



JAMSHORO POWER COMPANY LIMITED

(GOP OWNED CORPORATE ENTITY)

Chief Executive Officer

No: CEO/JPCL/ 3480

Dated 19-10-20

Registrar NEPRA,
NEPRA Tower, Ataturk Avenue (East),
G-5/1, Islamabad
Ph No: 051-9206500 &
Fax No: 051-2600026

Subject: REVISED TARIFF PETITION FOR APPROVAL / DETERMINATION OF REVISED TARIFF FOR JAMSHORO POWER COMPANY LIMITED (JPCL) (THE "COMPANY").

Kindly find enclosed herewith, JPCL's revised tariff petition with annexures, for the approval / determination by the authority, along with the following documents:

1. Demand Draft ABC No. BBB 14043190 amounting Rs.18,69,440/- (Eighteen Lac Sixty Nine Thousand Four Hundred and Forty Rupees) on account of revised tariff petition fee.
2. Affidavit by the CEO, JPCL; and
3. Vakalatnama in favour of JPCL's legal counsel.

Board Resolution is under process & will be provided soon, so it is requested that the revised tariff petition may please be considered & processed accordingly.

[Signature]
Chief Executive Officer
JPCL (GENCO-I)

Distribution:

1. MD / CEO (GHCL), 1st Floor OPF Building, Sector G-5/2, Islamabad.

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Dy. No: 13547
Date: 21/10/20

BEFORE THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY

Case No. _____

Jamshoro Power Company Limited

..... Petitioner

In the matter of:

TARIFF MODIFICATION PETITION
UNDER RULE 3(1) OF THE NATIONAL ELECTRIC POWER
REGULATORY AUTHORITY (TARIFF STANDARDS AND
PROCEDURE) RULES, 1998 AND PROCEDURE) RULES, 1998

21st October 2020

RIZWAN FAIZ ASSOCIATES

Apartment # 011 • Tariq Heights • Street # 73 • Sector F-11/1 • Islamabad
Tel (051) 8735459 • Fax (051) 8440150 • Cell (0300) 2444261
Email rizwan@rfa.com.pk

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List of Abbreviations / Acronyms

BTU	British Thermal Unit
CDC	Current Dependable Capacity
CPPA	Central Power Purchase Agency (Guarantee) Limited
CPI	Consumer Price Index
CPP	Capacity Purchase Price
EPC	Engineering, Procurement and Construction
EPP	Energy Purchase Price
FCC	Fuel Cost Component
GoP	Government of Pakistan
GWh	Gigawatt Hour
HSD	High Speed Diesel (Light Fuel Oil)
IFC	International Finance Corporation
IPP	Independent Power Producer
IRR	Internal Rate of Return
JPCL	Jamshoro Power Company Limited
KIBOR	Karachi Interbank Offered Rate
kW	Kilowatt
KWh	Kilowatt hour
LIBOR	London Interbank Offered Rate
LC	Letter of Credit
MW	Megawatt
MWh	Mega Watt Hour
NEPRA	National Electric Power Regulatory Authority (" Authority ")
NPCC	National Power Control Centre
NTDC	National Transmission and Dispatch Company Limited
OGRA	Oil & Gas Regulatory Authority
O&M	Operation & Maintenance
PPA	Power Purchase Agreement
PPIB	Private Power & Infrastructure Board
RFO	Residual Fuel Oil
RoE	Return on Equity
Rs.	Pakistani Rupee(s)
USD	United States Dollar
WAPDA	Water & Power Development Authority
WEPS	WAPDA Equipment Protection Scheme
WPI	Wholesale Price Index

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A. INTRODUCTION & BACKGROUND

1. Introduction

1.1. Jamshoro Power Company Limited, was issued Generation License No. GL/01/2002 on 1st July 2002.

1.2. The instant Tariff Modification Petition ("**Petition**") under Rule 3 of the National Electric Power Regulatory Authority (Tariff Standards and Procedures) Rules, 1998 ("**Tariff Rules**") is being filed for revision/modification of the following tariff determinations in respect of JPCL by the Authority:

1.2.1. Determination of the Authority dated 12th September 2014 in the matter of Tariff Petition filed by Jamshoro Power Company Limited [Case No. NEPRA/TRF-255/JPCL-2014] (the "**First Determination**");

1.2.2. Determination of the Authority dated 1st September 2015 in the matter of Motion for Leave to Review filed by Jamshoro Power Company Limited against the Determination of the Authority dated 1st September 2015 (the "**Second Determination**"), effective from 1st July 2014.

1.3. This Petition is being filed by JPCL through its authorized representative and Chief Executive Officer, Engr. Syed Tanveer Ahmed Jafri, who has been duly authorized in this regard by JPCL's Board of Directors. Additionally, JPCL has authorized the following representatives to act on its behalf in the matter:

- i. Mr. Abdul Raqeeb, Chief Financial Officer;
- ii. Mr. Mohsin Khatri, Manager CPC;
- iii. Mr. Zeeshan Muzammil Khan, Deputy Manager;
- iv. Mr. Rizwan Faiz Muhammad, Advocate, Counsel for JPCL.

1.4. Through this Petition, JPCL seeks an extension of JPCL's tariff for a further period of five years, up to 30th June 2025 with *inter alia* the following modifications / revisions;

1.4.1. Reduction in RoE from 13.11% to 10% with effect from the date of the Authority's decision on this Petition;

1.4.2. CPI Indexation on Fixed O&M cost, with effect from 1st July 2014;

- 1.4.3. Grant of startup cost with effect from 26th November 2010 (i.e., the date of execution of the PPA between JPCL and CPPA); *and*
- 1.4.4. Adjustment/approval of correction factors that were established (CDC Load Vs CDC Heat Rate) as a result of 2013 CDC and Heat Rate Tests in order to apply them on percentage basis on partial loading.

2. Background

- 2.1. JPCL is a public limited company wholly owned by the GoP. JPCL was incorporated on 3rd August 1998 for the purpose of taking over the properties, rights, assets, obligations, and liabilities in respect of Thermal Power Station, Jamshoro ("**TPS Jamshoro**") and Gas Turbine Power Station Kotri ("**GTPS Kotri**"), which were previously owned by WAPDA, in the wake of unbundling of WAPDA's Power Wing.
- 2.2. On 1st July 2002, a generation license ("**Generation License**") was issued to JPCL by the Authority to engage in the business of power generation for a term of nineteen (19) years, under s. 15 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 ("**NEPRA Act**").
- 2.3. The Generation License was initially set to expire on 30th June 2021; however, it has been modified, thus far, on four (04) occasions.
 - 2.3.1. Firstly, vide Modification-I dated 16th April 2014, the operation of Block-IV (GT-1 & GT-2) of GTPS Kotri was discontinued and these units were excluded from the Generation License by the Authority.
 - 2.3.2. Thereafter, the Authority, vide Modification-II dated 11th August 2014 added the 2x660MW Jamshoro Coal Power Project to the Generation License. Furthermore, in the same modification: (i) JPCL's Generation License was extended up to 30th December 2049; (ii) the 2x660 MW coal fired units were licensed for a period of 30-years from the date of their first commercial operation; (iii) operation of TPS Jamshoro was extended up to 2029; *and* (iv) operation of GTPS Kotri was extended up to 2027.
 - 2.3.3. The Authority vide Modification-III dated 13th February 2020 de-licensed the units of GTPS Kotri; *and*

2.3.4. Finally, vide Modification-IV dated 1st October 2020, the Authority aligned TPS Jamshoro's dependable capacity with the capacity stated in JPCL's tariff determinations.

- 2.4. JPCL's present tariff determination was issued by the Authority on 1st September 2015, however, it was made effective from 1st July 2014. Breakup of JPCL's existing CPP is as follows:

Table – 1: Breakup of JPCL's Capacity Purchase Price

#	Component	Million Rs. /kW/Month
A	Escalable Component (Fixed O &M)	256.82
	Salaries Wages and Benefits	189.54
	Repair and Maintenance	49.63
	Admin & General Expenses	22.24
	Other Income	(4.59)
B	Non-Escalable Component	181.56
	Insurance	1.06
	ROE	100.96
	Financial Charges	2.98
	Depreciation	76.56
C	Total Capacity Purchase Price (A+B)	438.38

B. PROPOSED REVISED TARIFF

3. Reduction of RoE from 13.11% to 10%

- 3.1. On 6th October 2020, JPCL received a letter [Annex-A] from the Ministry of Energy (Power Division), communicating a decision by the Cabinet Committee on Energy ("CCoE") dated 27th August 2020 in Case No. CCE/46/13/2020, whereby, it was decided *inter alia* that the RoE component of the GENCOs' tariff would be reduced to 10% and the GENCOs were directed to approach the Authority for revision of their tariffs accordingly. The CCoE further directed that: "...the necessary approvals / process for submission of the tariff revision petition to NEPRA may be completed within two weeks' time". The CCoE's decision further stated that the financial deficit from reduction of the GENCOs' RoE would be catered through support from the Finance Division.
- 3.2. Under the present tariff, JPCL's RoE @ 13.11% comes out to **Rs. 866m** per annum, whereas, the reduction of RoE to 10% will result in the RoE being reduced to **Rs. 661m**, thus resulting in an annual negative impact of **Rs. 205m** in JPCL's RoE.

4. Revision of Fixed O&M Cost (Escalable Component – CPP)

4.1. JPCL's Fixed O&M Cost consists of the following components:

- i. Salaries and wages;
- ii. Administrative expenses;
- iii. Repair and maintenance expenses;
- iv. Other income.

4.2. Under its existing tariff, JPCL has been incurring significant losses on account of the fact that the Fixed O&M Cost component of the CPP in its tariff was determined without CPI indexation, and therefore, does not reflect the actual expenses incurred by the company over the past many years.

4.3. Furthermore, the anticipated reduction of JPCL's RoE is expected to further constrain JPCL in terms of actual expenses being incurred for salaries, wages, and pensions from the RoE component of the tariff.

4.4. A summary of the losses being incurred by JPCL on account of the of Fix O&M Cost component of the CPP being on the lower side, as per JPCL's audited financial statements for the past six years is as follows:

Table – 2: Summary of JPCL's losses over Fix O&M Cost (In Million Rs.)

Financial Year	Actual Fix O&M Costs Incurred	Fix O&M Cost as per Tariff	Net Loss
2014-15	2,648.519	2,328.392	320.127
2015-16	3,632.965	2,328.392	1,304.573
2016-17	3,034.188	2,328.392	705.796
2017-18	2,802.406	2,328.392	474.014
2018-19	3,521.038	2,328.392	1,192.646
2019-20*	4,085.487	2,328.392	1,757.096

* The statements for 2019-20 are unaudited

a. Salaries & Wages

4.5. The salary and wage expense includes pay and allowances, overtime, conveyance allowance, and generation allowance to the employees of the Company etc. Expenses under this head also include medical and hospitalization expenses, education and training, pension charges and free electricity to JPCL's employees.

- 4.6. The Authority had previously allowed JPCL Rs. 1,718 million for salaries expenses as per actual calculations, after considering the JPCL's request in this regard. In a similar vein, the Authority is requested to allow JPCL salary expenses with effect from 1st July 2014 *on an actual basis* up to 30th June 2025.
- 4.7. During hearing in the last tariff petition filed by JPCL, the Authority directed JPCL to cut down on salary expense by laying-off employees. The Authority gave the example of employees/MW at various power plants in Bangladesh; however, it is submitted that such cases are distinguishable from JPCL's as JPCL's employees, being public sector employees, have protection of service, and cannot be laid-off in the manner that contractual employees might be.
- 4.8. Furthermore, JPCL has not hired any employees, save for hiring in strategic positions, for close to a decade now. Thus, the numbers of JPCL's employees is steadily decreasing, however conversely, the number of pensioners is on the rise. A comparison between JPCL's serving and retired employees in the past six financial years is as follows:

Table – 3: Comparison of Numbers of JPCL's Serving and Retired Employees

Financial Year	Number of Employees		Total
	Serving	Retired	
2014-15	1558	372	1930
2015-16	1546	495	2041
2016-17	1536	647	2183
2017-18	1563	698	2261
2018-19	1530	777	2307
2019-20	1481	858	2339

- 4.9. JPCL's accounts for the past six financial years reveal that the expenses on account of pensionary and retirement benefits have been steadily increasing, as opposed to the expenses on salaries and emoluments for serving employees.

Table – 4: Comparison Between Expenses Incurred for Serving and Retired Employees (Rs. Million)

Financial Year	Annual Liability for Serving Employees	Pension Liability at Years' End
2014-15	3,928.248	6,412.155
2015-16	1,477.020	8,271.834
2016-17	1,245.007	10,412.060
2017-18	1,346.895	13,261.464

2018-19	1,595.984	14,155.734
2019-20	2,216.882	16,470.882

- 4.10. JPCL applies the pay-scales of GoP's employees to its employees and accordingly, JPCL's employees become entitled to any revision in the salaries or emoluments of GoP's employees in the annual budget, or otherwise. It is therefore reasonable that the salary and wage component of JPCL's Fix O&M Cost should be linked with revisions in pay and pension by the GoP and should also cater for an annual increment on an actual basis, or alternatively, linked with CPI indexation. This will allow JPCL to recover through its tariff, the actual cost of salaries, wages, and pensions incurred by it.
- 4.11. **Crucially**, a majority of JPCL's employees are lower-scale employees, performing functions that are normally outsourced by IPPs. A category-wise breakup of JPCL's employees is as follows:

Table – 5: Plant-wise and pay-scale-wise breakdown of JPCL's employees

Employee Scale	TPS Jamshoro	GTPS Kotri	Total
Executive / Managerial (BPS 17 and above)	143	22	165
Supervisory / Support Staff (BPS 11 – 16)	453	158	611
Labour and Security Staff (BPS 1 – 10)	588	117	705
Total	1184	297	1481

b. Administrative Expenses

- 4.12. Administrative expenses include communication charges, office supplies, advertising, subscription and periodicals, traveling expenses, professional fees, transportation expenses and fees paid to regulatory authorities, etc.
- 4.13. The Authority previously allowed administrative expenses amounting to Rs. 201.607 million which translated into a tariff of Rs. 22.24/kW/Month, however the same is insufficient, in light of the escalation of nearly all expenses and prevailing high inflation.
- 4.14. The Authority is accordingly requested to allow CPI indexation of the administrative expenses with effect from 1st July 2014, up to 30th June 2025, with the permission to also allow any extraordinary or unusual expense after submission of relevant evidence.

c. Repair and Maintenance

- 4.15. The repair and maintenance works include maintenance of Steam Power Generation Plant, Water treatment Plant, repair and maintenance of Balance of Plant including repair and maintenance of buildings and infrastructure, etc. The Authority had previously approved **Rs. 450m** per annum as repair and maintenance cost with the reimbursement of the actual expenditure after provision of documentary evidence.
- 4.16. It is requested the Authority may also allow CPI indexation of the repair and maintenance expense with effect from 1st July 2014, up to 30th June 2025, with the permission to also allow any extraordinary or unusual expense after submission of relevant evidence.

d. Other Income

- 4.17. JPCL's 'Other Income' consists of interest, and income from sale of scrap. The tariff component for Other Income, as per the previous determination was Rs. 4.59/kW/Month. It is requested that the Authority may kindly allow this expense be adjusted along as per the CPI for the revised tariff effective from 1st July 2014 up to 30th June 2025.
- 4.18. The company is thus seeking CPI indexation of all components of Fixed O&M Cost, except for the costs of salaries and wages, which the Authority is requested to allow as per actual.

5. Non Escalable Component of CPP

a. Insurance Cost

- 5.1. This covers the cost of insurance of JPCL's complex and is paid as per the internal policy. The insurance premium is Rs. 10 Million. The tariff works out to be Rs. 1.06 per kW/Month as previously allowed by NEPRA. The Authority is requested to retain this tariff component as it is up to 30th June 2025.

b. Return on Equity

- 5.2. The RoE allowed by the Authority is @ 13.11%, which, as aforementioned, amounts to **Rs. 866m**. As mentioned above, the CCoE has directed all GENCOs, including JPCL to ask the Authority to reduce the rate of RoE to 10%, which will reduce JPCL's annual RoE to **Rs. 661m**, a reduction of **Rs. 205m** per annum.
- 5.3. JPCL's seek the revision of the RoE rate to 10% with effect from the date of the revised tariff's approval by the Authority.

c. Finance Charges

- 5.4. In the existing tariff, the Authority has allowed Rs. 2.98 per kW/Month as finance charges. It is worth mentioning that the following loans are still owed by JPCL:

Lender:	GoP
Balance Principal Amount:	Rs. 88.253m (as on 30 th June 2020)
Interest Rate:	17.50%
Term:	1997 – 2024

- 5.5. Accordingly, JPCL seeks that the same tariff for debt servicing may be retained in view of the outstanding balance of the principal amount.

d. Depreciation

- 5.6. The depreciation cost may change as a result of addition or deletion in the fixed assets and would require adjustments accordingly. In the existing tariff, the Authority had allowed depreciation costs of **Rs. 694m** as requested by JPCL, which translated into a tariff of Rs. 76.56/kW/Month.
- 5.7. The Authority is requested to allow the depreciation cost as per actual in its determination, up to 30th June 2025.

6. Summary of Requested CPP

- 6.1. In view of the submissions in paras 3, 4, and 5 *supra* the **proposed** CPP component of JPCL's tariff, along with a comparison with the existing CPP component, is as follows:

Table – 6: Summary of Requested CPP (all figures in Rs. Million)

#	Component	Existing CPP	Requested/Proposed CPP			
		Rs. /kW/m	Rs. /kW/m	kW	Rs/month	Rs/annum
A	Escalable Component	256.82	433.25			
i	Salaries & Wages	189.54	365.97	649,017	237,517,843	2,850
ii	Repair and Maintenance	49.63	49.63	649,017	32,210,714	387
iii	Administrative Expenses	22.24	22.24	649,017	14,434,138	173
iv	Other Income	(4.59)	(4.59)	649,017	(2,978,988)	(36)
B	Non-Escalable Component	181.56	165.48			
i	Insurance	1.06	1.06	649,017	687,958	8
ii	RoE	100.96	84.88	649,017	55,088,563	661
iii	Financial Charges	2.98	2.98	649,017	1,934,071	23
iv	Depreciation	76.56	76.56	649,017	49,688,742	596
C	Total CPP (A+B)	438.38	598.73	649,017	388,583,040	4,663

7. Energy Purchase Price Component

a. Variable O&M

- 7.1. The Authority is requested to allow CPI indexation on the Variable O&M at the rate of Rs. 0.0925/kWh a portion of the EPP.

b. Startup Costs

- 7.2. JPCL's existing tariff was approved through the Second Determination on 1st September 2015, which was made effective from 1st July 2014. This determination did not cater for any startup costs, due to which, JPCL has been unable to raise any invoice for these costs to CPPA.
- 7.3. In a similar case moved by Northern Power Generation Company Limited ("GENCO-III"), the Authority was of the view that startup costs should be in line with those allowed for IPPs and a separate invoice should be raised for these costs on the basis of the actual startup costs, as per the respective PPAs. The Authority therefore decided in GENCO-III's case that it would settle the matter with CPPA and submit the same for the Authority's approval. We understand that GENCO-III and CPPA have finalized their working on startup costs and have submitted the same for the Authority's approval.
- 7.4. In view of the foregoing, vide letter dated 7th October 2020 (**Annex-B**) JPCL has also communicated to CPPA, a startup cost calculation mechanism, for its concurrence and onward transmission to the Authority for its approval.
- 7.5. Furthermore, JPCL has not been granted any startup costs for the period from November 2010 (*when JPCL's first PPA was executed*), to date. On account of this, JPCL has suffered significant financial losses which are reflected in JPCL's annual financial statements in the portion of fuel cost usage variance.
- 7.6. The Authority is therefore requested, in line with the Authority's decision in GENCO-III's case dated 19th October 2016, to allow the startup costs to JPCL with effect from 26th November 2010, until the date of the Authority's decision, and onward in line with the mechanism proposed to CPPA by JPCL.

c. Partial Loading Adjustment Correction Factors

- 7.7. The Authority allowed the following results of CDC / Heat Rate tests that were carried out in 2013 by JPCL for Units 1 – 4 of TPS Jamshoro:

Table – 7: Approved CDC / Heat Rates for Units 1 – 4, TPS Jamshoro

Unit No	CDC Net Load (MW)	CDC Net Heat rate (Btu/kWh)
1	182.45	10859
2	154.73	12197
3	155.36	11868
4	156.48	11614
Total	649.02	-

7.8. Thereafter, the Authority allowed the Heat Rates for partial loading of Units 1 – 4 of TPS Jamshoro to be adjusted on the basis of the following partial loading correction curves supplied by the OEM:

Table – 8: OEM's Partial Loading Correction Curves for Units 1 – 4, TPS Jamshoro

Unit 1		Unit 2		Unit 3		Unit 4	
% Loading	Correction Factor	% Loading	Correction Factor	% Loading	Correction Factor	% Loading	Correction Factor
100	1.0000	100	1.0000	100	1.0000	100	1.0000
95	1.0001	95	0.9990	95	0.9990	95	0.9990
90	1.0020	90	1.0005	90	1.0005	90	1.0005
85	1.0058	85	1.0044	85	1.0044	85	1.0044
80	1.0114	80	1.0107	80	1.0107	80	1.0107
75	1.0280	75	1.0194	75	1.0194	75	1.0194
70	1.0281	70	1.0306	70	1.0306	70	1.0306
65	1.0392	65	1.0441	65	1.0441	65	1.0441
60	1.0522	60	1.0601	60	1.0601	60	1.0601
55	1.0670	55	1.0785	55	1.0785	55	1.0785
50	1.0836	50	1.0993	50	1.0993	50	1.0993

7.9. JPCL applied the aforementioned correction factor for calculation of the partial loading heat rate, which is as under:

Table – 9: Application of OEM Correction Factor for Partial Loading Heat Rate

% Loading	OEM Net Loading	Correction Factor	Unit-1	Unit-2	Unit-3	Unit-4	Correction Factor	Unit-2	Unit-3	Unit-4
			Approved Heat Rate	OEM Net Loading				Approved Heat Rate		
100	234.94	1.0000	10859	205.85	205.85	205.85	1.0000	12197	11868	11614
95	223.19	1.0001	10860	195.56	195.56	195.56	0.9990	12185	11856	11602
90	211.45	1.0020	10881	185.27	185.27	185.27	1.0005	12203	11874	11620
85	199.70	1.0058	10922	174.97	174.97	174.97	1.0044	12251	11920	11665
80	187.95	1.0114	10983	164.68	164.68	164.68	1.0107	12328	11995	11738
75	176.21	1.0280	11163	154.39	154.39	154.39	1.0194	12434	12098	11839
70	164.46	1.0281	11164	144.10	144.10	144.10	1.0306	12570	12231	11969
65	152.71	1.0392	11285	133.80	133.80	133.80	1.0441	12735	12391	12126
60	140.96	1.0522	11426	123.51	123.51	123.51	1.0601	12930	12581	12312

55	129.22	1.0670	11587	113.22	113.22	113.22	1.0785	13154	12800	12526
50	117.47	1.0836	11767	102.93	102.93	102.93	1.0993	13408	13046	12767

7.10. In August 2018, the Authority directed JPCL to apply the approved OEM correction factor for calculation of the partial loading heat rate with respect to the CDC load. The results under this methodology are as under:

Table – 10: Application of OEM approved Corrector Factors for Partial Loading Heat Rate Calculation with respect to CDC Load

% Loading	CDC Net Loading	Correction Factor	Unit-1	Unit-2	Unit-3	Unit-4	Correction Factor	Unit-2	Unit-3	Unit-4
			Approved CDC Heat Rate	CDC Net Loading				Approved CDC Heat Rate		
100	182.45	1.0000	10859	154.73	155.36	156.48	1.0000	12197	11868	11614
95	173.32	1.0001	10860	146.99	147.60	148.65	0.9990	12185	11856	11602
90	164.20	1.0020	10881	139.26	139.83	140.83	1.0005	12203	11874	11620
85	155.08	1.0058	10922	131.52	132.06	133.00	1.0044	12251	11920	11665
80	145.96	1.0114	10983	123.78	124.29	125.18	1.0107	12328	11995	11738
75	136.83	1.0280	11163	116.05	116.52	117.36	1.0194	12434	12098	11839
70	127.71	1.0281	11164	108.31	108.75	109.53	1.0306	12570	12231	11969
65	118.59	1.0392	11285	100.58	100.99	101.71	1.0441	12735	12391	12126
60	109.47	1.0522	11426	92.84	93.22	93.89	1.0601	12930	12581	12312
55	100.35	1.0670	11587	85.10	85.45	86.06	1.0785	13154	12800	12526
50	91.22	1.0836	11767	77.37	77.68	78.24	1.0993	13408	13046	12767

7.11. The application of the results of Table-10 has resulted in an entirely unfeasible situation for JPCL, as the application of OEM correction factors for partial loading to the CDC load gives a completely distorted picture regarding fuel consumption by JPCL's units.

7.12. A more accurate way would be to apply correction factors obtained as a result of comparing CDC Loading and CDC Heat Rates, which is as under:

Table – 11: Application of CDC Correction Factors on % Loading of Actual Partial Load with respect to CDC Load

% Loading	CDC Net Loading	Correction Factor	Unit-1 CDC Heat Rate	CDC Net Loading	Correction Factor	Unit-2 CDC Heat Rate	CDC Net Loading	Correction Factor	Unit-3 CDC Heat Rate	CDC Net Loading	Correction Factor	Unit-4 CDC Heat Rate
100	182.45	1.0000	10859	154.73	1.0000	12197	155.36	1.0000	11868	156.48	1.0000	11614
95	173.32	1.0050	10913	146.99	1.0055	12264	147.60	1.0058	11937	148.65	1.0066	11691
90	164.20	1.0115	10984	139.26	1.0135	12362	139.83	1.0129	12021	140.83	1.0158	11798
85	155.08	1.0193	11069	131.52	1.0239	12489	132.06	1.0212	12120	133.00	1.0274	11932
80	145.96	1.0285	11168	123.78	1.0367	12645	124.29	1.0307	12232	125.18	1.0415	12096
75	136.83	1.0391	11284	116.05	1.0519	12830	116.52	1.0415	12361	117.36	1.0582	12290
70	127.71	1.0511	11414	108.31	1.0695	13045	108.75	1.0535	12503	109.53	1.0773	12512
65	118.59	1.0644	11558	100.58	1.0895	13289	100.99	1.0668	12661	101.71	1.0989	12763

60	109.47	1.0792	11719	92.84	1.1120	13563	93.22	1.0812	12832	93.89	1.1230	13043
55	100.35	1.0953	11894	85.10	1.1369	13867	85.45	1.0970	13019	86.06	1.1496	13351
50	91.22	1.1128	12084	77.37	1.1642	14200	77.68	1.1139	13220	78.24	1.1788	13691

7.13. It is therefore requested that in order to obtain a realistic view of the fuel component on partial loading, JPCL may be allowed to apply CDC Correction Factors on percentage-loading of actual partial load, with respect to the CDC Load as per Table-11.

7.14. **Alternatively**, JPCL may be allowed to apply OEM Correction Factors on percentage-loading of actual partial load, with respect to OEM Load as per Table-9.

7.15. It is noteworthy that in the present scenario, and particularly in light of the recommendations of the IGCEP-2047, the System Operator / NPCC plans to operate the base load of the units of TPS Jamshoro on an ON/OFF basis in order to balance the grid and to act as spinning reserve during the intermittent outage of 600MW plus Nooriabad wind corridor, other Variable Renewable Energy (VRE) plants outages, and in the absence of hydal generation. This frequent ON/OFF will have a significant negative impact on the heat rate and efficiency of these units. JPCL will sustain heavy losses on account of fuel usage variance, notwithstanding the grant of startup costs to JPCL. This operational trend was witnessed between 22nd June 2020 and 12th October 2020 whereby NPCC's despatch demand (**Annex-C**) was on this pattern, and TPS Jamshoro's base load / steam units were operated like gas turbines to balance the load or the grid, resulting in deterioration of their heat rate and efficiency.

7.16. In view of the foregoing, the Authority is requested to allow the calculation of the fuel cost component on partial loading on either the basis of the data contained **Table-11**, or alternatively, in **Table-9** *supra*.

8. Indexation

a. Fixed O&M Cost Component

8.1. The Fixed O&M Cost of the CPP Price shall be adjusted against variation in the CPI as per the following formula:

$$EC_{(Rev)} = EC_{(Ref)} * CPI_{(Rev)} / CPI_{(Ref)}$$

Where:

EC_(Rev) = the revised applicable Fixed O&M Cost Comp of Escalable Component of the Capacity Purchase Price

$EC_{(Ref)}$ = the Reference Fixed O&M Cost Comp of Escalable Component of the CPP

$CPI_{(Rev)}$ = the Revised Consumer Price Index

$CPI_{(Ref)}$ = the Reference Consumer Price Index as notified by Federal Bureau of Statistics for the month of June 2020.

b. Variable O&M Cost Component

- 8.2. Similarly, indexation of the variable O&M Cost Component of the EPP will be carried out pursuant to the following formula:

$$Variable\ O\&M_{(Rev)} = Variable\ O\&M_{(Ref)} * CPI_{(Rev)} / CPI_{(Ref)}$$

Where:

$Variable\ O\&M_{(Rev)}$ = the revised applicable Variable O&M Cost

$Variable\ O\&M_{(Ref)}$ = the reference applicable Variable O&M Cost

$CPI_{(Rev)}$ = the Revised Consumer Price Index

$CPI_{(Ref)}$ = the Reference Consumer Price Index as notified by Federal Bureau of Statistics for the month of June 2020

9. Assumptions

- 9.1. In addition to the assumptions taken in the foregoing paragraphs, the instant Petition is based on the following assumptions (the “**Assumptions**”). Changes in any of these Assumptions will result in an appropriate adjustment to the proposed revision/modification of tariff.

9.1.1. Any tax on of JPCL’s income, including sales proceeds from CPPA, general sales tax as per Sales Tax Act and all other corporate taxes will be treated as pass-through items.

9.1.2. No withholding tax on supply of plant and equipment or spares has been assumed.

9.1.3. No taxes or duties (including stamp duties) have been assumed on the execution of the financing documents, loan repayment, interest repayment, agency fee, commitment fee, upfront fee, advisors' fee or charges, transportation. Such taxes or duties, if any, including advisors' fee will be treated as pass-through items under the PPA.

9.1.4. Payments to the Workers Welfare Fund and Workers Profit Participation Fund have not been taken into account. These payments will be treated as pass-through, pursuant to the relevant provisions of the PPA.

9.1.5. Any benefit/concession/incentives given to any other IPP/projects will also be applicable to JPCL.

9.1.6. Any additional costs incurred to cater for any modifications or additions including prudently incurred costs on account of Heat Rate tests and replacement of CDP meters along with primary elements required by the CPPA will also be treated as a pass-through item.

9.1.7. The start-up costs will be in line with those allowed to the IPPs and a separate invoice will be raised for these on the basis of actual cost in accordance with the PPA.

10. Relief Sought

10.1. In view of the foregoing considerations, the Authority is requested to approve the following Revised Tariff, with effect from 1st July 2014, up to 30th June 2020, subject to indexation/adjustment as stated herein below:

a. CPP Component

Capacity Purchase Price		Reference Tariff (Rs. /kW/Month)	Indexation
Escalable Component	Fixed O&M		
	Salaries & Wages	365.97	Requested as per actuals or CPI
	Repair & Maintenance	49.63	CPI
	Administrative Expenses	22.24	CPI
	Other Income	(4.59)	CPI
Total Fixed O&M Cost (Escalable CPP)		433.25	
Non-Escalable Component	Insurance	1.06	Same as approved
	RoE	84.88	<ul style="list-style-type: none"> Reduction in rate from 13.11% to 10% that will result in reduction of annual RoE from 866 Million Rupees per annum to 661 Million Rupees per annum. If it taken in terms of Rs/kW/Month on TPS Jamshoro's Capacity, the rate comes to 84.88 Rs/kw/Month.
	Finance Charges	2.98	Same as approved
	Depreciation	76.56	Requested as per actual
	Total Non-Escalable Component	165.48	

Total Capacity Purchase Price	598.73	
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b. EPP Component

Energy Purchase Price	Rs/kWh	Indexation
Variable O&M	0.0925	CPI

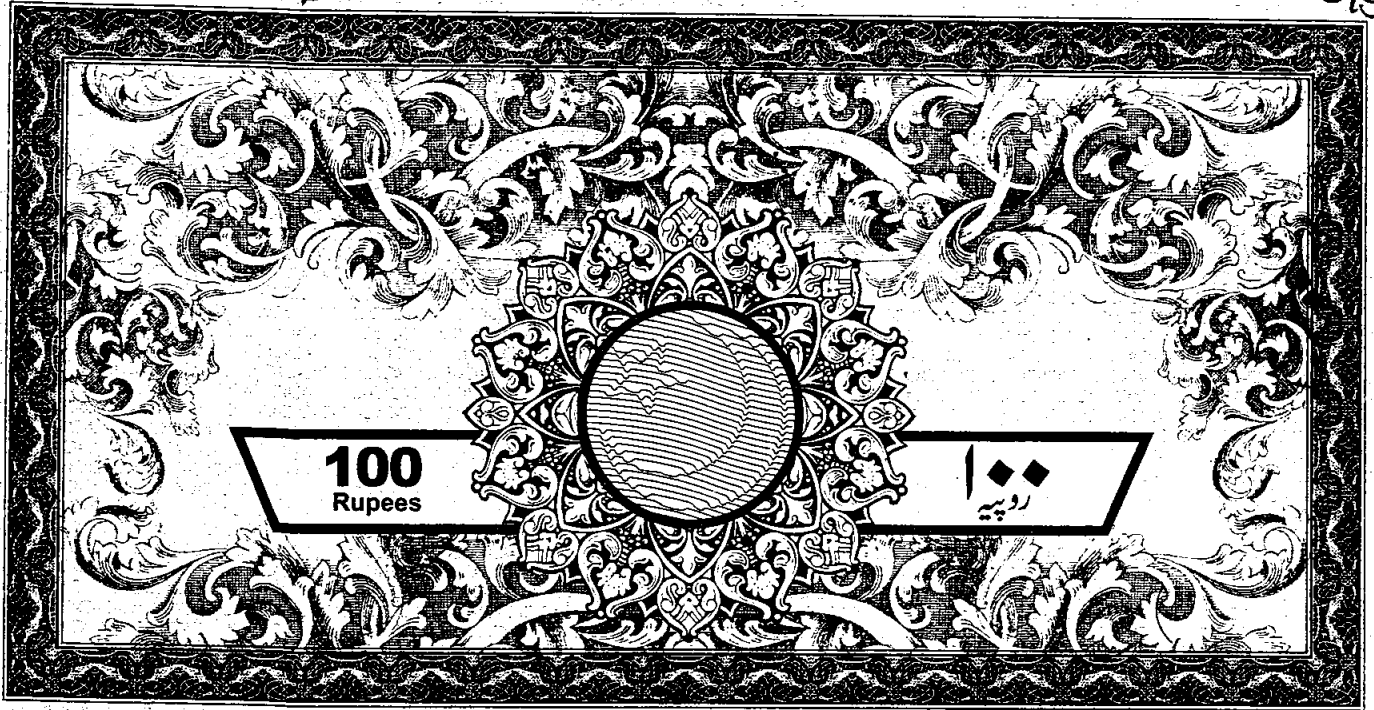
- 10.2. JPCL further prays for the grant of startup costs in line with the Authority's decision in GENCO-III's case dated 19th October 2016, with effect from 26th November 2010, until the date of the Authority's decision, and onward in line with the mechanism proposed to CPPA by JPCL vide letter dated 7th October 2020.
- 10.3. The Authority is further requested to allow the calculation of the fuel cost component on partial loading on either the basis of the data contained **Table-11**, or alternatively, in **Table-9** *supra*.
- 10.4. Save for as prayed in this Petition, all other terms and conditions of the existing tariff determined by the Authority on 1st September 2015 shall remain unchanged.

21st October 2020

PETITIONER / JAMSHORO POWER COMPANY LIMITED
through


Engr. Syed Tanveer Ahmed Jafri
Chief Executive Officer / Authorized Representative

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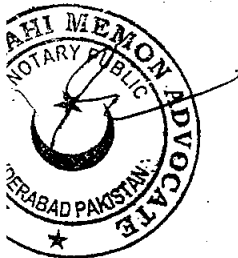
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BEFORE NATIONAL ELECTRIC POWER REGULATORY
AUTHORITY (NEPRA)

AFFIDIVIT

I, Syed Tanveer Ahmed Jafri Chief Executive Officer Jamshoro power Company Limited certify that the document attached in support of revised tariff petition of Jamshoro Power Company Limited are prepared and submitted in conformity with the provisions of National Electric Power Regulatory Authority Act 1997 under Tariff Standards and Procedure Rules. I undertake to abide by the terms and provisions of the said regulations of the NEPRA Act, 1997. I further undertake and confirm that the information provided in the attached documents in-support of JPCL revised tariff petition are true and correct to the best of my knowledge and belief.

Deponent



Sy Tanveer Ahmed Jafri
(Syed Tanveer Ahmed Jafri)
Chief Executive Officer
Jamshoro power Company Limited

Verified on oath this 19th day of October 2020 that the contents are correct & true to the best of my knowledge & belief and nothing has been concealed.

Deponent

Sy Tanveer Ahmed Jafri
(Syed Tanveer Ahmed Jafri)
Chief Executive Officer

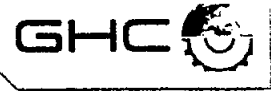


JAMSHORO POWER COMPANY LIMITED

Mohra Jabal Dadu Road, Jamshoro

Phone: 022-9213706 Fax: 022-9213708

Email: ceojpcl@jpcl.com Web: www.jpcl.com.pk



Chief Executive Officer

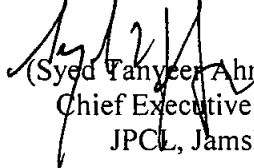
No.CEO/JPCL/ 8547

Dated 19-10-2020

LETTER OF AUTHORITY

Mr. Zeeshan Muzammil Khan, Deputy Manager of Jamshoro Power Company Limited (JPCL) is hereby authorized to file Jamshoro Power Company Limited (JPCL) GENCO-I revised tariff petition before the authority (NEPRA). He will also provide technical data / detail and other miscellaneous details to Legal Counsel M/s Rizwan Faiz Associates for defending the revised tariff petition during hearing before NEPRA.

This authority is delegated to the above extent only.


(Syed Tanyeer Ahmed Jafri)
Chief Executive Officer
JPCL, Jamshoro

VAKALATNAMA

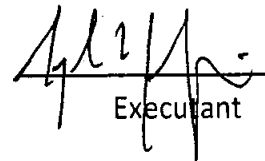
BEFORE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
(Revised Tariff Petition)

In the matter of:

REVISED TARIFF PETITION UNDER RULE 31 OF THE REGULATION OF GENERATION, TRANSMISSION AND DISTRIBUTION OF ELECTRIC POWER ACT 1997 READ WITH RULE 3 OF THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY (TARIFF STANDARDS AND PROCEDURE) RULES, 1998 (THE "TARIFF RULES") FOR THE REVISION/MODIFICATION OF THE GENERATION TARIFF DETERMINATION DATED SEPTEMBER 01, 2015 (THE "EARLIER TARIFF RULING") OF JPCL.

VAKALATNAMA ON BEHALF OF JPCL

I, Syed Tanveer Ahmed Jafri, Chief Executive Officer and authorized representative of Jamshoro Power Company Limited / Petitioner, do hereby nominate Mr. Rizwan Faiz Muhammad, Advocate High Court, to act and appear as JPCL's counsel in the above matter.


Executant

ADVOCATE'S ENDORSEMENT:

Received by me on this 21st day of October 2020 from the above named executant. My address for service of notices, etc., is as follows: -


Rizwan Faiz Associates

Apartments No. 011, Tariq Heights

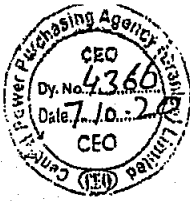
Street No. 73, Sector F-11/1

Islamabad

Phone: 0300-2444261



Accepted by Advocate



Government of Pakistan
Ministry of Energy
(Power Division)
Power Coordination, Policy and Finance Wing

SECRET

No. No. IPPs-10(18)/2020

Islamabad the 06TH October 2020

Subject: **REDUCTION INCAPACITY CHARGE OF GOVERNMENT OWNED POWER PROJECTS**

The undersigned is directed to state that a Summary on "Reduction Incapacity charge of government owned power projects" was forwarded to the CCoE for consideration / approval. CCoE in its meeting held on 27.08.2020 considered the Summary and approved the proposal contained in para 5 of the summary. Relevant paras of the summary and decision of CCE is reproduced as under:

2. **Para "4 & 5" of Summary submitted to the CCoE on 27.08.2020**

4). The Implementation status of the above decision and proposal therein after incorporating the reviews and comments of the relevant stakeholders is as under;

a) NEPRA allowed 17% RoE to WAPDA in PKR without any dollar indexation. The impact of reduction in RoE from 17% to 10% on WAPDA Revenue would be around Rs. 16 bln for FY-21. WAPDA submitted that any reduction in capacity component would have severe implication for timely completion of strategic projects (Diamer Basha, Mohmand and Dasu) and Rs. 160 bln additional allocation would be required from PSDP in next 10 years (Annex-II). The payables to WAPDA as on June 20 are around Rs. 208 bln.

b) With regard to GENCO, impact of reduction of ROE of all GENCOs to 10%, would be around Rs. 3.5 bln for FY 21. The payables of GENCOs as on Jun- 20 is around Rs. 48 bln. At present the profit making GENCOs are supporting the loss making GENCOs, which will require budgetary support to cover their losses (Annex-III).

c) After fixing RoE of Nuclear Power Plants at 14.50% IRR and freezing PKR to US dollar rate at Rs. 148 the impact of Nuclear power Plants would be around Rs. 2.07 bln for FY 2021. The payables of Nuclear Power Plants as on Jun-20 is Rs. 59 bln

d) To compare the Returns on Equity of Govt. owned RLNG IPPs with the other Government owned Projects the Return is reduced to 12% IRR with dollar indexation. The projected reduction in RLNG projects will be Rs. 6.71 bln. Currently the projects owned by the NPPMCL (Federal Government Owned Plants) is in the privatization list and bidding process near to finalization stage. Post privatization the returns will be dependent on the new investors in case of local investor's returns will be 17% without dollar indexation using US\$ to Rupee parity at Rs 148 per US\$, however foreign equity will get 12% with dollar indexation. The payables to NPPMCL and QATPL as on Jun-20 is around Rs. 42 bln.

5) Keeping in view the above the CCoE of the Cabinet is requested to consider following:

a. WAPDA Hydroelectric, GENCOs, Pakistan Atomic Energy Commission and Govt. Owned RLNGs Power plants (NPPMCL, QATPL, PTPL). The rate of return on equity will be adjusted as detailed in para 4 above. For this purpose respective Board of Directors and the WAPDA Authority is directed to immediately approach NEPRA for revision of their RoE component and accordingly revise their tariff determinations.

CCoE Decision No. CCE 46/13/2020 dated 27.08.2020

The Cabinet Committee on Energy (CCoE) considered the summary dated 26th August, 2020, submitted by the Power Division regarding **Reduction in Capacity Charges of Government owned power projects** and approved the proposal as contained at para-5 of the summary with the direction that the necessary process/ approvals, for submission of tariff revision petition to NEPRA, may be completed within two weeks' time.

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- II. The Committee further decided as follows:
- (i) The return on Equity of the Qaid-e-Azam Solar Power should also be included for reduction in line with the treatment being given to other Government IPPs.
 - (ii) The financial settlement of payables to Government owned Power Plants (Rs. 357 billion as of June 20) shall also be considered at par for any future settlement with IPPs pursuant to the ongoing negotiations by the IPPs Committee.
 - (iii) The financial deficit to WAPDA, due to reduction in RoE pursuant to above decision shall be arranged through PSDP funding for implementation of mega development power projects (Diامر Basha, Mohmand and Dasu).
 - (iv) The financial deficit to GENCOs, due to reduction in RoE pursuant to this decision shall be funded by Finance Division to support loss making GENCOs.

3. The decision was ratified by the Cabinet vide case No. 648/35/2020 dated 08.09.2020.

4. The decision of the CCoe is hereby communicated for information and further necessary action. Further you are required to submit implementation report to this Ministry at the earliest.

(Muhammad Farhan)
Section Officer (PE)
Ph: 9209243

- a) The Chairman WAPDA, WAPDA house Lahore
- b) The Director General, SPD, Rawalpindi
- c) The Managing Director PEPCL Lahore
- d) The Chief Executive Officer CPPA Islamabad
- e) The Chief Executive Officer GHCL Islamabad
- f) The Chief Executive Officer NPPMCL, Malik Plaza, 2nd Floor, 7-C-1, Gulberg III, Lahore, Pakistan
- g) The Chief Executive Officer QATPL, First floor, 7/C-1 Gulberg III, Lahore
- h) The Chief Executive Officer PTPL, Ground Floor, 7/C-1 Gulberg III, Lahore
- i) The Chief Executive Officer, QASPP, 3rd Floor, 83A-E1, Gulberg III, Main Boulevard, Lahore.

For Information:

- a) The Secretary, Finance Division Islamabad
- b) The Secretary, Planning, Development and Special Initiatives Division Islamabad
- c) The Secretary, Ministry of Water Resources, Islamabad
- d) The Chief Secretary, Government of the Punjab, Lahore
- e) The Chairman NEPRA Islamabad

Cc:

- 1. PS to Minister for Energy (Power Division),
- 2. SPS to Secretary Power Division,
- 3. PS to Additional Secretary (II) Power Division,
- 4. PS to Joint Secretary (Power Finance), Power Division.

PAKISTAN WATER AND POWER DEVELOPMENT AUTHORITY



Member Finance

703-Wapda House
Shahrah-e-Quaid-e-Azam Lahore
Pakistan
Off : +92 42 99202227
Fax : +92 42 99202484
Email : memberfinance@wapda.gov.pk

No.MF/APS/MF-21/458

Dated: 17.08.2020

The Secretary
Ministry of Energy (Power Division)
Govt of Pakistan
Islamabad

Subject: REVIEW MEETINGS ON IMPLEMENTATION OF DECISIONS OF CCOE

WAPDA is undertaking a challenging and monumental task of developing three major strategic projects including Diamer Basha (DBD), Mohmand and Dasu. This is unprecedented wherein an Organization based on its balance sheet, unblemished debt servicing record and professional reputation will manage to reorientate Pakistan's trajectory of economic growth and prosperity.

2. The edifice of this initiative is critically dependent on a robust financial strategy which hinges on Federal Govt. grants, WAPDA Equity & Commercial Financing. In the context of WAPDA Hydroelectric tariff and ensuing discussions to reduce ROE from 17% to 10%, I would like to highlight some important facts for your consideration:

- a) WAPDA Hydroelectric provided 32.3 billion units to National Grid in FY 2019-20 meeting one-third of the country's demand.
- b) Our low basket tariff of approx. Rs 1.87/KWh helps subsidize the entire energy spectrum keeping end consumer tariff within manageable limits.
- c) WAPDA doesn't earn any profits, rather our tariff only meets our operating and maintenance costs (O&M), debt servicing and Equity injection needs for dev. projects.
- d) Any reduction in Equity would reduce our Reinvestment capacity.
- e) It would have to be offset by commercial borrowing which would entail additional financing cost, again recoverable through tariff.
- f) Any structural change in our tariff mechanism and capital structure (current Debt: Equity at 80%:20%) would be taken very negatively by potential investors and donor agencies undermining our ability to raise further loans.
- g) PSDP grants are invariably tied with govt's fiscal space and this leaves Equity injection & commercial financing as the only recourse to bridge the financing gap.

-2-

3. WAPDA's capex needs over the next 9 years till completion of the aforementioned three projects are Rs 1,924 billion for which the Equity Injection needs are Rs 304 billion. If ROE is decreased to 10%, WAPDA will face a shortfall of Rs 160 billion in its equity injection capability (details at Annex-1). The only recourse to bridge this gap are commercial loans which will increase debt servicing cost and resultantly, the high debt to equity ratio will make the projects commercially un-attractive making it difficult to secure financing at competitive rates.

4. In view of the above, it is requested that WAPDA may be delinked from the tariff optimization exercise. Any further cut to our already bare minimum tariff would have severe implications for timely completion of these projects which are of strategic national importance.

DA/As above.


Naveed Asghar Ch.
Member Finance

Copy to:-

-The Secretary, Ministry of Water Resources, Govt. of Pakistan, Islamabad.

WAPDA

ANNEX - 1

Impact of Decreasing the Rate of Equity Return

Capital Expenditure (Rs. Billion)	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29	Total
Dasu HPP Stage I	71	65	70	82	71					359
Diamer Basha Dam Project (DBD)	46	134	133	164	175	194	144	98	56	1,155
Mohmand Dam Hydropower (MDHP)	50	59	61	47	18					235
Others	25	37	36	40	18	18				174
Total Capital Expenditure	192	295	301	334	282	213	144	98	66	1,924
Revenue @ 17% ROE	107	130	156	186	225	264	288	303	318	1,979
Revenue @ 10% ROE	91	116	142	171	206	240	259	271	282	1,778
Decrease in Revenues	(16)	(14)	(15)	(15)	(19)	(24)	(29)	(33)	(36)	(201)
Debt Servicing @ 17% ROE	44	68	91	116	176	200	209	212	257	1,372
Debt Servicing @ 10% ROE	44	68	93	122	187	212	225	230	282	1,462
Increase in Debt Servicing cost due to additional loans to Bridge shortfall of decreased equity contribution	-	(2)	(6)	(10)	(12)	(16)	(18)	(26)	(90)	
Total Equity required as per PC-1	25	50	40	42	35	40	32	16	24	304
Shortfall in Equity Contribution if ROE is decreased to 10%	(13)	(15)	(22)	(21)	(15)	(20)	(25)	(11)	(18)	(160)

Rationalization of Tariff - Public Sector GENCOs Reduction in Return on Equity (ROE)

A. Introduction:

Following are the Ex-Wapda, Public Sector Generation Companies (GENCOs) which were created as a result of unbundling of Water & Power Development Authority (WAPDA) in 1998. These companies are incorporated under Companies Ordinance 1984 (now Companies Act-2017) and being managed by their respective Board of Directors:

1. Jamshoro Power Company Ltd. (GENCO-I)
2. Central Power Generation Company Ltd. (GENCO-II)
3. Northern Power Generation Company Ltd. (GENCO-III)
4. Lakira Power Generation Company Ltd. (GENCO-IV)

Subsequently, two new power plants have been added in GENCOs i.e. 747 MW CCPP at Guddu and 525 MW CCPP at Nandipur, which were commissioned in December-2014 & July-2015, respectively.

B. Generation License & Tariff:

These GENCOs have their respective Generation Licenses and Tariffs. GENCO-I, II & III have tariffs on 'take or pay' basis, whereas, GENCO-IV has tariff on 'take and pay' basis. Hence, GENCO-IV has no fixed ROE in its tariff.

C. Tariff Rationalization:

As a result of current reforms being undertaken by the government, the proposal for reduction in Return on Equity (ROE) of GENCOs is under consideration. The summary of present and proposed ROE along with annual impact in rupee terms is as under:

Name of GENCO	Block	Present ROE		Proposed ROE		Annual Impact
		Rate	Amount	Rate	Amount	
GENCO-I	Old Blocks	13.11%	866	10.00%	661	205
Sub-total			866		661	205
GENCO-II	Old Blocks	13.92%	302	10.00%	217	85
	747 MW Block	15.00%	6,255	10.00%	4,170	2,085
Sub-total			6,556		4,386	2,170
GENCO-III	Old Blocks	11.20%	1,847	10.00%	1,649	198
	Nandipur Block	15.00%	3,062	10.00%	2,041	1,021
Sub-total			4,909		3,690	1,219
Total			12,331		8,737	3,594

D. Impact:

By reduction of ROE of all GENCOs to 10%, there will be annual impact of Rs.3,594 million (based on unaudited results of FY 2019-20) on overall tariff of GENCOs. However, this may add loss of GENCO-III by Rs.1,219 million because it has after tax loss of Rs. 694 million for the FY 2018-19 (audited) and after tax profit of Rs.151 million for FY 2019-20 (provisional / unaudited), which will convert to loss of Rs.1,049 million by virtue of reduction in ROE. The yearly profitability of GENCO-I and GENCO-II will be reduced by Rs.205 million & Rs.2,170 million respectively.

Based on provisional / unaudited cash flows for FY 2019-20, the reduction of ROE to 10% will effect net annual cash flows of GENCO-I from Rs.136 million (+ve) to Rs.69 million (-ve) and GENCO-III from Rs.36 million (-ve) to Rs.1,254 million (-ve). The impact of proposed reduction in ROE will have impact of Rs.205 million, Rs.2,170 million and Rs.1,219 million on annual cash inflows of GENCO-I, GENCO-II and GENCO-III, respectively. Hence, with the reduction of ROE to 10%, there will be a total cash flow impact of Rs.3,594 million all GENCOs.

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CENTRAL POWER GENERATION COMPANY LTD. (GENCO-II)
STATEMENT OF CASH FLOWS FOR THE FY 2019-20 - Provisional
IMPACT OF REDUCTION IN ROE TO 10%

(Rupees in Million)

Description	FY 2019-20 (Prov)	Proposed @ 10% ROE	Difference
CASH FLOWS FROM OPERATING ACTIVITIES			
Profit before taxation	6,843	4,673	(2,170)
Adjustments for non cash items and others:	13,489	13,489	
Cash flows before working capital changes	20,332	18,162	(2,170)
Effect on cash flow due to working capital changes : (Increase) / decrease in current assets:	(4,000)	(4,000)	
Cash generated from operations	16,332	14,162	(2,170)
Staff benefits paid	(1,098)	(1,098)	
Net cash generated from operating activities	15,234	13,064	(2,170)
CASH FLOWS FROM INVESTING ACTIVITIES			
Net cash used in Investing activities	(730)	(730)	
CASH FLOWS FROM FINANCING ACTIVITIES			
Net cash flow from financing activities	(10,294)	(10,294)	
Cash and cash equivalents at the end of the year Fav/(Unfav)	4,210	2,040	(2,170)

NORTHERN POWER GENERATION COMPANY LTD. (GENCO-III)
STATEMENT OF CASH FLOWS FOR THE FY 2019-20 - Provisional
IMPACT OF REDUCTION IN ROE TO 10%

(Rupees in Million)

DESCRIPTION	FY 2019-20 (Provisional)		
	EXISTING ROE	PROPOSED 10%	DIFFERENCE
CASH FLOWS FROM OPERATING ACTIVITIES			
Cash generated from operations	6,634	5,415	(1,219)
Finance cost paid	(2,266)	(2,266)	
Income tax paid	(242)	(242)	
Staff retirement benefits paid	(1,969)	(1,969)	
Net decrease in long term advances	7	7	
Decrease in long term deposits	-	-	
Net cash generated from operating activities	2,164	946	(1,219)
CASH FLOWS FROM INVESTING ACTIVITIES			
Capital expenditure on property, plant and equipment	0	0	
Advance for capital work-in-progress received back	-	-	
Proceeds from disposal of freehold land	3.35	3.35	
Profit on bank deposits received	481	481.14	
Net cash (used in) / from investing activities	485	485	-
CASH FLOWS FROM FINANCING ACTIVITIES			
Proceeds from long term loans	-	-	
Repayment of long term financing	(2,685)	(2,685)	
Grant received	-	-	
Net cash used in financing activities	(2,685)	(2,685)	-
NET DECREASE IN CASH AND CASH EQUIVALENT	(36)	(1,254)	(1,219)

Central Power Generation Company Ltd. (GENCO-II)
Impact of Proposed Revision in ROE

(Rupees in Million)

Description	Actual Results			Impact @ 10% ROE		
	2017-18 (Audited)	2018-19 (Audited)	2019-20 (Prov)	2017-18 (Audited)	2018-19 (Audited)	2019-20 (Prov)
Net sales	63,652	78,736	69,057	62,115	76,910	66,887
Cost of Sales	(55,465)	(68,574)	(58,748)	(55,465)	(68,574)	(58,748)
Gross Profit / (Loss)	8,187	10,162	10,309	6,650	8,336	8,139
Admin. & General Expenses	(864)	(1,481)	(665)	(864)	(1,481)	(665)
Operating Profit / (Loss)	7,323	8,681	9,644	5,786	6,855	7,474
Other Income	2,344	487	850	2,344	487	850
	9,667	9,168	10,494	8,130	7,342	8,324
Financial Charges	(3,235)	(4,174)	(3,651)	(3,235)	(4,174)	(3,651)
Profit / (Loss) before Tax	6,432	4,994	6,843	4,895	3,168	4,673
Taxation	(3,073)	(1,478)	(684)	(3,073)	(1,478)	(684)
Net Profit / (Loss)	3,358	3,517	6,159	1,821	1,691	3,989

Annual ROE Income:	Existing			@10%		
Existing (Old Guided 13.92% & 747MW 15%)	4,681	5,547	6,556	3,144	3,722	4,381

Northern Power Generation Company Ltd. (GENCO-III)
Impact of Proposed Revision in ROE

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Description	Actual Results			Impact @ 10% ROE		
	2017-18 (Audited)	2018-19 (Audited)	2019-20 (Prov.)	2017-18	2018-19	2019-20 (Prov.)
Sales	77,089	51,502	38,289	75,848	50,284	37,070
Cost of sales	(73,649)	(48,699)	(33,086)	(73,649)	(48,699)	(33,086)
Gross profit / (loss)	3,440	2,803	4,603	2,199	1,584	3,384
Administrative expenses	(941)	(935)	(996)	(941)	(935)	(996)
Other expenses	(7)	-	-	(7)	-	-
Other income	752	462	507	752	462	507
Finance cost	(2,422)	(2,835)	(3,388)	(2,422)	(2,835)	(3,388)
	(2,619)	(3,308)	(3,877)	(2,619)	(3,308)	(3,877)
Profit / (loss) before taxation	820	(505)	725	(420)	(1,724)	(493)
Taxation	-	(189)	-	-	(189)	-
Profit / (loss) after taxation	820	(694)	725	(420)	(1,913)	(493)
Annual RoE Income:	Existing			@10%		
Old Blocks @ 12.20%	2,051	1,847	1,847	1,831	1,649	1,649
CCPP Nandipur @ 15%	3,062	3,062	3,062	2,041	2,041	2,041
TOTAL	5,113	4,909	4,909	3,872	3,690	3,690

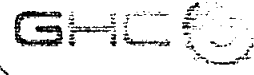


JAMSHORO POWER COMPANY LIMITED

Mohra Jabal Dadu Road, Jamshoro

Phone: 022-9213706 Fax: 022-9213708

Email: ceo@jpcl.com Web: www.jpcl.com.pk



Chief Executive Officer

No. CEO/JPCL/REO/ 8296-97

Dated: 07-10-2020

General Manager Technical (Conv),
CPPA-G, Shaheen plaza, AK Fazal -Haq Road,
Islamabad.

Phone: 051-9216954

Fax: 051-9216949


ANNEX " B "

Subject: **PROPOSED MECHANISM OF START-UP COST/CHARGES FOR UNITS OF TPS
JAMSHORO, GENCO-I**

Please find attached the Proposed Mechanisms for calculating the startup cost of the Jamshoro Power Company unit 1 to 4 for your scrutiny and Approval.

An early response shall be highly appreciable please.

Best Regards


Chief Engineer/Technical Director
JPCL (GENCO-I)

Distribution:

1. Chief Executive Officer, JPCL (GENCO-I); Jamshoro.
2. CFO, CPPA-G, Shaheen plaza, AK Fazal -Haq Road, Islamabad.
2. CFO, JPCL (GENCO-I), Jamshoro.

JAMSHORO POWER COMPANY LIMITED (GENCO-I)

Startup Cost

Block-I (Unit#1 TPS Jamshoro)

Working on Fuel consumed

Mode of Startup	Fuel Consumption		Cost of Fuel		Total fuel Startup Cost
	Consumption of HSD (Litres) Initial firing	Consumption of HSFO (MT)	HSD Amount (Rs.)	HSFO Amount (Rs.)	HSFO (with HSD) (Rs.)
Hot	2516	9.95			
Warm	7549	14.56			
Cold	16481	59.88			

Working on Auxiliary Power Consumption (unit#1)

Mode of Startup	Rated Auxiliary (kW) approx	Normal Auxiliary Load (80%)	Startup Time Allowed (In PPA)	Auxiliary (kWh) Estimated	EPP Rs/kwh	Cost Auxiliary (kWh) (Rs.)
Hot	12,000	9,600	2	19,200		-
Warm	12,000	9,600	8	76,800		-
Cold	12,000	9,600	12	115,200		-

Rate:

HSFO		Rs/MT
HSD		Rs/Litre

Reference Heat Rate:

Unit#1	10859
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EPP = Rs/kWh

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JAMSHORO POWER COMPANY LIMITED (GENCO-I)

Startup Cost
Block-I (Unit#1, TPS Jamshoro)

Unit#1

Startup on HSFO

Mode of Startup	Fuel Consumption					Auxiliary Consumption		Startup Cost (Rs.)	**Cost of Steam Source	Total Startup Cost (Rs.)
	Consumption of HSD (Litres)	Amount of HSD (Rs.)	Consumption of HSFO (M.T.)	Amount of HSFO (Rs.)	Total Amount of Fuel (Rs.)	Auxiliary Consumption (kWh)	Cost of Auxiliary consumption (Rs.)			
Hot	2516	-	9.95	-	-	19,200	0	-	-	-
Warm	7549	-	14.55	-	-	76,800	0	-	-	-
Cold	16481	-	59.88	-	-	115,200	0	-	-	-

Rate:

HSFO=		Rs/MT
HSD=		Rs/Litre
HSFO CV=		Btu / Kg

EPP on HSFO (u#1)=

Rs/kWh

*Auxiliary/Mini Boiler

HSD Consumption (Litres)	Total Startup Cost (Rs.)
10,214	-

*Cost of Mini Boiler included when no steam source is available for startup of any unit on HSFO.

This can also be achieved either by taking Mini Boiler in service or firing HSD in main Boiler.

**Cost of Steam Source (steam taken from any other unit in operation)

HSD Consumption (Litres)	Equivalent F.O. (in M.T)	Cost
10,214	9.083	-

JAMSHORO POWER COMPANY LIMITED (GENCO-I)

Startup Cost

Block-II (Unit#2, TPS Jamshoro)

Working on Fuel consumed

Mode of Startup	Fuel Consumption				Cost of Fuel				Total fuel Startup Cost		
	Consumption of I.Gas/RLNG (MMCFT)	Consumption of Gas/RLNG (MMBTU) (MMCFT*CV ref)	Consumption of HSD (Litres) Initial firing	Consumption of HSFO (MT)	Indegenous Gas Amount (Rs.)	RLNG Amount (Rs.)	HSD Amount (Rs.)	HSFO Amount (Rs.)	I.Gas (Rs.)	RLNG (Rs.)	HSFO (with HSD) (Rs.)
Hot	0.88	831.250	1288	21.00	-	-	-	-	-	-	-
Warm	1.50	1425.000	1288	35.00	-	-	-	-	-	-	-
Cold	1.98	1881.000	1288	48.00	-	-	-	-	-	-	-

Working on Auxiliary Power Consumption (unit#2)

Mode of Startup	Rated Auxiliary (kW)approx	Normal Auxiliary Load (80%)	Startup Time Allowed (In PPA)	Auxiliary (kWh) Estimated	EPP (Rs./kwh)			Cost Auxiliary (kWh) (Rs.)		
					I. Gas	RLNG	HSFO	I. Gas	RLNG	HSFO
Hot	12,000	9,600	2.5	24,000	-	-	-	-	-	-
Warm	12,000	9,600	6	57,600	-	-	-	-	-	-
Cold	12,000	9,600	8	76,800	-	-	-	-	-	-

Rate:

Indegenous Gas		Rs/MMBTU
RLNG		Rs/MMBTU
HSFO		Rs/MT
HSD		Rs/Litre

Reference Heat Rate:

Unit#	2	3	4
	12197	11868	11614

CV

Ind. Gas		BTU/CFT
RLNG		BTU/CFT
HSFO		BTU/Kg
EPP (GAS) =		Rs/kWh
EPP (RLNG) =		Rs/kWh
EPP(HSFO) =		Rs/kWh

JAMSHORO POWER COMPANY LIMITED (GENCO-I)

Startup Cost

Block-II (Unit # 2 TP5 Jamshoro)

Startup on Indegeneous Gas/RLNG

Unit#2

Mode of Startup	Fuel Consumption					Auxiliary Consumption			Startup Cost (I.Gas) (Rs.)	Startup Cost (RLNG) (Rs.)	**Cost of Steam Source	Total Startup Cost (I.Gas) (Rs.)	Total Startup Cost (RLNG) (Rs.)
	Consumption of HSD (Litres) Initial firing	Amount of HSD (Rs.)	Consumption of I.Gas/RLNG (MMBTU)	Amount of I.Gas/RLNG (Rs.)	Total Amount of Fuel (Rs.)	Auxiliary Consumption (kWh)	Cost of Auxiliary consumption (I.Gas) (Rs.)	Cost of Auxiliary consumption (RLNG) (Rs.)					
Hot	1288	-	831	-	-	24000	-	0	-	-	-	-	-
Warm	1288	-	1425	-	-	57600	-	0	-	-	-	-	-
Cold	1288	-	1881	-	-	76800	-	0	-	-	-	-	-

Rate: Indegeneous Gas/RLNG= Rs/MMBTU
Indegeneous Gas/RLNG CV= BTU/CFT

EPP on I.Gas/RLNG(u#2)=

Rs/kWh

Startup on HSFO

Mode of Startup	Fuel Consumption					Auxiliary Consumption		Startup Cost (Rs.)	**Cost of Steam Source	Total Startup Cost (Rs.)
	Consumption of HSD (Litres) Initial firing	Amount of HSD (Rs.)	Consumption of HSFO (M.T.)	Amount of HSFO (Rs.)	Total Amount of Fuel (Rs.)	Auxiliary Consumption (kWh)	Cost of Auxiliary consumption (HSFO) (Rs.)			
Hot	1288	-	21.00	-	-	24,000	-	-	-	-
Warm	1288	-	35.00	-	-	57,600	-	-	-	-
Cold	1288	-	48.00	-	-	76,800	-	-	-	-

Rate:	HSFO=	Rs/MT
	HSD=	Rs/Litre
	HSFO CV=	Btu / Kg

EPP on HSFO (u#2)=

0.0000 Rs/kWh

*Auxiliary/Mini Boiler

HSD Consumption (Litres)	Total Startup Cost (Rs.)
8,265	-

* Cost of Mini Boiler included when **no steam** source is available for startup of any unit on HSFO. This can also be achieved either by taking Mini Boiler in service or firing HSD in main Boiler.

**Cost of Steam Source (steam taken from any other unit in opertation)

HSD Consumption (Litres)	Equivalent F.O. (in M.T)	Cost
8,265	7.349	-

JAMSHORO POWER COMPANY LIMITED (GENCO-I)

Startup Cost
Block-II (Unit# 3 TPS Jamshoro)

Working on Fuel consumed					Cost of Fuel				Total fuel Startup Cost		
Mode of Startup	Fuel Consumption				Indegenous Gas Amount (Rs.)	RLNG Amount (Rs.)	HSD Amount (Rs.)	HSFO Amount (Rs.)	I.Gas (Rs.)	RLNG (Rs.)	HSFO (with HSD) (Rs.)
	Consumption of I.Gas/RLNG (MMCF)	Consumption of Gas/RLNG (MMBTU) (MMCF*CV ref)	Consumption of HSD (Litres) Initial firing	Consumption of HSFO (MT)							
Hot	0.88	831.250	1288	21.00	-	-	-	-	-	-	-
Warm	1.50	1425.000	1288	35.00	-	-	-	-	-	-	-
Cold	1.98	1881.000	1288	48.00	-	-	-	-	-	-	-

Working on Auxiliary Power Consumption (unit#3)

Mode of Startup	Rated Auxiliary (kW) approx	Normal Auxiliary Load (80%)	Startup Time Allowed (In PPA)	Auxiliary (kWh) Estimated	EPP (Rs./kwh)			Cost Auxiliary (kWh) (Rs.)		
					I. Gas	RLNG	HSFO	I. Gas	RLNG	HSFO
Hot	12,000	9,600	2.5	24,000	-	-	-	-	-	-
Warm	12,000	9,600	6	57,600	-	-	-	-	-	-
Cold	12,000	9,600	8	76,800	-	-	-	-	-	-

Rate:

Indegenous Gas	Rs/MMBTU
RLNG	Rs/MMBTU
HSFO	Rs/MT
HSD	Rs/Litre

Heat Rate:

Unit#	2	3	4
	12197	11868	11614

CV

Ind. Gas	BTU/CFT
RLNG	BTU/CFT
HSFO	BTU/Kg
EPP (GAS) =	Rs/kWh
EPP (RLNG) =	Rs/kWh
EPP (HSFO) =	Rs/kWh

JAMSHORO POWER COMPANY LIMITED (GENCO-I)

Startup Cost
Block-II (Unit# 3 TPS Jamshoro)

Startup on Indegeneous Gas/RLNG

Unit#3

Mode of Startup	Fuel Consumption					Auxiliary Consumption			Startup Cost (I.Gas) (Rs.)	Startup Cost (RLNG) (Rs.)	**Cost of Steam Source	Total Startup Cost (I.Gas) (Rs.)	Total Startup Cost (RLNG) (Rs.)
	Consumption of HSD (Litres) Initial firing	Amount of HSD (Rs.)	Consumption of I.Gas/RLNG (MMBTU)	Amount of I.Gas/RLNG (Rs.)	Total Amount of Fuel (Rs.)	Auxiliary Consumption (kWh)	Cost of Auxiliary consumption (I.Gas) (Rs.)	Cost of Auxiliary consumption (RLNG) (Rs.)					
Hot	1288	-	831	-	-	24000	-	0	-	-	-	-	-
Warm	1288	-	1425	-	-	57600	-	0	-	-	-	-	-
Cold	1288	-	1881	-	-	76800	-	0	-	-	-	-	-

Rate:

Indegeneous Gas/RLNG=
Indegeneous Gas/RLNG CV=

Rs/MMBTU
BTU/CFT

EPP on I.Gas/RLNG(u#3)=

Rs/kWh

Startup on HSFO

Mode of Startup	Fuel Consumption					Auxiliary Consumption		Startup Cost (Rs.)	**Cost of Steam Source	Total Startup Cost (Rs.)
	Consumption of HSD (Litres)	Amount of HSD (Rs.)	Consumption of HSFO (M.T.)	Amount of HSFO (Rs.)	Total Amount of Fuel (Rs.)	Auxiliary Consumption (kWh)	Cost of Auxiliary consumption (HSFO) (Rs.)			
Hot	1288.24	-	21.00	-	-	24,000	-	-	-	-
Warm	1288.24	-	35.00	-	-	57,600	-	-	-	-
Cold	1288.24	-	48.00	-	-	76,800	-	-	-	-

Rate:

HSFO=	Rs/MT
HSD=	Rs/Litre
HSFO CV=	Btu / Kg

EPP on HSFO (u#3)=

Rs/kWh

*Auxiliary/Mini Boiler

HSD Consumption (Litres)	Total Startup Cost (Rs.)
8,265	-

* Cost of Mini Boiler included when no steam source is available for startup of any unit on HSFO. This can also be achieved either by taking Mini Boiler in service or firing HSD in main Boiler.

**Cost of Steam Source (steam taken from any other unit in opertation)

HSD Consumption (Litres)	Equivalent F.O. (in M.T)	Cost
8,265	7.349	-

JAMSHORO POWER COMPANY LIMITED (GENCO-I)

Startup Cost

Block-II (Unit# 4 TPS Jamshoro)

Working on Fuel consumed

Mode of Startup	Fuel Consumption				Cost of Fuel				Total fuel Startup Cost		
	Consumption of I.Gas/RLNG (MMCF)	Consumption of Gas/RLNG (MMBTU) (MMCF*CV ref)	Consumption of HSD (Litres) Initial firing	Consumption of HSFO (MT)	Indegenous Gas Amount (Rs.)	RLNG Amount (Rs.)	HSD Amount (Rs.)	HSFO Amount (Rs.)	I.Gas (Rs.)	RLNG (Rs.)	HSFO (with HSD) (Rs.)
Hot	0.88	831.250	1288	21.00	-	-	-	-	-	-	-
Warm	1.50	1425.000	1288	35.00	-	-	-	-	-	-	-
Cold	1.98	1881.000	1288	48.00	-	-	-	-	-	-	-

Working on Auxiliary Power Consumption(unit#4)

Mode of Startup	Rated Auxiliary (kW)approx	Normal Auxiliary Load (80%)	Startup Time Allowed (In PPA)	Auxiliary (kWh) Estimated	EPP (Rs./kwh)			Cost Auxiliary (kWh) (Rs.)		
					I. Gas	RLNG	HSFO	I. Gas	RLNG	HSFO
Hot	12,000	9,600	2.5	24,000				-	-	-
Warm	12,000	9,600	6	57,600				-	-	-
Cold	12,000	9,600	8	76,800				-	-	-

Rate:

Indegenous Gas		Rs/MMBTU
RLNG		Rs/MMBTU
HSFO		Rs/MT
HSD		Rs/Litre

Reference Heat Rate:

Unit#	2	3	4
	12197	11868	11614

CV

Ind. Gas		BTU/CFT
RLNG		BTU/CFT
HSFO		BTU/Kg
EPP (GAS) =		Rs/kWh
EPP (RLNG) =		Rs/kWh
EPP (FO) =		Rs/kWh

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JAMSHORO POWER COMPANY LIMITED (GENCO-I)

Startup Cost

Block-II (Unit# 4 TPS Jamshoro)

Startup on Indegeneous Gas/RLNG

Unit#4

Mode of Startup	Fuel Consumption					Auxiliary Consumption			Startup Cost (I.Gas) (Rs.)	Startup Cost (RLNG) (Rs.)	**Cost of Steam Source	Total Startup Cost (I.Gas) (Rs.)	Total Startup Cost (RLNG) (Rs.)
	Consumption of HSD (Litres) Initial firing	Amount of HSD (Rs.)	Consumption of I.Gas/RLNG (MMBTU)	Amount of I.Gas/RLNG (Rs.)	Total Amount of Fuel (Rs.)	Auxiliary Consumption (kWh)	Cost of Auxiliary consumption (I.Gas) (Rs.)	Cost of Auxiliary consumption (RLNG) (Rs.)					
Hot	1288	-	831	-	-	24000	-	0	-	-	-	-	-
Warm	1288	-	1425	-	-	57600	-	0	-	-	-	-	-
Cold	1288	-	1881	-	-	76800	-	0	-	-	-	-	-

Rate: Indegeneous Gas/RLNG=
Indegeneous Gas/RLNG CV=

Rs/MMBTU
BTU/CFT

EPP on I.Gas/RLNG(u#4)=

Rs/kWh

Startup on HSFO

Mode of Startup	Fuel Consumption					Auxiliary Consumption		Startup Cost (Rs.)	**Cost of Steam Source	Total Startup Cost (Rs.)
	Consumption of HSD (Litres)	Amount of HSD (Rs.)	Consumption of HSFO (M.T.)	Amount of HSFO (Rs.)	Total Amount of Fuel (Rs.)	Auxiliary Consumption (kWh)	Cost of Auxiliary consumption (HSFO) (Rs.)			
Hot	1288.24	-	21.00	-	-	24,000	-	-	-	-
Warm	1288.24	-	35.00	-	-	57,600	-	-	-	-
Cold	1288.24	-	48.00	-	-	76,800	-	-	-	-

Reference Rate:

HSFO=	Rs/MT
HSD=	Rs/Litre
HSFO CV=	Btu / Kg

EPP on HSFO (u#4)=

Rs/kWh

***Auxiliary/Mini Boiler**

HSD Consumption (Litres)	Total Startup Cost (Rs.)
8,265	-

* Cost of Mini Boiler included when no steam source is available for startup of any unit on HSFO. This can also be achieved either by taking Mini Boiler in service or firing HSD in main Boiler.

****Cost of Steam Source (steam taken from any other unit in operation)**

AUXILIARY LOAD OF UNIT NO. 1

	<u>Description</u>	Kw
1	Boiler Feed Pump	4100
2	CWP Motor	1650
3	Condensate Pump	230
4	BCWP	190
5	F.D Fan A	2035
6	F.D Fan B	2035
7	GRF	325
8	Service Air Compressor	165
9	Heater Drain Pump Motor	132
10	Intake Water Pump	90
11	Cooling Tower Fan A	145
12	Cooling Tower Fan B	145
13	Aux: Oil Pump	132
14	Jacking Oil Pump	55
15	Inst: Air Comp:	75
16	R.O Service Pump	55
17	R.O Receive Pump	37
18	R.O Transfer Pump	55
19	D.W Feed Pump	55
20	C.T Make Up Pump	132
21	Back Washing Pump	37
22	T.W Transfer Pump	45
23	Raw Water Pump	45
24	Air Pre Heater motor A	5.5
25	Air Pre Heater motor B	5.5
26	HSD Pump	7.5
	Seal Air Booster fan	11
27	Flame detector cooling air fan	15
	service pump motor	30
	Total load	12039.5

Auxiliary Load In KW (Unit# 2,3,4 each)

B.F.P MOTOR	C.P MOTOR	C.W.P. MOTOR	I.D.F MOTOR A	F.D.F MOTOR A	G.R.F MOTOR	I.D.F MOTOR B	F.D.F MOTOR B	J.O.P MOTOR	B.C.W MOTOR	G.F MOTOR	Kw
3200	250	1600	1600	1000	200	1600	1000	18.5	75	11	10554.5
STATOR C.W	B.F.P LUBE OIL P.MOTOR	STARTING OIL PUMP MOTOR	C.W.P LUB W. P MOTOR	A.C SEAL O.P MOTOR AIR SIDE	R.O SERVICE MOTOR	A.C SEAL O.P MOTOR H2 SIDE	T.G MOTOR	INTAKE pump 2	APH Pilot rotor	OIL PURIFIER MOTOR	
22	5.5	230	2.2	5.5	37	4	30	112	10	5.5	463.7
F.EX.MOTOR G: SIDE	H.P. BY PASS MOTOR	RC VALVE B.F.P	COND. DRAIN PIT MOTOR	I.D FAN LUBE OIL MOTOR	HSD PUMP	SCANNER FAN MOTOR	DEMI AIR PLANT COMPR.	FLASH TANK MOTOR	A.C LUBE OIL PUMP MOTOR	FD FAN HOUSE BOILER	
0.75	7.5	15	18.5	5.5	15	3	22	22	30	55	194.25
L.P DRAIN PUMP MOTOR	CIRCULATING COOLER MOTOR	INJECTION PUMP FOR C.W.P	ALUM AGITATOR	SERVICE AIR COMPRESSOR	AIR PRE HEATER (A.C) MOTOR	AIR PRE HEATER (DC) MOTOR	A.P.H UPPER & DOWN LUB UP MOTOR DOWN	BOILER DRAIN PUMP MOTOR	BACK WASHING PUMP MOTOR	CLEAR WATER PUMP MOTOR	
55	15	0.75	1.5	130	11	10	1.1	22	55	37	338.35
L.P BY PSS MOTOR	R.W T/F PUMP MOTOR	DOZING PUMP MOTOR	DEMI TRANSFER MOTOR	INST. AIR COMP. MOTOR	BLOWER FAN MOTOR DEMI PLANT	L.P HEATER MOTOR	MAKEUP PUMP MOTOR	FUME EXTRACT MOTOR T:SIDE	INTAKE PUMP1 MOTOR	REGENERATE P. MOTOR	
7.5	55	1.5	15	130	12	37	160	2.2	112	5.5	537.7
SULIAR COMP:	ALUM AGITATOR PIT MOTOR	COG. TANK AGITATOR MOTOR	AUX. COAG. TK AGITATOR MOTOR	SLUDGE DRAIN P. MOTOR	ALUM TRANS. PUMP MOTOR	DEMI PUMP MOTOR	BOOSTER P. MOTOR D- PLANT	LUBE. WATER P. MOTOR	FILTER EQ. TRANS: MOTOR	R.W.T PUMP MOTOR	
44.76	0.75	11	1.5	11	2.2	5.5	15	5.5	30	20	147.21
		ALK. TRANS. OUTLET MOTOR	DILT. ALK. TK. AGITATOR MOTOR	DILT. ALK. DOZ. P. MOTOR	BRINE SOLUTION MOTOR	GEAR OIL PUMP MOTOR	SMOKE EXHAUST MOTOR OIL	RE-GEN: CAUSTIC DEMI PLANT			
		2.2	1.5	1.5	3	5.5	1.5	5.5			20.7

Total 12256

Annexure-C

OPERATION OF JAMSHORO UNITS TO MEET LOAD DEMAND & GRID BALANCING AS PER REQUIREMENT OF NPCC ISLAMABAD					
Unit No.	Date / Time		Duration of operation		
	From	To	Hours	Minutes	
Jamshoro Unit-1	22-Jun-20 0:10	24-Jun-20 15:45	63	35	
Jamshoro Unit-1	25-Jun-20 14:47	28-Jun-20 23:00	80	13	
Jamshoro Unit-1	30-Jun-20 21:35	1-Jul-20 21:36	24	01	
Jamshoro Unit-1	2-Jul-20 3:33	4-Jul-20 18:59	63	26	
Jamshoro Unit-1	6-Jul-20 19:07	21-Jul-20 20:57	361	50	
Jamshoro Unit-1	15-Aug-20 7:36	20-Aug-20 12:35	124	59	
Jamshoro Unit-1	13-Sep-20 9:02	13-Sep-20 20:25	11	23	
Jamshoro Unit-1	13-Sep-20 22:28	22-Sep-20 5:47	199	19	
Jamshoro Unit-1	1-Oct-20 9:22	2-Oct-20 4:58	19	36	
Jamshoro Unit-1	10-Oct-20 13:50	12-Oct-20 14:19	48	29	
Jamshoro Unit-2	24-Sep-20 2:13	25-Sep-20 15:28	37	15	
Jamshoro Unit-3	22-Sep-20 21:14	25-Sep-20 15:23	66	09	
Jamshoro Unit-4	23-Jun-20 10:18	27-Jun-20 23:46	109	28	
Jamshoro Unit-4	7-Jul-20 18:47	11-Jul-20 22:44	99	57	
Jamshoro Unit-4	13-Jul-20 22:45	17-Jul-20 10:54	84	09	
Jamshoro Unit-4	17-Aug-20 5:02	20-Aug-20 3:58	70	56	
Jamshoro Unit-4	14-Sep-20 22:44	24-Sep-20 4:26	221	42	
Jamshoro Unit-4	1-Oct-20 16:54	2-Oct-20 15:30	22	36	

