232.78	538.05

45.2. Net Annual Revenue Requirement

45.2.1. The Net Annual Revenue Requirements for FY 2023-24 are as shown in the tables below.

Table 222 : Net Annual Revenue Requirements of NRPP for FY 2023-24

Rs. Cr

Particulars	FY 2023-24	FY 2023-24
	Approved	Revised Projection
Total Fixed Charges (Rs. Crore)	145.54	263.67
Fuel Cost (Rs. Crore)	87.24	274.37
Total Revenue Requirement (Rs. Crore)	232.78	538.05
Total Per unit cost (Rs/ KWh)	3.34	7.73



45.3. Tariff of NRPP for FY 2023-24

45.3.1. The tariff proposed for NRPP for FY 2023-24 is as shown below

Table 223: Tariff proposed of NRPP for FY 2023-24

Particulars	NRPP
Annual fixed charges (Rs crore)	263.67
Monthly fixed charges (Rs crore)	21.97
Energy charge rate (Rs. / kWh)	3.94

45.3.2. The Petitioner prays to the Hon'ble Commission to approve the Net Annual Revenue Requirement for FY 2023-24 as discussed in the table.



46. Directives

46.1. Compliance of Directives issued in the Tariff Order for FY 2022-23

46.1.1. We submit that the update on the compliance directives issued in the Tariff order for FY 2022-23 for Quarter 1 has already been submitted to the Hon'ble Commission.

Compliance of Directives issued in the Tariff Order for FY 2022-23		
Sl. No:	AERC's Directive	Status as on 30 th September, 2022
1	<p>Directive 1: Completion of Projects</p> <p>The Commission directs APGCL to complete the new and ongoing projects on time.</p> <p>The Commission also directs APGCL to set up their ongoing Solar Plants on Time.</p>	Noted. The status of ongoing projects is enclosed in Annexure- 22. (A)
2	<p>Directive 2: Procurement of Gas</p> <p>APGCL should continue to pursue with its gas suppliers/ transporter to obtain the contracted quantum of gas on a regular basis. The issue of gas should be pursued with the concerned ministry of GOI in consultation with the state Government.</p>	Noted. Action on the matter will be taken shortly by APGCL.
3	<p>Directive 3: Fixed Asset Register</p> <p>The Commission directs APGCL that Fixed Asset Register should be updated every year, and these should be duly certified by Chartered Accountant. APGCL is directed to maintain Fixed Asset Register at their end and submit to the Commission as and when asked during tariff proceedings.</p>	APGCL updates its FAR regularly and is ready to submit to the Hon'ble Commission whenever asked for.
4	<p>Directive 4: Energy Audit of LTPS and NTPS</p> <p>The Commission directs APGCL to conduct an energy Audit of LTPS and NTPS with the help of NIT Silchar.</p>	Noted. Details were submitted along with 1 st Quarter report on the directives of the Hon'ble Commission submitted vide No. APGCL/CGM(G)/AERC/2020/ 115/Pt -XII/17 Dated 15/07/2022



Compliance of Directives issued in the Tariff Order for FY 2022-23		
5	<p>Directive 5: Overhauling of Units</p> <p>Commission observes that the Overhauling of units are never completed on time as proposed by APGCL. The Commission directs APGCL to complete the overhauling of units as per scheduled otherwise the Commission may not allow the expenditure in future.</p>	<p>Noted. APGCL is putting all-out effort to complete the Special R&M works approved in the Tariff Order for the FY 2022-23 within stipulated time period. The updated status of the same is enclosed at Annexure- 22. (B)</p>
6	<p>Directives 6: Solar Storage/ Pump Storage</p> <p>The Commission directs APGCL to initiate action for installation of solar/pump storage facilities to suit the demand.</p>	<p>Noted. APGCL is planning a feasibility study for a pump storage power project at CTPS site.</p>