National Electric Power Regulatory Authority
Islamic Republic of Pakistan

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No. NEPRA/R/Dir(Trf)/TRF-542/NPGCL-2020/47539-47541
December 30, 2020

Subject: **Determination of the Authority in the matter of Tariff Petition filed by Northern Power Generation Company Ld. (NPGCL) for its Old Blocks of Muzaffar Garh Units 1-6 and GTPS Faisalabad Units 5-9** (Case No. NEPRA/TRF-542/NPGCL-2020)

Dear Sir,

Please find enclosed herewith subject Determination of the Authority (35 Pages) in Case No. NEPRA/TRF-542/NPGCL-2020.

2. The Determination is being intimated to the Federal Government for the purpose of notification in the official Gazette pursuant to Section 31 (7) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997.

Enclosure: As above

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(Syed Safeer Hussain)

Secretary
Ministry of Energy (Power Division)
'A' Block, Pak Secretariat
Islamabad

CC:
1. Secretary, Cabinet Division, Cabinet Secretariat, Islamabad.
2. Secretary, Ministry of Finance, 'Q' Block, Pak Secretariat, Islamabad.

National Electric Power Regulatory Authority
(NEPRA)

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Determination of the Authority

In The Matter of Tariff Petition filed by Northern Power Generation Company Limited for GENCO-III (OLD BLOCKS)
(CASE NO. NEPRA/TRF-542/NPGCL-2020)

December 30, 2020

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The Authority, in exercise of the powers conferred on it under Section 7(3) (a) read with Section 31 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, Tariff Standards and Procedure Rules, 1998 and all other powers enabling it in this behalf, and after taking into consideration all the submissions made by the parties, issues raised, evidence/record produced during hearings, and all other relevant material, hereby issues this determination.

AUTHORITY

(Saif Ullah Chattha)
Member 16.12.2020

(Rehmatullah Baloch)
Member

(Engr. Rafique Ahmed Shaikh)
Member

(Engr. Bahadur Shah)
Member

(Tauseef H. Farooqi)
Chairman

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1. INTRODUCTION

1.1. Northern Power Generation Company Limited (hereinafter referred to as "NPGCL" or the "Petitioner") was incorporated on October 15, 1998, under the Companies Ordinance 1984. NPGCL commenced its commercial operation on March 01, 1999. It was originally organized to take over all the properties, rights, assets, obligation and liabilities of Power Stations of Thermal Power Station Muzaffargarh, Natural Gas Power Station Multan, Gas Turbine Power Station Faisalabad and Steam Power Station Faisalabad.

1.2. National Electric Power Regulatory Authority (NEPRA) granted NPGCL a Generation License bearing No. GL/03/2002 on July 01, 2002 initially for a term of 25 years. Through Modification No. 1 dated April 18, 2014, three Units No. 1,3&4, each of 65MW, were delicensed and were excluded from the Generation License of NPGCL. Through modification No. II dated October 31, 2014 Combined Cycle Power Plant, Nandipur was included in the generation license and the term of the generation license was re-fixed up to the year 2044. Through modification No. III dated 2nd May 2018, Units 1-4 of GTPS Faisalabad and Units 1-2 of SPS Faisalabad were delicensed and the useful life of the Unit No. 5-9 of GTPS Faisalabad, operating in combined cycle mode, was extended till June 30, 2022.

1.3. The last tariff for NPGCL was determined on January 22, 2016 for a control period of three years w.e.f. 1st July 2014 replacing the earlier tariff determined on May 02 2006. The tariff so determined was further revised while deciding motion for leave for review dated October 19, 2016. The said determination was notified vide S.R.O No. 702(1)/2017 dated July 21, 2017.

2. FILING OF TARIFF PETITION

2.1. NPGCL vide its letter dated 25th November 2019 submitted revised tariff petition for determination of tariff for its old blocks of Muzaffar Garh Units 1-6 and GTPS Faisalabad Units 5-9. Under the grounds of the tariff revision petition, the Petitioner submitted that NPGCL under its existing tariff has been incurring significant losses owing to the fact that the tariff determined on a cost-plus basis does not fully reflect the actual costs that the company has borne over its operational years. Based upon audited financial statements, a summary of such losses has been tabulated below:

PKR Million

Financial Year	EPP Variance	CPP Variance	Net Effect
2014-15	(3,402)	(184)	(3,586)
2015-16	(3,334)	(4,458)	(7,792)
2016-17	(1,868)	(3,192)	(5,060)

2.2. According to the Petitioner following factors, explained more comprehensively within the tariff petition, have contributed to the financial losses;

i. The major component of tariff which contributed significant loss was salaries and pension benefits provided for employees of NPGCL. The reason behind this loss was difference in rates of annual increase which were allowed by NEPRA and actual

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increase of the said costs. The epitome of the fact is that NEPRA allowed the adjustment of salaries and pension benefits with CPI whereas actual salaries and pension benefits were increased by revision of pay and allowances made by the federal government in the annual budget and annual compulsory increment in Basic Salary as per the service rules. The actual increase in pay & allowance were higher than the increase registered in CPI on annual basis.

ii. Due to lower side FCC allowed by NEPRA in its previous tariff determination there was significant adverse impact on the revenue of all Blocks of Muzaffargarh and Faisalabad.

iii. As against transformation & switchyard losses of 1.84% at TPS Muzaffargarh, NEPRA has allowed adjustment up to 0.5% only in the previous tariff determination, this has caused financial loss in fuel cost component part of tariff.

iv. Some of the auxiliary were isolated while conducting Heat Rate test by the Independent Engineer conducted in December 2013 and did not include its impact in the net Heat Rates, reported in its report. NEPRA adopted the Heat Rates worked out by the Independent Engineer in its determination of 22.01.2016. NPGCL worked out the impact of isolation of oil decanting auxiliary and made request to NEPRA in Motion for Leave to Review, but NEPRA did not revise Fuel Cost Component (FCC) by making correction in Heat Rates, on the plea, that matter was not part of original petition. Since then NPGCL has sustained a substantial loss for less determined FCC revenue than the actual fuel cost incurred.

v. While conducting Heat Rate test, the Independent Engineer did not account for the impact of Ambient Temperature as the correcting curves of two units out of six units, provided by OEM, were not readily available as a documentary evidence at that time. Later on, Independent Engineer revised the Heat Rates of all units of TPS Muzaffargarh and NPGCL made request to NEPRA to revise the FCC accordingly. NEPRA however, did not revise FCC on the mere ground that NPGCL could not trace correction curves of Two (2) units and provide as evidence. NEPRA could have revised FCC for Four (4) units of which correction curves designed by OEM were provided by NPGCL. The NPGCL is suffering tangible loss since then in fuel cost.

vi. In the previous tariff determination, NEPRA has allowed VO&M in PKR only and has also allowed indexation with CPI on semi-annual basis. The major composition of VO&M is plant repair & maintenance expenses for which foreign material is purchased and services of expatriates are hired. The cost of foreign cost component in VO&M has been increased immensely through devaluation of PAK Rupees with relation to foreign currencies.

vii. In the previous tariff determination, NEPRA did not allow sustainability charges for operation and maintenance of switchyards of discontinued energy blocks of NGPS Piranghaib Multan, whereas NPGCL is still maintaining these switchyards being exclusively used by NTDC for operational needs of power dispersals in the local area.

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NPGCL is incurring O&M cost which is not covered in its power sale tariff and sustaining financial loss on this account.

2.3. According to the Petitioner, the present petition is being made on the grounds to above factors contributing financial loss to NPGCL. The said grounds have been explained in detail in related sections of the tariff petition.

2.4. Salient features of the tariff Petition are as under:

i. The petitioner proposed the following Capacity Purchase Price w.e.f. 01-07-2019:

Description	Requested Cost Rs. in Mlns	Requested Tariff (Rs/kW/h)
Escalable:		
Fixed O&M - Estab Expenses	4,819.00	0.4577
Fixed O&M - Admin Expenses	432.39	0.0411
Fixed Plant R&M Expenses- Local	994.40	0.0944
Fixed Plant R&M Expenses- Foreign	1,589.60	0.1510
Fuel stock carrying cost	1,199.00	0.1139
Insurance & Regulatory cost	67.06	0.0064
Total Escalable	**9,101.45**	**0.8644**
Non-Escalable:		
Regulatory revenue gap	4,394.16	0.4173
Depreciation Interest Cost Return on Equity/Investment	2,591.20	0.2461
Total Non-Escalable	**6,985.36**	**0.6634**
Total CPP	**16,086.81**	**1.5278**

ii. The petitioner proposed the following Fuel Cost and Variable O&M components:

Energy Blocks	Capacity in MW			Requested Heat Rate	Requested FCC Tariff (Rs/kWh)			Requested Variable O&M		
	Installed	Gross	Net	Net Adjusted (Btu/kWh)	RFO	RLNG	Gas	Local	Foreign	Total
M/Garh Block-I Unit-1	210	190.00	174.93	10,885.73	21.2958	18.9295	11.1407	0.1010	0.9086	1.0095
Unit-2	210	182.50	168.26	11,037.69	21.5930	19.1938	11.2962	0.1010	0.9086	1.0095
Unit-3	210	183.50	170.50	10,665.17	20.8643	18.5460	10.9150	0.1010	0.9086	1.0095
M/Garh Block-II Unit-4	320	272.20	245.96	10,585.88	20.7150	18.4133	10.8369	0.1010	0.9086	1.0095
M/Garh Block-III Unit-5	200	181.44	167.25	11,321.48	22.1482	19.6873	11.5867	0.1010	0.9086	1.0095
Unit-6	200	173.88	158.08	11,634.37	22.7603	20.2314	11.9069	0.1010	0.9086	1.0095
GTPS FSD Block-IV U 5-9	144	120.51	117.00	-	-	14.2311	8.3755	0.1010	0.9086	1.0095
Total	**1494**	**1304.03**	**1201.98**	-	-	-	-	-	-	-

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iii. Assumptions:

Description	RFO	RLNG	Gas
Reference Fuel Price M.Tons/MMBTU	75,430.68	1,570.00	924.00
HHV/LHV Factor	-	1.1076	1.1076
RFO CV (BTU per Kg)	38,557.80	-	-
Reference Exchange Rate	R.s. 121.6/USD		

iv. The Petitioner has also requested for indexation/adjustment on the basis of fuel price, exchange rate, US CPI, local CPI, annual increment and increase granted by GoP on pay and pensions.

3. ADMISSION OF PETITION

3.1. The Authority admitted the subject petition on 2nd January 2020. Notice of Admission in the matter was published in the newspaper on 3rd February 2020 inviting comments/interventions from stakeholders. Individual notices were also sent to various stakeholders on 4th February 2020.

3.2. In response to the notice of Admission, no comments/interventions were received.

4. HEARING

4.1. The hearing in the matter was scheduled for 19-03-2020 which was re-scheduled to 01-04-2020. Later the hearing was postponed as precautionary measures against the spread of COVID-19. The hearing was re-fixed on 9th June 2020 through video call via Zoom. Notice of Hearing was made public on 23rd May 2020. Individual notices were also issued to stakeholders on 29th May 2020.

4.2. Following issues were framed for the hearing:

i. Whether the tariff should be on Take & Pay basis or Take or Pay basis?

ii. Whether the Net Dependable Capacity is reasonable & justified?

iii. Whether the requested thermal efficiencies are reasonable and justified?

iv. Whether the requested Variable O&M cost is reasonable and justified?

v. Whether the requested Fixed O&M cost is reasonable and justified?

vi. Whether the requested Fixed Plant Repair and Maintenance cost is reasonable and justified?

vii. Whether the requested fuel stock carrying cost is reasonable and justified?

viii. Whether the requested Insurance and Regulatory cost is reasonable and justified?

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ix. Whether the requested revenue gap cost is justified?

x. Whether the Depreciation, Interest and ROE/Investment cost is reasonable and justified?

xi. Whether the Regulatory Gap items pertaining to FY 2004 to FY 2014 are justified?

4.3. The hearing was held as per revised schedule and was participated by the representatives from the Petitioner and CPPA-G.

CONSIDERATION OF THE SUBMISSIONS OF THE PETITIONER, ANALYSIS, FINDINGS AND RECOMMENDATIONS

5. Whether the tariff should be on 'Take & Pay' basis or 'Take or Pay' basis?

5.1. The Petitioner vide its comments dated 1-6-2020 on the above issue submitted that WAPDA built GTPS Faisalabad in 1975 and TPS Muzaffargarh from 1993 to 1995 to meet with the power demand of the Country as an integrated utility, was used to determine and approve by the Federal Government to recover the actual cost inter-alia of generation of its Hydel and Thermal Power Stations.

5.2. The Petitioner further submitted that, NEPRA has determined the expected remaining economic useful life of TPS Muzaffargarh as 19 years (i.e. up to 2033) and GTPS Faisalabad (Unit 5-9) till 30-06-2022 as evident from latest modification in generation license dated 02-05-2018. Historically, in May 2006, NEPRA determined bulk supply of power tariff of NPGCL in two parts i.e. Capacity Purchase Price (CPP) and Energy Purchase Price (EPP). CPP meant to recover Fixed O&M Expenses, Interest & Depreciation and Return on Equity/Investment. The energy Purchase Price (EPP) was meant to recover Fuel Cost and Variable O&M cost directly related to energy generation.

5.3. According to the Petitioner, the CPP has been determined on take or pay basis whereas EPP has been determined on take and pay basis since 2006 and onwards. NEPRA has determined revised tariff in 2016 on the same pattern, therefore, the same basis of determining bulk supply of power tariff may be continued.

5.4. The Petitioner submitted following further grounds to strengthen its the point of view regarding Continuity of take or pay tariff structure:

i. Existing PPA signed on "take or pay" basis between NPGCL & CPPA-G on 20-09-2015.

ii. At the time when WAPDA/NPGCL made capital investment on these power plants, the applicable Power Policies of government of Pakistan were based on "take or pay" tariff.

iii. Plants are in Existence (Change of mode can be for new plants only as investor has to take decisions accordingly in terms of prevailing policy).

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iv. Validity of License of both plants has already been decided by NEPRA i.e. till 2033 for TPS Muzaffargarh and till 2022 for GTPS Faisalabad.

v. Existing non-competitive monopolistic power market situation. NEPRA has acknowledged the same policy in its previous determination dated 09-08-2016 for "Take & Pay" or "Take or Pay" tariff:

vi. "Regarding Take or pay arrangement, it is observed that this arrangement is in accordance with the applicable Power Policy and unless there is a competitive power market in the country, this regime will be hard to change."

vii. No minimum guaranteed off-take of energy in PPA. In case of no off-take from NPCC for entire year, NPGCL will have zero revenue for the entire year.

viii. In case of intended change in operating mechanism from "take or pay" to "take and pay", then "Must Run" provision has also to be added in the PPA on making available of the power plants by NPGCL.

ix. RoE/RoI etc would get serious impacts.

x. NPGCL has legacy of its old employees as well as keeping in view the licensed life of plants, NPGCL has inducted the required staff in recent years also, which are pensionable and are a liability of the Company itself.

5.5. NPGCL requested that 'take or pay' arrangement may please be continued till the completion of expected economic useful life of TPS Muzaffargarh and GTPS Faisalabad (Unit 5-9) as already determined by NEPRA.

5.6. The submissions of the Petitioner have been evaluated. As per the merit order dated 22nd September 2020, TPS M/Garh is at serial numbers 38 to 57 on gas and RLNG and at 109 to 122 on RFO while GTPS Fsd. is at 22 on gas and 27 on RLNG in the merit order list. The details of energy delivered to the system from old blocks of NPGCL is as under:

Description	**FY 2016-17**	**FY 2017-18**	**FY 2018-19**	**FY 2019-20**
Energy Dispatched Old Blocks (GWh)	5,481.90	3,152.91	986.38	299.86
Net Capacity (MW)	1,374	1,374	1,199	1,199
Utilization Factor (%)	45.55%	26.20%	9.39%	2.85%

5.7. The utilization factor of these plants is expected to be remained similar in the future years because of its low efficiency. The lower utilization factor resulted in per unit capacity charges of Rs. 18.35/kWh in FY 2019-20 on unit delivered basis. As per the CCOE decision dated 10th September 2020, Units 5&6 of M/Garh were identified to be decommissioned immediately, Units 1-4 of M/Garh in 2022 and Units 5-9 of GTPS Fsd are to be retained till commissioning of Trimun RLNG power project.

5.8. The submissions of the Petitioner have been examined. Keeping in view the extremely low utilization of these units and decommissioning plan of the GoP, there is no reason and

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justification to grant tariff on 'take or pay' basis as it will unnecessarily burden the end consumers. The Authority has, therefore, decided to allow 'take & pay' tariff on the basis of average actual utilization of 21% over the last four years.

6. Whether the Net Dependable Capacity is reasonable & justified?

6.1. According to the Petitioner, after un-bundling of WAPDA power wing, NPGCL has been operating power plants in Muzaffargarh, Multan and Faisalabad in line with parameters defined in the Generation License granted by NEPRA. The generation facility comprises of six blocks in Thermal Power Station Muzaffargarh, Gas Turbine Power Station Faisalabad and Steam Power Station Faisalabad Plant, with a total installed generation capacity of 1,726 MW. According to the recent Current dependability test (CDC) and HR Test Report in 2014, the CDC of these blocks was reduced to 1,472.52 MW.

6.2. According to the Petitioner, the Thermal Power Station (TPS) at Muzaffargarh is located between rivers Indus and Chenab, and approximately 2.5 KM northwest of District Muzaffargarh. At Muzaffargarh, the Company is operating 6 dual fuel-based steam units with a total Gross Dependable Capacity of 1,184 MW that is spread into 3 blocks. The first block comprises of 3 Russian built units with installed capacities of 210 MW each. These Russian units were commissioned during 1993 to 1995. The second block contains one Chinese built unit with an installed capacity of 320 MW which was commissioned in 1997, while the third block has 2 Chinese built units with installed capacity of 200 MW each which were commissioned in 1995. These plants are capable of operating on RFO, Gas/RLNG and mixed fuel firing.

6.3. According to the Petitioner, The Gas Turbine Power Station (GTPS) Faisalabad is located 10 Kms away from Faisalabad City on Faisalabad - Sheikhupura road. At this power plant, the Company is operating 8 German built gas-fired units which were commissioned in 1975 and 1 Chinese Steam unit which was commissioned in 1994. Each of the gas-fired units has an installed capacity of 25 MW, while the steam unit has an installed capacity of 44 MW. All 9 units are classified into 2 separate blocks and all have provision of dual fuel combustion (Gas and HSD Oil). Units No. 1~4 operable on open cycle mode have been de-licensed on 02.05.2018.

6.4. Steam Power Station (SPS) was also being operated by the Company at the same site in Faisalabad. The power station has 2 identical American built steam units that were commissioned in 1967 with an installed capacity of 66 MW each. These machines also have a provision for dual fuel combustion (Gas & RFO). Both of these units have been de-licensed on 02.05.2018.

6.5. The Petition further submitted that, as per Dependable Capacity Test carried out in Dec 2013 and January 2014, of Unit 1-6 of TPS Muzaffargarh, the Net Dependable Capacity was recorded as 1,085 MW after deducting auxiliary Load of 98 MW. The existing Net Dependable Capacity of GTPS Faisalabad is recorded as 117 MW, therefore this petition is based upon Net Dependable Capacity of 1,201.98 MW comprising of power complex of M/Garh (unit 1-6) and GTPS Faisalabad (unit 5-9). The details are as below;

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Energy Blocks	Capacity in MW		
	Installed	**Gross**	**Net**
M/Garh Unit # 1	210	190.00	174.93
M/Garh Unit # 2	210	182.50	168.26
M/Garh Unit # 3	210	183.50	170.50
M/Garh Unit # 4	320	272.20	245.96
M/Garh Unit # 5	200	181.44	167.25
M/Garh Unit # 6	200	173.88	158.08
GTPS F/Abad Unit 5-9 (Gas)	144	120.51	117.00
Total	**1494**	**1304.03**	**1201.98**

6.6. The Petitioner in its comments regarding the issue of reasonability of dependable capacity, submitted that, net dependable capacity and heat rate test of Thermal Power Station Muzaffargarh was conducted in 2014 by an independent Engineer and was witnessed by NEPRA representatives. Consequently, NEPRA has determined revised tariff of NPGCL in 2016, effective from July 2014, based upon tested Net Dependable Capacity. As an Independent Engineer has determined Net Dependable Capacity and duly witnessed by NEPRA, therefore, Net Dependable Capacity assumed in the revised tariff petition is justified and reasonable.

6.7. The submissions of the Petitioner have been examined. The requested current dependable capacity (CDC) is 1,201.98 MW comprising 1,084.98 MW M/Garh Units 1-6 and 117 MW GTPS F/Abad Units 5-9. The last tariff determination was based on CDC of 1,472.52MW which after de-licensing of SPS Units 1-2 and GTPS Units 1-4 of Faisalabad works out 1300.52MW.

6.8. The Petitioner was asked vide email dated 27th August 2020 to clarify the said discrepancy. The Petitioner vide its email dated 27th August 2020 submitted that NEPRA is in practice to determine fixed charge based upon net dependable capacity. In the previous tariff determination of NPGCL, NEPRA has adopted gross capacity of TPS Muzaffargarh and net capacity of GTPS Faisalabad. In the tariff revision petition in hand, NPGCL has requested to adopt net dependable capacity as per IDC test carried out in 2013-14. Based upon the said text, NPGCL has also requested NEPRA to make modification in generation license which NEPRA has approved as communicated through letter NEPRA/R/LAG-03/0551-57 dated 13.04.2020. As per modification approved, the net dependable capacity of TPS Muzaffargarh (unit1-6) is 1089.99 MW and 114.48 MW of GTPS Faisalabad Unit 5-9, hence fixed charges may be determined now based upon net dependable capacity of 1199.47 MW, instead of 1201.98 requested in the tariff petition. The detail of which is as under:

Energy Blocks	Net Dependable Capacity
	MW
M/Garh Unit # 1	174.93
M/Garh Unit # 2	168.27

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M/Garh Unit # 3	170.49
M/Garh Unit # 4	245.96
M/Garh Unit # 5	167.25
M/Garh Unit # 6	158.09
GTPS F/Abad Unit 5-9 (Gas)	114.48
Total	**1,199.47**

6.9. The above submissions of the Petitioner have been rechecked from the modification made in the generation license dated 13th April 2020 and found in line. Accordingly, the Authority has decided to accept the net dependable capacity of 1,199.47 MW.

7. <u>Whether the requested thermal efficiencies are reasonable and justified?</u>

7.1. According to the Petitioner, power generating units of Thermal Power Station Muzaffargarh have been commissioned during 1993 to 1997. Since then the units are being operated on dual fuel firing. Due to degradation factor, heat rate of the machines is declined over the period of time. Previously Heat Rate tests were conducted by Pakistan Engineering Services (PES) for block 1, 2 and 3 of Muzaffargarh Plant under USAID Energy Power Policy after the rehabilitation of the plants. In the previous tariff determination, NEPRA adopted net Heat rate at 100% MCR allowing 0.50% transformation basis.

7.2. The Petitioner requested 148 Btu/kWh for each unit as correction factor of cooling water inlet temperature (average 38 ° C yearly basis) on the basis of correction curves in the instant petition. The Petitioner has provided all the curves along-with independent Engineer's recommendation for consideration of the Authority. NPPMCL has also requested adjustment ranging 161.88 Btus/kWh to 245.37 Btus/kWh on the previously approved Heat Rates on the basis of following auxiliaries isolated by the independent engineer at the time of tests:

i. Auxiliary steam for Soot blowing of units.

ii. Auxiliary steam for heating RFO storage Tanks.

iii. Auxiliary steam for heating decanting Lorries.

iv. Auxiliary energy for RFO unloading pumps.

v. Auxiliary energy for RFO transfer pump.

vi. Auxiliary energy for dirty oil pump.

vii. Auxiliary energy for lighting load during night.

7.3. The Petitioner submitted that to save NPGCL from perpetual loss on account of fuel cost component, NEPRA is requested to allow FCC for energy blocks of TPS M/Garh based upon the adjusted Heat Rates as shown in the table below:

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Unit No.	Net Heat Rate - Reference (BTU/kWh)	Adjustment for ambient Temp (Btu/kWh)	Adjustment for Isolation of Auxiliary (Btu/kWh)	Net adjusted Heat Rate (Btu/kWh)
M/Garh Unit#1	10,517.00	148.00	220.73	10,885.73
M/Garh Unit#2	10,660.00	148.00	229.69	11,037.69
M/Garh Unit#3	10,291.00	148.00	226.17	10,665.17
M/Garh Unit#4	10,276.00	148.00	161.88	10,585.88
M/Garh Unit#5	10,942.00	148.00	231.48	11,321.48
M/Garh Unit#6	11,241.00	148.00	245.37	11,634.37

7.4. The submissions of the Petitioner have been evaluated. Regarding isolated auxiliary, it has been observed that NPGCL did not submit any verification by the Independent Engineer, therefore, the same has not been considered. Regarding the adjustment for ambient temperature, the Independent Engineer (IE) observed that 3 out of 16 cooling water fans were out of service and that almost 50% of the cooling water fan motors were in poor conditions. The faulty cooling tower fans need to be repaired / replaced to have improved Heat Rates and without such repairs and with in-efficient operation as indicated by IE, it is not prudent to allow NPGCL additional margin for Heat Rate. Accordingly, the Authority has decided to maintain the existing heat rates for operation of the M. Garh Units 1-6 on RFO. While operation of these units on gas/RLNG, the Authority has also decided to maintain the heat rates determined vide decision dated 19th October 2018. Accordingly, the existing heat rates and existing reference fuel cost components are as under:

Description	Heat Rates		Reference Fuel Cost Component		
	RFO	Gas/RLNG	RFO	Gas	RLNG
	Btus/kWh		Rs./kWh		
M/Garh Unit # 1	10,517	10,203	10.6378	6.6472	16.3940
M/Garh Unit # 2	10,660	10,337	10.7819	6.7348	16.6101
M/Garh Unit # 3	10,291	9,990	10.4091	6.5085	16.0520
M/Garh Unit # 4	10,276	9,976	10.3936	6.4993	16.0293
M/Garh Unit # 5	10,942	10,602	11.0671	6.9075	17.0359
M/Garh Unit # 6	11,241	10,882	11.3698	7.0902	17.4865
GTPS F/Abad Unit 5-9	-	8,593	-	5.3325	13.1515
Ref. Price (RFO Rs./ton, Gas/RLNG Rs./MMBTU)			39,000	588.23	1450.75

7.5. The actual calorific value of RFO used shall be subject to adjustment as per existing mechanism. The fuel cost components shall be subject to adjustment for variations in the prices of fuel.

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8. Whether the requested Variable O&M cost is reasonable and justified?

8.1. The Petitioner requested Variable O&M cost of Rs. 1,800 million comprising Rs. 1620 million foreign and Rs. 180 million local. The requested variable O&M cost translates into Rs. 1.0095/kWh comprising foreign variable O&M component of Rs. 0.9086/kWh and local variable O&M component of Rs. 0.1010/kWh respectively for an estimated net electrical output of 1783 GWh during FY 2019-20 from energy blocks of TPS Muzaffargarh and GTPS Faisalabad. The Petitioner highlighted lead time of almost 2 years in arranging purchase of foreign material through international competitive bidding therefore, Company proposed reference US$ conversion rate as 121.6 as was on 29-06-2018.

8.2. The Petitioner further submitted that the major composition of VO&M is the routine plant repair & maintenance expenses for which foreign material is purchased and services of expatriates are hired. The foreign cost component in VO&M has been increased immensely through devaluation of PAK Rupees with relation to foreign currencies. In this essence, NPGCL requests the Authority to allow variable O&M cost into foreign and local components with the ration of 90:10 respectively.

8.3. According to the Petitioner, Variable Operations & Maintenance (O&M) costs include Repairs & Maintenance of power plant and cost of Chemical &. Fuel Additives as well. In the previous tariff determination, NEPRA has allowed VO&M in PKR only and has also allowed indexation with CPI on semi-annual basis. The comparison of VOM allowed to RFO based IPPs and NPGCL is provided below which clearly shows the discrimination in the component of VO&M being made to NPGCL as compared to IPPs. This compels NPGCL to forego even necessary maintenance and parts replacements compromising the safety, reliability and availability of the power plants.

Tariff Component	**Atlas Power Limited (225 MW RFO CCPP)**	**Hub Power Company Limited Narowal (213 MW RFO CCPP)**	**Nishat Power Limited (200 MW RFO CCPP)**	**Nishat Chunian Power Limited (200 MW RFO CCPP)**	**Attock Gen Limited (165 MW RFO Based CCPP)**	**Liberty Power Tech Limited (202 MW RFO CCPP)**	**NPGCL old blocks (1350 MW RFO Fired Steam Power Plant)**
Variable O&M (Rs/kWh)							
Variable O&M Foreign	1.1181	0.7773	1.1181	1.1155	1.1225	1.1563	-
Variable O&M Local	0.2703	0.4777	0.2703	0.2696	0.2855	0.3712	0.1490
Total	**1.3884**	**1.2550**	**1.3884**	**1.3851**	**1.4080**	**1.5275**	**0.1490**
Indexation	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Quarterly	Six Monthly

8.4. NPGCL vide its comments on the issue of reasonability of the requested variable O&M submitted that the requested component of Rs 1.0095/kWh is still lower to the Variable O&M allowed to the IPPs of comparable capacity, therefore the request is reasonable and justified.

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8.5. The submissions of the Petitioner have been examined. The Petitioner's submissions of the above referred power plants as comparable case are based on misunderstanding. Except for the RFO fuel, nothing else is comparable. All of these referred power plants are reciprocating engines ranging from 17MW to 19MW each with a combination of 9-11 engines in in each power plant along with one HRSG and one small steam turbine of 12-16MW. While the Petitioner's power plant at M/Garh is steam power plant consisting of 6 units 3*210MW, 1* 320MW and 2*200MW with one boiler and one steam turbine in each unit. The Petitioner's power plant at Faisalabad consists 4*25MW Gas Turbines and 1*44MW team turbine in combined cycle mode. There is absolutely no comparison of the technology employed by the Petitioner and the comparable cases.

8.6. The comparable cases with that of Petitioner is Hub Power 1,292MW steam power plant with 4*323MW, Lal Pir Steam power plant 1*362MW and Pak Gen steam power plant 1*365MW. The variable O&M components of these power plants applicable in July 2019 are Rs.0.2182/kWh, Rs.0.2501/kWh and Rs. 0.2501/kWh respectively.

8.7. It would also be pertinent to mention that in the previous tariff petition dated 4-3-2015, the Petitioner requested variable O&M component of approximately Rs. 0.21/kwh for TPS Mzg and Rs. 0.25/kWh for GTPS Fsd. The Authority vide its decision dated 19th October 2016 allowed variable O&M cost of Rs. 0.12/kWh subject to biannual adjustment on account of local CPI (General). The applicable current indexed variable O&M cost component is Rs. 0.1490/kWh as on 1st July 2019.

8.8. The Petitioner was asked vide letter No. NEPRA/SA(Tariff)/TRF-504/NPGCL-2019/14356 dated 8-6-2020 to provide breakup of requested repairs & maintenance cost bifurcated into fixed and variable supported by maintenance schedules, details of spares parts and other consumables, cost for each maintenance schedule and other supporting evidence to justify the requested cost. The Petitioner did not provide any breakup of the requested variable repairs & maintenance cost or the details of spare parts, consumables and maintenance schedules.

8.9. The Petitioner was also asked to provide plant wise breakup of actual repairs & maintenance cost bifurcated into fixed and variable for the last three years reconciled with the financial statements. The Petitioner vide its letter No. NPGCL/CEO/TRF-304/2895 dated 29th July

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2020 provided following breakup up of the actual repairs and maintenance cost for the last three years:

Plant Repair & Maintenance	TPS M.Garh	GTPS Fsd	Others	Total
	Rupees in Million			
2016-17				
Boiler Plant Equipment	251.507	0.225	2.904	254.636
Turbo-generator Unit	28.122	41.359	36.342	105.824
Accessories Electric Equipment	71.902	3.102	1.265	76.270
Misc. power Plant Equipment	389.870	1.335	3.773	394.979
Chemical, lubricant & additive etc.	111.562	1.958	112.000	225.520
	852.965	**47.979**	**156.285**	**1,057.229**
2017-18				
Boiler Plant Equipment	458.262	0.346	32.603	491.211
Turbo-generator Unit	28.854	3.745	53.394	85.992
Accessories Electric Equipment	93.649	2.645	3.581	99.875
Misc. power Plant Equipment	160.773	2.473	385.074	548.320
Chemical, lubricant & additive etc.	89.576	3.035	19.228	111.838
	831.114	**12.242**	**493.880**	**1,337.236**
2018-19				
Boiler Plant Equipment	50.723	1.542	0.024	52.288
Turbo-generator Unit	4.757	14.632	0.123	19.512
Accessories Electric Equipment	19.590	2.404	0.536	22.530
Misc. power Plant Equipment	53.567	1.442	1,872.726	1,927.735
Chemical, lubricant & additive etc.	40.497	2.375	56.834	99.706
	169.133	**22.395**	**1,930.243**	**2,121.771**

8.10. The above actual plant repairs and maintenance cost also include Nandipur plant under the head of 'Others' which needs to be separated while analyzing the cost pertains to TPS M/G and GTPS FSD. Further the Petitioner did not bifurcate the cost into fixed and variable parts. The following Table will show the actual total repairs and maintenance cost for the last three years along with generation by these power plants and actual cost per unit:

Actual Repairs & Maintenance Cost Old Blocks

Financial Year	TPS M.Garh	GTPS Fsd	Total	Generation	Cost/Unit
	Rs. in Million			GWh	Rs./kWh
FY 2016-17	853	48	901	5,482	0.16
FY 2017-18	831	12	843	3,153	0.27
FY 2018-19	169	22	192	986	0.19
Total	**1,853**	**83**	**1,936**	**9,621**	**0.20**

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8.11. Since the Petitioner did not bifurcate the above cost into variable and fixed parts, the entire cost has been considered as variable in line with the previous determination. On the basis of actual repairs and maintenance cost for the last three years, the Authority has decided to approve variable O&M cost of Rs. 0.20/kWh for each delivered unit subject to adjustment on the basis of changes in NCPI (General) as published by Pakistan Bureau of Statistics (PBS). The reference NCPI (General) shall be of June 2019.

9. Whether the requested Fixed O&M cost is reasonable and justified?

9.1. The fixed O&M component of the Escalable CPP represents the fixed costs of all the staff for O&M and firefighting, plant administration, security, transportation, overheads, office costs, professional fees such as Audit, tax and legal, as well as some other fixed operational cost such as environmental monitoring and auxiliary used during standby operation of machines that do not change with the dispatch level of the plant. Fixed O&M cost component has been prepared based on the local and foreign parts. Fixed O&M cost component has been sub divided among following:

i. Fixed O&M Establishment Expenses

ii. Fixed O&M Admin Expenses

iii. Fixed Plant R&M Expenses (discussed under separate issue)

10. Fixed O&M - Establishment Expenses

10.1. According to the Petitioner, on unbundling of WAPDA, through Business Transfer Agreement (BTA) and ancillary manpower transition program, the employees working in the power plants were transferred to NPGCL and absorbed in the company protecting their all the emoluments enjoyed in WAPDA service. Being owned by Federal Government, WAPDA has adopted national pay scales and pension scheme for its employees, therefore, NPGCL has also to maintain continuity in the adoption of national pay scales and pension scheme of Federal Government. The details of allowed, actual and proposed costs are as under:

Employees Cost	Reference Tariff 2014-15	Adj. Tariff Revenue w.e.f. 01.07.2019	2017-18 (Actual/ audited)	2018-19 (Provisional)	2019-20 (Proposed)
Establishment Expenses	**Mln.Rs**	**Mln.Rs**	**Mln.Rs**	**Mln.Rs**	**Mln.Rs**
Pay & Allowances	1,355.0	1,682.6	1,905.4	2,057.8	2,343.6
Contribution for Retiring Benefits	902.0	1,120.1	2,013.0	2,250.3	2,475.4
Total	**2,257.0**	**2,802.8**	**3,918.4**	**4,308.1**	**4,819.0**

10.2. According to the Petitioner, the establishment cost mainly comprised of salary and wages expense of the employees of the Company which includes basic pay, ad-hoc allowance, cash medical allowance, conveyance allowance, dual charge allowance, entertainment allowance, deputation allowance, group life insurance, house rent allowance, job allowance, livery allowance, local compensatory allowance, special pay, other allowance, overtime, off day

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wages, qualification pay, shift allowance etc. This also includes fringe benefits like education and training, sports and recreational benefits, EOBI, social security charges, pension charges and free electricity etc.

10.3. According to the Petitioner, NEPRA in its previous tariff determination allowed indexation of Administration & Establishment expenses to be adjusted by changes in CPI. However, NPGCL suffered a significant loss due to the difference in rate of increase of salaries as compared to what was allowed by the NEPRA i.e. Adjustment with relation to CPI. The below table illustrates the difference in rates of increase in salaries in different years and their comparison with annual consumer price index (CPI):

Description	CPI	CPI Increase %	Pay/ Pension Increase %
Reference CPI	198.05		
CPI PAK 1st July 2015	199.66	0.8%	7.5%
CPI PAK 1st July 2016	205.99	3.2%	10.0%
CPI PAK 1st July 2017	216.33	5.0%	10.0%
CPI PAK 1st July 2018	225.40	4.2%	10.0%
CPI PAK 1st July 2019	245.94	9.1%	10.0%

10.4. According to the Petitioner, the comparison between the income allowed in the CPP tariff component for salaries and pensions and actual expenses provides an understanding that NPGCL suffered significant loss due to inappropriate and inadequate indexation with relevant inflation factor. It can also be observed from the audited financial statements that a significant increase in pension benefits was occurred in 2015-16. NPGCL has not yet established a pension fund by placing adequate funds as per funding liability worked out by the actuarial consultant whereas its employees are retiring each year and funding liability is being increased accordingly.

10.5. According to the Petitioner, the Company has not made fresh hiring since 2011 except for filling strategic positions, hence manpower strength of serving employees is decreasing gradually, however number of retired employees is increasing on retirement of the serving employees. The comparison of status of serving and retired employees at the end of financial year has been shown in the table below:

Number of Employees

Description	Serving	Retired	Total	Increase / (Decrease)
As on 30.06.2015	2,726	1,117	3,843	-
As on 30.06.2016	2,695	1,198	3,893	50
As on 30.06.2017	2,667	1,308	3,975	82
As on 30.06.2018	2,277	1,627	3,904	(71)
As on 30.06.2019	2,247	1,657	3,904	-

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10.6. According to the Petitioner, amounts recognized in the statement of profit or loss against defined benefit scheme and the liability for staff retirement benefits has been shown in the table below:

Year	Net yearly service charge (Mln.Rs)	Pension Funds liability at year end (Mln.Rs)
June 2015	1,379.4	11,323.1
June 2016	3,248.0	15,415.8
June 2017	2,289.7	18,799.1
June 2018	2,011.6	20,247.6

10.7. According to the Petitioner, the above table shows that yearly charge and liability on account of post-retirement benefits has been almost doubled in just four years. Therefore, in order to meet the pension expense, it is necessary for the NPGCL to contribute dues on actual basis into the pension plans for which the company request Authority to allow the contribution into pension benefits based on budgetary allowance instead of actual pension payments made to retired employees and their adjustments with CPI.

10.8. According to the Petitioner, since increase in pay and pension of NPGCL employees is being made linking it to the revision of pay and pension made by federal government, it is requested to allow the segregation of administration and establishment expenses into two separate heads i.e. Administration expenses and Salaries and pension expenses. Where Administrations expense may be allowed to be adjusted with the prevailing CPI rate and salaries and pension expenses may be increased by linking to the revisions of pay and pension made by the federal government for its employees in the budget yearly along with annual increment. Such adjustment will enable NPGCL to recover actual establishment costs through tariff.

10.9. According to the Petitioner, the larger number of serving employees of the Company are of lower scale working as un-skilled and semi-skilled employees relating to the functions which are generally outsourced by the IPPs. The break-up of serving employees as on 30.06.2019 has been shown in the table below:

Employees Scales	Total
Executives/ Managers (BPS-17 & above)	106
Supervisors/ support staff (BPS-11 to 16)	1,070
Labor & Security staff (BPS-1 to 10)	1,071
Total	**2,247**

10.10. NPGCL vide email dated 2-10-2020 revised the number of serving employees to 2340 as on 30-6-2019. NPGCL requested establishment cost of Rs 4,819 million for FY 2019-20. The proposed establishment cost translated into Rs 0.4577/kW/hr. According to NPGCL, the proposed cost is much lower than the establishment cost allowed by NEPRA to the thermal IPPs. The Petitioner however did not provide any comparison.The Petitioner was asked to

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provide details of employees stationed at different blocks of NPGCL in comparison with the sanctioned strength. The details provided by the Petitioner are as under:

BPS	Active Power Plants			Defunct Power Plants				Total
	TPS MZH	GTPS Fsd Units 5-9	Nandi-Pur	NGPS Mult	Shadra	SPS Fsd	GTPS Fsd Units 1-4	
17-20	101	8	4	1	2	-	-	**116**
12-16	840	81	3	17	15	72	13	**1,041**
6-11	693	39	70	29	9	11	-	**851**
1-5	267	22	1	14	7	21	-	**332**
Total	**1,901**	**150**	**78**	**61**	**33**	**104**	**13**	**2,340**
Sanctioned	2,076	753	83					**2,912**

10.11. The Petitioner was asked vide email dated 2-10-2020 to provide plant wise breakup of salaries & wages cost and retirement benefits cost of employees stationed at different power plants. In reply, the Petitioner vide email dated 5-10-2020 provided following breakup of the salaries & wages for FY 2018-19:

Description	TPS M.Garh	GTPS Fsd	Nandipur	Total
Pay & Allowances	1,363.63	479.98	76.00	1,919.61
Contribution for retirement benefits	1,918.62	256.78	75.01	2,250.41
Total	**3,282.25**	**736.76**	**151.01**	**4,170.02**
Number of active employees 30.06.2019	1,995	267	78	2,340

10.12. According to the Petitioner, the employees of the defunct power plants were absorbed in the TPS M/Garh and GTPS FSD. Accordingly, 94 employees of Multan and Shahdra are included in M/Garh and 117 employees of SPS FSD and GTPS Units 1-4 are included in GTPS FSD. According to the information submitted by the Petitioner, out of 211 employees at defunct power plants, 153 employees are working at switchyards. The Petitioner did not provide breakup of salaries, wages and retirement benefits of employees working at defunct power plants. The pro-rata allocation of salaries, wages and retirement benefits cost of the licensed/active units is as under:

Description	TPS M.Garh	GTPS Fsd	Total
Pay & Allowances	1,299.37	269.65	**1,569.03**
Contribution for retirement benefits	1,869.24*	144.26	**2,013.49**
Total	**3,168.61**	**413.91**	**3,582.52**
Number of Employees	1,901	150	2,051

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*allocation of retirement benefits has been made on the basis of 1,901 active and 1,657 retired employees.

10.13. Since the Nandipur tariff has been worked out separately, the establishment cost of employees working there has not been considered. Actual Establishment Cost including employees working at defunct power plants is Rs. 4019 million excluding Nandipur plant while actual establishment cost excluding employees working at defunct power plants and Nandipur works out Rs. 3582.52 Million. The Authority do not consider it justified to allow the cost of employees stationed at defunct power plants when the same have been delicensed. Accordingly, the Authority has decided to allow establishment cost of Rs. 3,582.52 million which shall be subject to indexation on the basis of changes in NCPI (General) as published by PBS. The reference NCPI (General) shall be of June 2019 in line with other power plants. The request of the Petitioner for adjustment of salaries & wages with actual increase by GoP is not in line with other power plants and has not been considered.

11. Fixed O&M - Admin Expenses

11.1. According to the Petitioner, the Administrative costs include taxes and licenses, travelling and conveyance, utilities, subscription and periodicals, supervisory overheads, communications, legal and professional fee, printing and stationery fee, auditor's remuneration, advertisement, Management Fee and Miscellaneous. According to the Petitioner, NEPRA in its last determination allowed annual admin expenses of Rs 148 million. For the FY 2018-19, the indexed admin expenses were Rs 183.79 million against the actual expenses of Rs. 215.81 million. NPGCL proposed estimated admin expenses of Rs. 237.39 million for FY 2019-20 subject to Quarterly indexation. The proposed admin cost translates into Rs. 0.0225 per kw/hr. The break-up of proposed admin cost is as under:

Admin Expenses	Reference Tariff 2014-15	Adj. Tariff Revenue w.e.f. 01.07.2019	2017-18 (Actual/ audited)	2018-19 (Provisional)	2019-20 (Proposed)
	Mln.Rs	**Mln.Rs**	**Mln.Rs**	**Mln.Rs**	**Mln.Rs**
Travelling & Conveyance	20.50	25.46	27.34	28.71	31.58
Management fee charges etc.	100.00	124.18	109.00	171.25	188.38
Printing & communication	8.10	10.06	14.00	7.91	8.70
Legal & professional charges	4.30	5.34	7.00	3.58	3.94
Others	15.10	18.75	5.50	4.36	4.80
Total	**148.00**	**183.79**	**162.84**	**215.81**	**237.39**

12. Transportation / Vehicle Maintenance Cost

12.1. According to the Petitioner, for operational needs, NPGCL is maintaining transport vehicles which are being maintained though they have completed their economical useful life. For better upkeeping of vehicles, Authority is requested to allow revenue of Rs 75 million per annum which translate into Rs. 0.0071/kW/hr. The break-up of proposed transportation cost has been in the table below:

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Description	Numbers
Number of Transport vehicles (Nos)	45
Number of Operational vehicles (Nos)	52
Total Vehicles	97
Petrol, Oil & Lubricants (Mln. Rs)	55.0
Repair & Maintenance (Mln. Rs)	18.0
Token renewal expenses (Mln.Rs)	2.0
Total Transportation cost (Mln. Rs)	**75.0**

13. Repair & Maintenance Expenses of Buildings, Roads & General Plants

13.1. According to NPGCL, it is maintaining operational & residential buildings and civil works structures of M/Garh and Faisalabad power plants. These civil work structures are growing older and need maintenance to keep them in use. For this purpose, Authority is requested to allow revenue of Rs 120 million per annum which translates in to Rs. 0.0114/kW/hr. The break-up of proposed repair & maintenance cost has been tabularized as below:

Description	Million Rupees
Repair & Maintenance – Plant Buildings	35.0
Repair & Maintenance- General Plants	20.0
Repair & Maintenance – Residential colony	65.0
Total	**120.0**

13.2. The submissions of the Petitioner have been evaluated. The Petitioner was asked vide letter dated 8-6-2020 to provide plant wise breakup of actual administrative cost for the last 3 years reconciled with the financial statements. In response, the Petitioner vide letter dated 29th July 2020 provided breakup of the actual administrative cost which is provided hereunder:

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Administrative Expenses	TPS M.Garh	GTPS Fsd	Others	Total
	Rupees in Million			
FY 2016-17				
Travelling & Conveyance	17.538	2.058	7.466	27.062
Management fee charges etc	43.556	6.093	10.782	60.430
Printing & communication	9.832	1.086	0.052	10.970
Legal & professional charges	16.506	0.041	2.852	19.399
Transportation	40.210	4.729	6.453	51.392
Repair & Maintenance- Civil works	33.887	4.416	0.018	38.321
Others	-	0.232	19.524	19.756
	161.528	**18.655**	**47.147**	**227.331**
FY 2017-18				
Travelling & Conveyance	21.280	3.345	6.335	30.960
Management fee charges etc	108.852	-	0.040	108.892
Printing & communication	8.580	1.154	0.073	9.806
Legal & professional charges	10.445	0.033	43.108	53.587
Transportation	38.386	2.462	8.006	48.854
Repair & Maintenance- Civil works	44.687	3.284	0.039	48.010
Others	-	0.150	91.310	91.460
	232.230	**10.429**	**148.910**	**391.569**
FY 2018-19				
Travelling & Conveyance	23.959	2.079	2.017	28.055
Management fee charges etc	122.438	-	-	122.438
Printing & communication	5.070	0.768	0.021	5.859
Legal & professional charges	6.085	0.091	0.032	6.207
Transportation	29.511	2.087	1.947	33.545
Repair & Maintenance- Civil works	8.269	0.669	0.039	8.977
Others	-	0.094	96.524	96.618
	195.332	**5.788**	**100.579**	**301.699**

13.3. The management fee charges pertain to the cost of GENCO Holding Company. There is no justification to allow this cost and passed it on the consumers. GENCOs are independent generation companies and all legitimate costs are taken into account in the tariff. If the owner desires to have a holding company for supervision, the cost should be borne by the owners out of profit instead of passing it on to the consumers. Similar methodology has been approved in the case of DISCOs for Management Fee of PEPCO. Accordingly, the Authority has decided to set aside the cost of management fee charges.

13.4. The actual administrative cost for old blocks excluding management fee and Nandipur cost works out Rs. 78.682 million including vehicles maintenance and repairs and maintenance buildings and the same has been approved which shall be subject to indexation on the basis of changes in NCPI (General) as published by PBS. The reference NCPI (General) shall be of June 2019.

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14. Whether the requested Fixed Plant Repair and Maintenance cost is reasonable and justified?

14.1. According to the Petitioner, contrary to RFO based IPPs, CPP allowed to NPGCL is far less than the requirements to fulfill contractual obligations under Power Purchase Agreement, to ensure availability of units, as and when required by System Operator. This is as tabularized below;

Tariff Component	Atlas Power Limited (225 MW RFO CCPP)	Hub Power Company Limited Narowal (213 MW RFO CCPP)	Nishat Power Limited (200 MW RFO CCPP)	Nishat Chunian Power Limited (200 MW RFO CCPP)	Attock Gen Limited (165 MW RFO Based CCPP)	Liberty Power Tech Limited (202 MW RFO CCPP)	NPGCL old blocks (1350 MW RFO Fired Steam Power Plant)
Capacity Charge (Rs/kW/Hour)							
Fixed O&M Foreign	0.2119	0.3172	0.2198	0.2194	0.2543	0.2620	-
Fixed O&M Local	0.1897	0.0882	0.1965	0.1962	0.2232	0.1543	0.2441
Total Fixed O&M	**0.4016**	**0.4054**	**0.4163**	**0.4156**	**0.4775**	**0.4163**	**0.2441**
Cost of Working Capital	0.2167	0.3205	0.2206	0.2116	0.0441	0.2299	-
ROE	0.8011	1.0046	0.6305	0.6510	0.6796	0.8216	0.1621
ROEDC	0.0862	0.2058	0.1097	0.1243	0.1002	0.1308	-
Sub Total	**1.5056**	**1.9363**	**1.3771**	**1.4025**	**1.3014**	**1.5986**	**0.4062**
Debt Servicing	1.4785	1.5438	1.6145	1.7534	-	1.7919	0.0022
Insurance	Dealt separately						0.0050
Other Income	-	-	-	-	-	-	(0.0125)
Depreciation	-	-	-	-	-	-	0.0806
Total	**2.9841**	**3.4801**	**2.9916**	**3.1559**	**1.3014**	**3.3905**	**0.4815**

14.2. According to the Petitioner, this unjustified treatment has compelled NPGCL to forego its compulsory repairs and maintenance, which in turn causes excess forced outages. NPGCL is bound to perform Annual Boiler Inspection of each unit on yearly basis as per terms of PPA and Boiler Inspector requirements. Similarly, Major Overhauling of units is to be performed after every 5th year of operation as per terms of PPA. This is to ensure availability of units and is to be performed regularly. Unfortunately, in past, NPGCL has never been allowed the allowance in CPP for Fixed R&M expenses and currently the Fixed O&M part of CPP allowed to NPGCL contains;

i. Administration and establishment,

ii. Insurance & Regulatory cost and

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iii. Other Income.

14.3. NPGCL is bound to cover its expenses on fixed R&M through its VOM component, which is also far lagging as compared to RFO based IPPs. Due to reduced generation in recent years, revenue through Variable O&M charge has also been reduced and the cost of preventive maintenance has not been covered in any other tariff component at present. This has prompted the Company to make request to the Authority to allow fixed plant repair & maintenance cost component of Rs 2,584 million comprising local cost of Rs. 994.40 Million and foreign cost of Rs. 1,589.60 Million which translates into Rs 0.2454/kW/hour comprising local component of 0.0944 Rs/kW/Hr. and foreign component of Rs. 0.1510 Rs/kW/Hr. This amount is meant for purchase of consumables and carrying our repair works in connection with preventive maintenance as per detail given below:

Rs. in Million

Fixed O&M Expenses	**Million Rs**	**Local**	**Foreign**
Fixed R&M- Boiler Inspection etc.	728.0	364.0	364.0
Firefighting refilling	110.0	110.0	-
Consumable material	1,532.0	306.4	1,225.6
Mandatory Auxiliary	180.0	180.0	-
Switchyard maintenance	34.0	34.0	-
Total	**2,584.0**	**994.4**	**1,589.6**

14.4. The submissions of the Petitioner have been examined. The comparison of NPGCL with power plants employing reciprocating engine technology has been discussed under variable O&M. The comparison is not at all relevant while claiming the exaggerated fixed repairs and maintenance cost which has never been incurred in the past.

14.5. The Petitioner was asked vide letter dated 8-6-2020 to provide breakup of requested repairs & maintenance cost further bifurcated into fixed and variable supported by maintenance schedules, details of spares parts and other consumables, cost for each maintenance schedule and other supporting evidence to justify the requested cost. In response, the Petitioner vide letter dated 29th July 2020 provided breakup of the requested fixed repairs & maintenance cost along with three years maintenance plan of TPS Muzaffargarh covering details of maintenance schedule, identified problems and intended benefits together with details of estimated costs. The breakup provided by NPGCL is as under:

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	Rupees in Million		
Fixed Plant Repair & Maintenance	TPS M.Garh	GTPS Fsd	Total
Local			
Fixed R&M- Boiler Inspection etc	327.600	36.400	364.000
Firefighting refilling	99.000	11.000	110.000
Consumable material	275.760	30.640	306.400
Mandatory Auxiliary	162.000	18.000	180.000
Switchyard maintenance	30.600	3.400	34.000
Total Local	**894.960**	**99.440**	**994.400**
Foreign			
Fixed R&M- Boiler Inspection etc	327.600	36.400	364.000
Firefighting refilling	-	-	-
Consumable material	1,103.040	122.560	1,225.600
Mandatory Auxiliary	-	-	-
Switchyard maintenance	-	-	-
Total Foreign	**1,430.640**	**158.960**	**1,589.600**
Total (Local+Foreign)			
Fixed R&M- Boiler Inspection etc	655.200	72.800	728.000
Firefighting refilling	99.000	11.000	110.000
Consumable material	1,378.800	153.200	1,532.000
Mandatory Auxiliary	162.000	18.000	180.000
Switchyard maintenance	30.600	3.400	34.000
Total (Local+Foreign)	**2,325.600**	**258.400**	**2,584.000**

14.6. The Petitioner was also asked to provide plant wise breakup of actual repairs & maintenance cost further bifurcated into fixed and variable for the last three years reconciled with the financial statements. In response, the Petitioner provided breakup up of the actual repairs and maintenance cost for the last three years without bifurcating it into fixed and variable. The same has been considered and approved variable O&M.

14.7. The requested fixed repairs & maintenance costs were neither requested in the past nor actually incurred. The actual incurred repairs & maintenance costs by the Petitioner have already been allowed under variable O&M. Keeping in view the decommissioning plan discussed above, there is no justification to consider these costs which have not been incurred. Nevertheless, any of the necessary repairs and maintenance cost out of the above actually incurred during the tariff control period may be claimed in subsequent periods. Accordingly, the Authority has decided to reject the requested cost under this head.

15. <u>Whether the requested fuel stock carrying cost is reasonable and justified?</u>

15.1. According to the Petitioner, as per terms of PPA, NPGCL is required to maintain RFO stock of 15 days. If all units are operated at full load, on average, there will be consumption of 7,827 M.T RFO in a day. Therefore, RFO stock of 117,354 M.T. for 15 day's consumption is required to be maintained by NPGCL. Due to financial constraints, NPGCL could not

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maintain said level of RFO, hence certain times could not comply with the dispatch request of NPCC due to shortage of RFO stock. The NPCC terms said outage as forced outage during 2015-16 and 2016-17 and the CPPA-G has accordingly imposed LDs for FY 2015-16 and 2016-17 for failure to dispatch of the M/Garh power plant on this account. However, with the support of federal government, NPGCL has managed to maintain adequate stock of RFO during 2017-18 and FY 2018-19. But maintaining RFO stock for 15 days consumption as per PPA is costing carrying cost of Rs 1,199.36 million per annum to NPGCL at prevailing RFO price and financing rates. It is therefore Authority is requested to allow revenue for RFO carrying cost of Rs 1,199.36 million in the tariff, which translates into Rs.0.1139 /kw/hour. The working of RFO carrying cost has been shown in the table below:

Avg daily RFO consumption (M.T)	7,824
Mandatory RFO stock (days)	15
RFO stock for 15 days (M.T)	117,354
RFO price (Rs/M.T)	73,000
Fuel stock cost (Mln.Rs)	8,567
Fuel stock carrying cost @ 14% (Mln.Rs)	**1,199**

15.2. According to the Petitioner, as NEPRA has never allowed fuel stock carrying cost to NPGCL, for which NPGCL has sustained losses in terms of financial charges and LDs imposed by power purchaser on account of forced shutdown due to unavailability of fuel, therefore it is requested to allow NPGCL fuel stock carrying cost for TPS Muzaffargarh, NGPS Multan and SPS Faisalabad for the period from July 2004 onwards.

15.3. The request of the Petitioner has been examined. Under the PPA, the Petitioner is required to maintain 15 days fuel inventory. The request of the Petitioner seems justified as similar cost is also allowed to RFO based IPPs. However, the requested cost is on higher side and needs to be rationalized on the basis of current price and KIBOR. Further the plant was dispatched 3% in the whole year 2019-20 and is expected to be dispatched with similar pattern in the future, therefore, there is also a need to rationalize requested fuel inventory of 117,354 tons. It would be appropriate to allow 15 days fuel inventory at 50% load instead of 100% load. Accordingly, the revised calculation is as under:

Description	**Requested**	**Revised**
Avg daily RFO consumption (M.T)	7,824	3,532
Mandatory RFO stock (days)	15	15
Plant Load Factor	100%	50%
RFO stock for 15 days (M.T)	117,354	52,981
RFO price (Rs/M.T)	73,000	56,906
Fuel stock cost (Mln.Rs)	8,567	3,015
Interest Rate	14%	9.24%
Fuel stock carrying cost (Mln.Rs)	**1,199**	**279**

15.4. The Authority has decided to to allow Rs. 279 million on account of carrying cost of fuel inventory subject to biannual adjustment on the basis of actual average fuel inventory over

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the preceding six months, average price of fuel inventory and variation in KIBOR against reference KIBOR 7.24%+2% premium.

16. Whether the requested Insurance and Regulatory cost is reasonable and justified?

16.1. The insurance premium is estimated to be Rs. 25.30 Million and the insurance component amounts translate into Rs 0.0024/kW/h based on the insurance agreement. The insurance cost is calculated based on the previous year's insurance costs.

16.2. The regulatory fee includes renewal of Generation license fee which is estimated to be Rs. 41.76 Million. This translates into proposed tariff of Rs 0.0040 per kW/hr.

16.3. The Petitioner actually paid generation license fee of Rs. 33. 527 million and for FY 2019-20. The actual insurance premium paid for the old blocks during FY 2018-19 was Rs. 22.803 million. The Authority has decided to allow the same which shall be subject to indexation on the basis of changes in NCPI (General) as published by PBS. The reference NCPI (General) shall be of June 2019.

17. Whether the requested Regulatory revenue gap cost is justified?

17.1. According to the Petitioner, NEPRA determined tariff for a controlled period of 3 three years i.e. for FY 2014-15, 2015-16 and 2016-17. The indexed revenue however, earned through tariff was not adequate to meet with prudently incurred actual expenses and NPGCL has been suffering operational losses. The shortfall in revenue forced NPGCL to delay making payments to fuel supplier and a huge amount has been accumulated as payable to fuel suppliers. NPGCL has continued to face shortfall in the revenue as compared to actual expenses prudently incurred by NPGCL during FY 2017-18 and FY 2018-19. The detail has been shown in the table as under:

Capacity Charge	2018-19			2017-18		
	CPP Income	CPP Expense s	Surplus/ (Deficit)	CPP Income	CPP Expenses	Surplus/ (Deficit)
Adm. & Estab Exp	2,601.05	4,655.51	(2,054.46)	2,740.60	4,453.36	(1,712.76)
Insu & Regulatory	52.97	53.60	(0.62)	56.26	56.49	(0.23)
Fixed O&M	**2,654.03**	**4,709.11**	**(2,055.08)**	**2,796.87**	**4,509.85**	**(1,712.99)**
Depreciation	918.24	781.57	136.67	1,019.39	1,782.15	(762.76)
Interest cost	25.06	25.06	-	27.82	27.82	-
Return on Equity	1,846.73	1,846.73	-	2,050.15	2,050.15	-
Total	**5,444.06**	**7,362.48**	**(1,918.42)**	**5,894.23**	**8,369.98**	**(2,475.75)**

17.2. According to the Petitioner, financial years 2017-18 and 2018-19 have not been covered in the controlled period, therefore, NPGCL makes request to Authority to please allow recovery of shortfall in revenue of Rs 4,394.16 million (2,475.75 during 2017-18 & Rs 1,918.42 during 2018-19) on account of regulatory revenue gap of CPP cost component of tariff. This translate into additional CPP charge of Rs 0.4173/kW/hr. for a year.

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17.3. The submissions of the Petitioner have been evaluated. The delay of approximately 2½ years in filing the petition is on the part of NPGCL. NPGCL was supposed to file the tariff petition before the expiry of the control period which was not done and therefore, financial impact, if any, shall be borne by the Petitioner. The Authority has decided to reject the request to of the Petitioner to allow revenue gap due to delayed filing of tariff petition.

18. <u>Whether the Depreciation, Interest and ROE/Investment cost is reasonable and justified?</u>

18.1. According to the Petitioner, the Authority has determined non-Escalable cost components of CPP containing of Depreciation, Interest on loans and Return on Investment in its previous Determination. The depreciation charge has been allowed as worked out in accordance with depreciation rate as per adopted accounting policy of the Company. The interest on loan has been allowed as per debt retirement schedule of the outstanding loans. The return on equity has been allowed @11.2% for the portion of equity investment made in the operational assets of the energy blocks covered in the generation license of the Company.

18.2. According to the Petitioner, as per generation license, the allowed period of GTPS Faisalabad (Unit 5-9) will expire in the year 2022 and of TPS M/Garh will expire in 2033. In view of the above situation, NPGCL proposed to recover amount of regulated capital assets cost including stock of spare parts with due return within the remaining period of license of old blocks. The annual capital redemption charge of Rs 2,591.2 million was proposed.

18.3. The Petitioner vide its letter No. CEO/MZG/8914-16 dated 16-10-2020 referred the CPPA-G letter No. CPPA/CFO/DGMF-1/20950-52 dated 9-10-2020 whereby directions of the GOP have been conveyed to NPGCL to file tariff revision petition to NEPRA proposing reduction of return on equity from existing to 10%. In compliance of said directions, NPGCL requested to determine ROE charge of Rs. 1,790 million (Rs. 0.1700/kW/hr.) on the basis of equity of Rs. 17,899 million @ 10% ROE and depreciation charge of Rs. 1,098 million (Rs. 0.1044/kW/hr.).

18.4. Since depreciation is the recovery of capital investment, it would be appropriate to allow return on net fixed assets in operation instead of equity amount in line with applicable mechanism in case of distribution companies or in case of generation companies where equity is redeemed. Accordingly, the Petitioner was asked to provide details of net fixed assets in operation. The Petitioner vide email dated 23-10-2020 provided details of net fixed assets in operation as on 30th June 2019 of Rs. 8,709.6 million and Rs. 7,628.9 million as on 30-6-2020 and depreciation charge for the FY 2019-20. For FY 2019-20, the Petitioner calculated average net fixed assets in operation of Rs. 8,169.2 million and return thereof @ 10% of Rs. 816.9 million and depreciation charge of Rs.1,080.8 million.

18.5. The Petitioner was asked further to provide details of assets build through USAID. The Petitioner vide email dated 4-11-2020 informed that cost of assets build through USAID are Rs. 1,057.27 million, accumulated depreciation of Rs. 251.07 million and annual depreciation charge of Rs. 37 million as on June 30, 2019. The written down value of assets build through USAID was Rs. 806.204 million. Since these assets were built through grant,

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there is no justification to allow return on these assets and accordingly the same has been deducted from the WDV of assets as on 30th June 2019. Since the requested control period is 3 years, it would be appropriate to calculate average net fixed assets in operation over a period of three years instead of FY 2019-20. Accordingly, the average net fixed assets in operation after accounting for depreciation for each year has been worked out Rs. 6,339.10 million and return on assets @ works out Rs. 633.91 million. The Average depreciation charge over the three years tariff control period works out Rs. 1,042.40 million and the same is being approved.

19. Whether the Regulatory Gap items pertaining to FY 2004 to FY 2014 are justified?

19.1. The Petitioner submitted that tariff determined by NEPRA in 2006, which remained applicable till revised in 2014, did not include the following cost which NPGCL was incurring during the said period:

i. Start-up Charges

ii. Partial load Adjustment Charges

iii. Adjustment in Calorific value of HSFO

iv. Transformation & Switchyard Losses

v. Ambient Condition Correction Factor

vi. Heat Rate impact on Aging/Degradation of Plant

vii. Heat Rate Adjustments

viii. RFO Stock Carrying Cost.

19.2. According to the Petitioner, NPGCL has sustained colossal loss for not recovering the aforesaid cost through tariff consequently has defaulted in making payment to fuel suppliers. In order to clear the overdue payable of fuel supplier, the requested charge is justified and reasonable. NPGCL requested to allow the above costs pertaining to FY 2004 to FY 2014.

19.3. The submissions of the Petitioner have been evaluated. The Petitioner did not calculate the financial impact of each item requested above. The request of the Petitioner for approval of cost of the above items pertaining to FY 2004 to FY 2014 in FY 2019-20 is not justified by any standard. The failure to request for the same in the relevant period was on the part of Petitioner and consumers cannot be penalized for the past inefficiencies of the Petitioner. The Authority has decided to reject the request of the Petitioner under this head.

20. Capital Expenditures (CAPEX)

20.1. According to the Petitioner, NPGCL is suffering losses for not getting adjustment in Heat Rate by carrying out Heat Rate Test as already directed by NEPRA. NPGCL intends to carry out Heat Rate Test and has obtained quotes for the same from Independent Engineers. As

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per fee quotes, carrying out Heat Rate test will cost Rs 85 million to NPGCL. The cost of carrying Heat Rate Test is not covered in any cost component of tariff already determined by NEPRA.

20.2. According to the Petitioner, due to not having installed Energy/ Revenue meters at bus bars, the Net Electrical Output of TPS M/Garh and GTPS Faisalabad is being worked out as difference between export and import of power in the switchyards of said power complexes. The transmission losses of the switchyards are costing NPGCL heavily therefore NPGCL intends to arrange installation of Energy/ Revenue meters at the busbars of the power stations of M/Garh and Faisalabad in coordination with NTDC. The section of "Metering and Protection Code" with caption of Installation of Grid Code states that "installation of revenue meter and ancillary equipment at substation for point of connection shall be the responsibility of the Generator". As per quotes, the purchase and installation of Energy/ Revenue meters would cost NPGCL as Rs 125 million. The said cost is not covered in the tariff already determined by NEPRA.

20.3. According to the Petitioner, most of operation and transport vehicles maintained by NPGCL have completed their economical useful life and are in bad shape now. To keep them roadworthy, NPGCL has to incur heavy running cost which is not covered in the tariff. NPGCL therefore intends to replace 30 vehicles by purchasing the new vehicles at an estimated cost of Rs 90 million in three years.

20.4. According to the Petitioner, SNGPL supplies gas to the residential colony of TPS M/Garh through bulk meter. NPGCL maintains gas supply system in the residential colony at its own. The Gas meters already installed in Residential colony have become faulty and NPGCL has taken up the case with SNGPL to replace the existing faulty meters with new meters and maintain the gas supply systems in the residential colony as well. SNGPL has quoted price of Rs. 90 million for this purpose which is not covered in the existing tariff. NPGCL therefore, makes request to the Authority to allow revenue in tariff to make spending for replacement of faulty meters.

20.5. According to the Petitioner, NPGCL is required upfront revenue for procurement of aforesaid capital nature items, for which Company has no resources. NPGCL requested to allow aforesaid capital expenditures of Rs 390 million altogether and adjust in tariff to recover the amount over the remaining years under license period of the respective power plant.

20.6. The submissions of the Petitioner have been evaluated. Keeping in view the decommissioning plan stated above, there seems no justification for these capital expenditure at this stage and the same has not been considered.

21. Other Income

21.1. The Petitioner did not request adjustment of other income in the revenue requirement. The details of other income for FY 2018-19 is provided hereunder:

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Description	FY 2018-19	FY 2017-18	FY 2016-17	FY 2015-16	Average
	Rs. in Million				
Profit on deposits from banks	286.45	232.76	79.49	136.00	183.68
Scrap sales	36.02	14.27	-	2.53	13.21
Miscellaneous	89.17	86.93	76.52	32.76	71.35
Sub-Total	**411.65**	**333.96**	**156.02**	**171.29**	**268.23**

21.2. NPGCL also recognized other income on account of Amortization of deferred assets/grants, credit balances written back, however, the same were not considered while assessing other income as these were merely accounting entries and are not other income in true sense. The average of the rest of other income is Rs. 268.23 million over a period of last four years and the same has been accounted for while allowing the revenue requirement in line with the previous determinations of the Authority.

22. Use of System Charges

22.1. According to the Petitioner, the switchyards at Piranghaib Multan and TPS Muzafargarh are being used by NTDC to serve different feeders for transmission of electricity. In addition to these, the switchyard of GTPS Faisalabad is also being used by NTDC/FESCO for dispersal of power in the local area being injected from other sources. The Petitioner requested NEPRA to direct NTDC to install energy meters at busbar of TPS Muzaffargarh and GTPS Fsd and allow compensation to NPGCL on account of system usage charges for the interim period until NTDC takes over the system permanently. The Petitioner referred the following approved "Use of system charge" (UOSC) of LESCO and requested to allow the same.

LESCO's UOSC are equal to:

iii) Where Both 132 kV and 11kV distribution system are Involved

$$\text{UOSC} = \text{DM(Gross)} \times \frac{(1-L)}{(1-0.06)} \times \text{AFI(TD) Paisa / kWh}$$

Where:

Gross Distribution Margin for FY 2015-16 is set at Rs. 1.51/kWh (without excluding impact of other income)

'L' is the overall percentage loss assessment for the respective year.

AFI(TD) = Adjustment factor for investment at both 132kV & 11kV level i.e. 76%."

22.2. The Petitioner vide email dated 1st October 2020 requested to allow establishment cost of the employees presently deployed at defunct (de-licensed) power plants either as part of establishment cost of operation power plants or determine use of system charge to be paid by NTDC to NPGCL to recover the same until NTDC takes over aforesaid switchyards from NPGCL.

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22.3. NPGCL is directed to recover this cost from NTDC on account of switchyard services. In case NTDC refuses to pay for switchyard services, NPGCL may refuse to provide the same by giving suitable notice to NTDC.

23. Summary of Tariff

23.1. Summary of the approved capacity charges on 'take & pay' basis are as under:

Description	Approved Cost	Approved Tariff
	Rs. in Mlns	Rs./kWh
Escalable:		
Fixed O&M - Estab Expenses	3,582.52	1.6236
Fixed O&M - Admin Expenses	78.68	0.0357
Fuel stock carrying cost	278.58	0.1263
Insurance & Regulatory cost	56.33	0.0255
Total Escalable	**3,996.11**	**1.8110**
Non-Escalable:		
Depreciation	1,042.40	0.4724
Return on Equity/Investment	633.91	0.2873
Total Non-Escalable	**1,676.31**	**0.7597**
Other Income	(268.23)	(0.1216)
Total CPP	**5,404.19**	**2.4492**

23.2. Summary of the approved energy charges are as under:

Energy Purchase Price	RFO	Gas	RLNG
	Rs./kWh		
M/Garh Unit # 1	10.6378	6.6472	16.3940
M/Garh Unit # 2	10.7819	6.7348	16.6101
M/Garh Unit # 3	10.4091	6.5085	16.0520
M/Garh Unit # 4	10.3936	6.4993	16.0293
M/Garh Unit # 5	11.0671	6.9075	17.0359
M/Garh Unit # 6	11.3698	7.0902	17.4865
GTPS F/Abad Unit 5-9	-	5.3325	13.1515
Variable O&M	0.20	0.20	0.20
Ref. Price (Rs./ton, Rs./MMBTU)	39,000	588.23	1450.75

24. Order

I. Northern Power Generation Company Limited (NPGCL) is allowed to charge the tariff as provided hereunder for sale of its electricity to the Central Power Purchasing Agency (Guarantee) Limited, according to the following approved tariff on take & pay basis:

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Capacity Charges

Description	Rs./kWh
Escalable:	
Fixed O&M - Estab Expenses	1.6236
Fixed O&M - Admin Expenses	0.0357
Fixed O&M - Insurance & Regulatory cost	0.0255
Fuel stock carrying cost	0.1263
Total Escalable	**1.8110**
Non-Escalable:	
Depreciation	0.4724
Return on Equity/Investment	0.2873
Total Non-Escalable	**0.7597**
Other Income	(0.1216)
Total CPP	**2.4492**

Energy Charges

Energy Purchase Price	RFO	Gas	RLNG
	Rs./kWh		
M/Garh Unit # 1	10.6378	6.6472	16.3940
M/Garh Unit # 2	10.7819	6.7348	16.6101
M/Garh Unit # 3	10.4091	6.5085	16.0520
M/Garh Unit # 4	10.3936	6.4993	16.0293
M/Garh Unit # 5	11.0671	6.9075	17.0359
M/Garh Unit # 6	11.3698	7.0902	17.4865
GTPS F/Abad Unit 5-9	-	5.3325	13.1515
Variable O&M	0.20	0.20	0.20

II. The following adjustments/indexations shall be applicable:

i) Fuel Cost component

Fuel cost component on each fuel shall be subject to adjustment on account of actual variation in the price of fuel as per following mechanism:

$FCC_{(Rev)}$	=	$FCC_{(Ref)} \times P_{(Rev)} / P_{(Ref)}$
Where:		
$FCC_{(Rev)}$	=	Revised Fuel cost component on RFO/Gas/RLNG
$FCC_{(Ref)}$	=	Reference Fuel cost component on RFO/Gas/RLNG
$P_{(Rev)}$	=	Revised Ex-GST delivered price of RFO/Gas/RLNG
$P_{(Ref)}$	=	Reference Ex-GST delivered price of RFO Rs. 39,000/ton, Gas Rs. 588.23/MMBTU and RLNG Rs. 1,450.75/MMBTU.

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ii) Inflation Indexation

O&M components of tariff shall be adjusted on account of local Inflation (NCPI) biannually on 1st July and 1st January on the basis of latest available NCPI (General) published by Pakistan Bureau of Statistics as per the following mechanism:

V. $O\&M_{(REV)}$	=	V. O&M $_{(REF)}$ * NCPI $_{(REV)}$ / $NCPI_{(REF)}$
F. $O\&M_{(REV)}$	=	F. O&M $_{(REF)}$ * NCPI $_{(REV)}$ / NCPI $_{(REF)}$
Where:		
V. $O\&M_{(REV)}$	=	The revised Variable O&M Component of Tariff
F. $O\&M_{(REV)}$	=	The revised Fixed O&M Component of Tariff
V. $O\&M_{(REF)}$	=	The reference Variable O&M Component of Tariff
F. $O\&M_{(REF)}$	=	The reference Fixed O&M Component of Tariff
$CPI_{(REV)}$	=	The revised NCPI (General)
$CPI_{(REF)}$	=	The reference NCPI (General) for June 2019

iii) Fuel Stock Carrying Cost

Fuel stock carrying cost component shall be subject to adjustment biannually on the basis of following mechanism:

$FSCC_{(Rev)}$	=	$FSCC_{(Ref)} \times P_{(Rev)} / P_{(Ref)} \times I_{(Rev)} / I_{(Ref)} \times S_{(Rev)} / S_{(Ref)}$
Where:		
$FSCC_{(Rev)}$	=	Revised fuel stock carrying cost component.
$FSCC_{(Ref)}$	=	Reference fuel stock carrying cost component.
$P_{(Rev)}$	=	Revised Ex-GST delivered RFO price per ton.
$P_{(Ref)}$	=	Reference Ex-GST delivered RFO price of Rs. 56,906/ton.
$I_{(Ref)}$	=	Reference interest rate of 7.24% KIBOR plus 2% premium.
$I_{(Rev)}$	=	Revised interest rate of KIBOR plus 2% premium.
$S_{(Ref)}$	=	Reference fuel stock of 52,981 tons
$S_{(Rev)}$	=	Revised average actual fuel stock during the last six months with maximum of 52,981 tons

iv) Adjustment on Account of Calorific Value

Calorific value of RFO fuel shall be subject to adjustment as per following mechanism:

a) The reference CV will be 18364 Btu/lb. There will however be no adjustment below the minimum limit of 18200 Btu/lb.

b) NPGCL shall maintain and submit, annually a detailed record of consignment wise CV of the oil received and consumed for power generation for the

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adjustment on account of variation against the reference calorific value duly supported with the copies of test reports certified by the fuel supplier.

III. The impact of taxes has not been accounted for in the tariff. In case NPGCL is obligated to pay any tax, the exact amount paid shall be reimbursed as per existing practice.

IV. The above determined tariff shall take effect from the date of issuance of the instant decision.

25. Notification

25.1. The above tariff is intimated to the Federal Government for notification in the official gazette in accordance with Section 31(7) of the Regulation of Generation, Transmission and Distribution of Electric Power Act 1997.

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