

# National Electric Power Regulatory Authority Islamic Republic of Pakistan

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No. NEPRA/TRF-338/FEL-2015/8658-8660 June 17, 2016

# Subject: Determination of the Authority in the matter of Tariff Petition filed by Fatima Energy Ltd. for its 118.8 MW Cogen Power Plant located at Mehmood Kot, District Muzaffargarh

Dear Sir,

Please find enclosed herewith the subject decision of the Authority along with Annex-I, II & III (28 pages) in Case No. NEPRA/TRF-338/FEL-2015.

2. The decision is being intimated to the Federal Government for the purpose of notification of adjustment in the approved tariff through the official Gazette pursuant to Section 31 (4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997).

3. Order of the Authority needs to be notified in the official Gazette. \_

Enclosure: As above

(Syed Safeer Hussain)

Secretary Ministry of Water & Power 'A' Block, Pak Secretariat Islamabad

CC:

1. Secreta ry, Cabinet Division, Cabinet Secretariat, Islamabad.

2. Secreta ry, Ministry of Finance, 'Q' Block, Pak Secretariat, Islamabad.



National Electric Power Regulatory Authority NEPRA, Islamabad

DETERMINATION OF THE AUTHORITY IN THE MATTER OF TARIFF PETITION FILED BY FATIMA ENERGY LIMITED FOR ITS 118.8 MW COGEN POWER PLANT LOCATED AT MEHMOODKOT, DISTRICT MUZAFFARGARH



### INTRODUCTION

- Fatima Group is in the process of developing Fatima Energy Limited (herein after referred to as "FEL") a 120 MW (Gross ISO) co-generation power project. The Project is located adjacent to the existing sugar mill of the Lead Sponsor Company at Sanawan, Mehmoodkot, District Muzaffargarh, on an area of approximately 61.42 acres including 10 acres for a residential colony adjacent to the sugar mills of the Sponsor Company and will utilize (a) bagasse produced by such sugar mill along with other biomass; and (b) imported coal as fuel for the Project.
- 2. The Project is being developed through a public limited company, i.e. Fatima Energy Limited (thereafter "FEL" or the "Petitioner"), incorporated under the laws of Pakistan mainly owned by Fatima Group Companies. During the Crushing Season the Project will be capable of generating 88.78 MW of power whereas generation capability during the non-Crushing Season would be 107.54 MW. During the Crushing Season, the Sugar Mill may utilize up to 16.0 MW of the available generation capacity whereas during the non-Crushing Season the Sugar Mill may utilize 1.0 MW of the available capacity.

### SUBMISSION OF TARIFF PETITION

3. The Petitioner has submitted the tariff petition vide letter dated 2<sup>nd</sup> December, 2015, while referring to Section 31 of Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 read with Rule 3 of NEPRA Tariff (Standards & Procedure) Rules, 1998 for approval/ determination of Generation Tariff.

### SALIENT FEATURE OF THE PETITION

- 4. The salient feature of the petition are as under
  - i. Project Cost: The Petitioner proposed the following project cost:

BREAKUP OF PROJECT COST	
	million
EPC cost:	17,158
Offshore	14,154
Onshore	3,005
Non EPC Cost:	903
Custom Duties , Local withholding taxes and Other	371
Lender's Fee and charges	519



Insurance	173
Fuel during Testing (consumption of 10584 MT coal & 10000 MT bagasse)	101
O&M Mobilization Advance:	188
Project Development Cost:	1,103
Site Security during construction (Petitioners scope under EPCC)	123
Project Cost (Before IDC)	20,639
Interest During Construction	2,690
Total Project Cost	23,329

- ii. Capital structure: Debt equity ratio is 75:25.
- iii. Interest Rate: Interest Rate is 6 month KIBOR (based on 6.53%) plus 3.00% on local loan.
- iv. Heat Rates: The Petitioner proposed LHV Heat of 6000 kcal/kg on coal and 1740 kcal/kg on bagasse.
- v. Annual Availability: Annual plant availability is assumed 88%.
- vi. Dependable Capacity: The Petitioner proposed weighted Net Capacity of 100.53 MW and Gross capacity of 118.80 MW.
- vii. Insurance cost: The Petitioner proposed insurance cost @ 1% of the EPC Cost.
- viii. ROEDC: The Petitioner has calculated Return on Equity component of tariff using 17% IRR.
- ix. O&M: the Petitioner proposed fixed O&M cost of US\$ 6.72 million/annum
- x. Tariff Period: The Petitioner proposed a tariff control period of 30 Years
- xi. Proposed Tariff: The Petitioner proposed the following tariff:

Tariff Break Up (levelized tariff)	Rs/kWh	US Cents/kWh
Coal, Crushing and Non Crushing Season	3.4097	3.2319
Bagasse, Crushing and Non Crushing Season	5.4356	5.1522
Fuel (Weighted)	3.8720	3.6701
Variable O&M-Local	0.2130	0.2019
Variable O&M-Foreign	0.2040	0.1934
Total Energy (Weighted)	4.2890	4.0654



Fixed O&M-Local	0.6053	0.5737
Fixed O&M-Foreign	0.3094	0.2933
Insurance	0.2214	0.2099
Return On Equity including ROEDC	1.6483	1.5624
Working Capital	0.1360	0.1289
Principal Payments (Year 1-10 only)	1.3685	1.2971
Interest Payments (Year 1-10 only)	0.9464	0.8971
Total Capacity (Year 1-30)	5.2354	4.9624
Total Tariff (Year 1-30)	9.5243	9.0278

### **RELIEF SOUGHT**

5. Based on the aforementioned tariff petition submission, FEL requested the Authority to approve the company's generation tariff together with the petition indexations in accordance with project costs and the assumptions related thereto mentioned above for a 30-years PPA term post COD. A hearing in the matter was conducted on February 25, 2015 to provide an opportunity to the Petitioner and other key stakeholders to present their viewpoint.

### PROCEEDINGS

- 6. In terms of rule 4 of the Rules, the Petition was admitted by the Authority on January 08, 2016. A hearing in the matter was conducted on February 25, 2014 to provide an opportunity to the Petitioner and other key stakeholders to present their viewpoint. No comments and intervention request were received on the subject. Based on the contents of the Petition, following issues were framed and approved by the Authority for the hearing:
  - i. Whether the Project Cost is justifiable?
  - ii. Whether the proposed Heat Rates are reasonable?
  - iii. Whether the Dependable Capacity is justified?
  - iv. Whether the Variable O&M cost is justified?
  - v. Whether the Fixed O&M cost is justified?
  - vi. Whether the Insurance Cost is reasonable?
  - vii. Whether the requested Working Capital is reasonable?
  - viii. Whether the proposed Calorific Value of coal and bagasse is justified?
  - ix. Whether the proposed Capital Structure of the project is justified?
  - x. Whether the requested IRR of 17% is reasonable?
  - xi. Whether EPC bidding process has been conducted in a transparent manner and justifiable?



- xii. Whether all aspects and procedural requirements regarding Environmental issues have been fulfilled?
- xiii. Whether requested plant availability of 88% is justified?
- xiv. Whether assumption of coal transportation as pass through is reasonable?
- xv. Whether the arrangements of take or pay basis is reasonable and justifiable?
- xvi. Whether technical studies including short circuit and transient stability studies have been carried out and approved by NTDCL or not?
- 7. Hearing in the matter was conducted on February 25, 2016. The hearing was attended by representative of FEL wherein, the Petitioner presented its case to the Authority. Representative of HP Cogen, Habib bank limited, CPPA-G, RIAA Law, K-Electric also attended the hearing.
- 8. The Petitioner informed that the project was in the final stage of commissioning and more than 80% of the work has already been accomplished. Due to this, it was considered prudent to review all the relevant information through different contract agreements, commercial invoices, bank statements, etc. to ascertain the total project cost. Further, this will also help lessening the time frame for COD stage adjustment wherein, only small percentage of project cost would most likely be adjusted. Accordingly, the Petitioner was advised to submit all the relevant data normally required from an IPP during COD stage adjustments. In response, the Petitioner submitted folders containing various agreements, commercial invoices, bank statements, debit invoices, Tax sheets etc.
- 9. Having considered the submission of the Petitioner, the issue-wise finding of the Authority is given in the following paragraphs:

### Project Cost related Issues

- i. Whether Project Cost is Justifiable?
- ii. <u>Whether EPC bidding process has been conducted in a transparent manner and</u> justifiable?
- iii. Whether insurance cost is reasonable?

EPC Cost

- 10. The Petitioner has signed the offshore and onshore supply contract of US\$ 162.64 million on 10th of December, 2013 with Shanghai Marine Diesel Engine Research Institute owned by CSIC which is major state owned enterprise group in China.
- 11. With regards to the transparency of award of EPC contract, the Petitioner informed that international competitive bidding process was done to select a turnkey EPC Contractor. According to the Petitioner, Request for Proposal was circulated to 10 leading Chinese, Turkish



and East European EPC Contractors with a bid submission deadline of October 21, 2011 and as a result the following companies submitted their bids:

- China National Chemical Engineering Group Corp (CNCEC), China;
- China Shipbuilding Industry Corporation (CSIC), China;
- Istro Energo Group (IEG), Slovakia;

12. Bid evaluation was based on the following main criteria:

- Technology offered
- References and experience of the bidder
- Performance parameters including output, auxiliary consumption and efficiency/heat rate, energy availability factor
- Project time schedule
- Quality of offered equipment
- Proportion of equipment imported/local
- Commercial package, EPC price including contract price, payment method quantum of LDs etc.
- Completeness of bids
- 13. The Petitioner informed that CdF Ingenierie, a French Independent Engineer for the Projectand FEL both decided to select European brand for boiler and turbine as proven benchmark plant for best result. The CdF performed the revised evaluation of optimized proposal and finally recommended FOSTER WHEELER (SPAIN) boiler and SIEMENS (GERMANY) steam Turbine from Shanghai Marine Diesel Engine Research Institute (SMDERI), a subsidiary of China Shipbuilding Industry Corporation (CSIC), and thus EPC contract was signed for 2 \* 60 MW coal/bagasse Cogen power plant.
- 14. The Authority noted that the evaluation of all the bids submitted was done by an independent engineer who in this case is reputable French firm i.e. CdF Ingenierie. In support of this, FEL also provided a certification of CdF Ingenierie which highlighted key processes/ events that took place leading up to the signing of EPC contract. In the opinion of the Authority it further lends credibility to the award of EPC contract and indicate that some level of competition and transparency has been ensured by the Petitioner at arriving at EPC price.
- 15. The Petitioner informed that subsequent to the signing of EPC contract with SMDERI-CSIC, the Petitioner achieved Financial Close of the Project on 29 May 2014. Prior to Financial Close, a Notice to Proceed ("NTP") was issued by the Petitioner to the EPC Contractor on February 10, 2014 based on which the Project is required to achieve commercial operations on August 10, 2016 given a construction period of 30 months.
- 16. The Petitioner submitted the following breakup of EPC price in equivalent US\$ 162.64 million:



US\$ 95.750 million (Rs 9,883.78 million) and



- Euro 59.903 million (Rs 7,274.46 million)
- 17. The EPC price, for the offshore supply contract and the onshore construction contract, is further divided into the following portion:
  - US\$ 68.150 million (Rs 7,030.70 million) and Euro 58.750 million (Rs 7,122.80 million) for the offshore supply contract and
  - US\$ 27.600 million (Rs 2,853.08 million) and Euro 1.153 million (Rs 151.66 million) for the onshore construction contract.
- 18. In support of the above, the Petitioner submitted the offshore and onshore EPC contracts, bank statements and bank debit notes, notice to proceed and other supporting documents.
- 19. While analyzing the record it is noticed that the Petitioner converted the total EPC cost of Rs 17,158 million into US\$ on assumed parity of PKR 105.5 and not on actual local weighted average exchange rate prevalent at the time of payments. This artificially reduced the total EPC cost to US\$162.64 million (17,158/105.5) which otherwise should have been US\$ 167.3 million if actual exchange rate of 102.54 is applied. On Rs basis, the FEL's requested total EPC cost of Rs 17,158 million is verified, out of this, Rs 13,969.8 million is verified to be paid while the remaining Rs 3,188.5 million is payable. In total the requested EPC works out to be US\$ 1.41 million per MW (167.3/118.MW). The Authority considered that in case of FFBL Power Company Limited (hereinafter referred to as "FFBL") determination dated December 29, 2015 which is a similar all coal based Cogeneration power plant, a total CAPEX of US\$ 1.46 million to FFBL was actually the indexed CAPEX in US\$ million per MW allowed to JDW Power Private Limited (hereinafter referred to as "JDW") determination dated April 02, 2010 which was also Cogen power project based on both fuels coal and bagasse.
- 20. It was noted that the EPC generally constitute 90% of a total CAPEX, thus with this ratio, FFBL's EPC cost works out to be US\$ 1.31 million per MW. The requested EPC cost in terms of MW is about US\$ 0.1 million more than the FEL's requested EPC of US\$ 1.41 million per MW.
- 21. However, it is worth mentioning that the requested EPC cost is not an estimate, it is based on signed EPC contract which is already executed, unlike in similar projects i.e. JDW or FFBL wherein, the sponsor approached NEPRA before the start of construction. Further, the FEL boiler is European origin, i.e. Foster Wheeler, which is considered expensive than the Chinese or other non-European brand due to the fact that it increases the reliability of the boiler and ensure smooth functioning of the plant. The Authority allowed European brand boiler provision in coal upfront tariff to bring the latest technology and to increase plant reliability and operational efficiencies through an increase in plant availability. While realizing the long-term benefit of quality boilers, the Authority allowed additional cost of US\$ 0.1 million per MW. In the instant



case, the proposed plant will have an availability factor of 88%, which is more than the availability factor of 85% allowed to FFBL and also allowed in coal upfront tariffs. Similarly, the proposed availability is also better than the 86% availability allowed to JDW. The increase in units due to increase in availability will have a beneficial impact on its tariff. In view of the above, the increase in EPC cost of US\$ 0.1 million per MW over FFBL's EPC cost is justified and the Petitioner is thus allowed an EPC cost of US\$ 1.41 million per MW which in equivalent US\$ works out to be US\$ 167.3 million. Out of total EPC cost, US\$ 137.1 million is verified to be paid and the remaining US\$ 30.2 million payable. For conversion of the payables into Rs, the exchange rate of Rs/US\$ 105.50 and Rs/Euro rate of 111.62 has been assumed. The payable amount shall be subject to adjustment based on actual at the time of COD upon submission of authentic documentary evidence.

### Other CAPEX

22. The Petitioner submitted the following other CAPEX details:

Non - EPC Cost

23. The Non-EPCC Costs have been budgeted at Rs 903 million. The details in relation to such costs are provided in the following table:

	Incurred	Balance	Total
	at	up to	
	30/09/2015	COD	
	1	Million	
Land	204	27	231
Boundary Wall & Other Structures	61	16	77
Administrative Block	25	46	71
Residential Colony	21	459	480
Station Vehicles (for Coal handling)	7	37	44
Total	318	585	903

24. The total estimated land requirement is 61.42 acres, out of which 53.92 acres have been acquired at an average rate of Rs 3.78 million per acre and rest is under process of acquisition which is budgeted at a unit rate of Rs 3.60 million per acre. This includes boundary wall Rs 33 million, security office and barracks Rs 17 million and construction of BOQ and MOQ Rs 27 million. The cost of the administrative block has been budgeted at Rs 46 million (including furniture and fixtures) for a total area of 10,000 square feet. Further, cost in relation to temporary office structure and equipment Rs 25 million. A residential colony is necessitated due to the location of the Project i.e. rural area of Kot Adu. The total area of the colony is approximately 120,650 square feet which includes 34 houses, a bachelor hostel, guest house, club, mosque, clinic and market. Further, the assumed cost hereunder also includes the cost in relation to 75,000 square feet of



internal roads as well as electrification and furnishing. A true-up in this regard will be made at COD.

### Insurance

- 25. This head covers the cost of insurances of the Complex during the construction phase (prior to the COD). The Petitioner, in view of the practices set by other IPPs in Pakistan and in accordance with typical requirements set out by lenders, has procured the following insurances during the construction phase of the Project:
  - Erection All Risk Insurances (EAR);
  - EAR Delay in Start-up Insurance
  - Marine and Inland Transit Insurance;
  - Marine Delay-In Startup Insurances; and
  - Terrorism Insurance

26. Total insurance cost of Rs 173 million has been incurred. Details in this regard are as follows:

	Incurred at 30/09/2015	Balance up to COD	Total
		Million	
Construction Insurance	173	0	173

27. The premiums paid under the above stated Pre-COD insurances do not include the Federal Excise Duty. The Petitioner prays that the same be allowed by NEPRA as part of the one-time adjustments allowed at the time of COD.

### Fuel during Testing

- 28. An amount of Rs 101 million shall be required for the cost of fuel (which is not reimbursed by the Power Purchaser) for all testing activities of the Project prior to /synchronization with the grid. This amount has been assumed based on consumption of 10,584 MT of coal and 10,000 MT of bagasse during such testing.
- 29. The Petitioner stated that current fuel prices have been assumed for the purpose of calculation whereas the transportation cost and custom duties applicable at the time of import of coal will be pass-through on actual basis; however, an adjustment will be sought at the time of COD based on the then-prevailing fuel prices.

### O&M Mobilization Cost

30. The Petitioner informed that the O&M contractor shall be mobilized 180 days prior to COD to ensure smooth takeover of the Project from the EPC Contractor at the COD. A cost of US\$1.77



million is budgeted under this head comprising of the expenses of the O&M contractor's personnel (both local and expatriates), the Petitioner's O&M personnel and foreign training cost. A true-up in this regard will be made at COD.

	Rs million
O&M Contractor's personnel cost	115
Petitioner's O&M personnel cost	49
Training Cost	24
Total	188

Project Development Cost

31. The Project development costs include the following:

	Incurred at	Balance up to	Total
	30/09/2015	COD	
Item	Rs million		4
Owner's Engineer - CdFI payments	107	57	164
Owner's Advisor - SIDEC payments	27	0	27
Independent Engineer for Testing	0	11	11
Technical Studies	9	0	9
Legal & Financial Advisory	62	4	66
SECP Fees (authorized capital)	19	0	19
PPIB & Regulatory Fees	8	3	11
Administration Costs prior to CoD	459	337	796
Total	691	412	1.103

Site Security during Construction (Petitioner's scope under EPCC)

	Incurred 30/09/2015	at	Balance to COD	up	Total
	Rs million				
Site Security during Construction	74		49		123

32. The Company has engaged Rangers and Police & commandos from private security company for the security of expatriate working at site for the construction/ implementation of the project.

Non-EPC Costs 8.56 0.07	Non-EPC Costs	8.56	0.07
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Insurance	1.64	0.01
Fuel during Testing	0.96	0.01
O&M Mobilization Advance	1.78	0.01
Development Cost	11.62	0.10
Total Other Cost	24.57	0.21

- 33. The relevant documents regarding the insurance cost of Rs 173 million were analyzed, verified and found correct. The requested amount is 1.01% of EPC cost which is similar to the benchmark insurance (1% of EPC) allowed to similar projects i.e. FFBL. In addition to insurance cost the Petitioner only submitted documents related to Owners Engineers and Advisors amounting in total to Rs 191 million. The cost incurred as of 30.09.2015 were analyzed and found correct. The Petitioner didn't submit relevant documents related to other CAPEX except for the aforesaid line items. The Petitioner informed that remaining cost will be submitted at the time of true up as the documents are extensive and require a lot of time to compile.
- 34. The Authority reviewed the FEL's individual cost items of Other CAPEX and considered that CAPEX benchmarks are already available for similar projects i.e. FFBL and JDW. The Authority opined that an overall comparison of Other CAPEX cost in terms of US\$ per MW will be more appropriate as against comparison of individual project line items across similar projects, as the sponsors might be efficient in reducing cost in particular head while may incur cost overrun in another. The Authority, however, is aware that a project might have certain specific issues which need to be deliberated on an individual basis and the project sponsor may be entitled to cost compensation if the cost is considered prudent and justified. In the instant case, it is decided to compare other CAPEX on an overall basis.
- 35. As stated above, FFBL was allowed a lump sum total CAPEX of US\$ 1.46 million per MW, which have other CAPEX cost of US\$ 0.15 million per MW. It was observed with concern that the requested other CAPEX cost of US\$ 0.21 million per MW is US\$ 0.06 million more than the FFBL allowed Other CAPEX of US\$ 0.15 million per MW. FEL was asked to explain the difference. FEL accordingly provided the following reasons to justify the additional costs:
  - Security Cost of US\$ 1.2m which has been paid to Punjab Rangers/Police (US\$ 0.010m/MW)
  - Land and its associated infrastructure of US\$ 2.2m (US\$ 0.019m/MW) (including land for bagasse & coal storage)
  - Residential colony of US\$ 4.55m (US\$ 0.038m/MW)
  - O&M Mobilization cost of US\$ 1.78m (US\$ 0.015m/MW)
  - If the above mentioned items are added to the other CAPEX of US\$ 0.14m/MW of Fauji Power, its cost would work out to US\$ 0.22m/MW which is more than the amount claimed by FEL



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- For comparison with JDW, please note that at the EPC Stage JDW had requested other CAPEX of US\$ 0.19m/MW which did not include
- Enhanced security costs of US\$ 1.2m
- Inflation in land prices, local civil materials and manpower cost from 2011 to 2013
- 36. The Petitioner's reasons were reviewed and it was observed that the reasons of difference of FEL from FFBL are not valid as the CAPEX allowed to FFBL was based on the indexed CAPEX of JDW which already included O&M mobilization, land, and residential colony cost. Further, the Petitioner has not submitted detailed evidence in support of other CAPEX as the Petitioner itself stated that it will be provide at the time of COD. The Authority is aware that the country's security situation warrants additional deployment of security personnel. Therefore, additional cost on account of enhanced security may be considered at later stage when relevant documents to the satisfaction of the Authority are submitted. For the time being it is decided to allow US\$ 0.15 million per MW already allowed to FFBL to the Petitioner on account of other CAPEX. Accordingly, on the basis of gross capacity of 118.8 MW, other CAPEX works out to be US\$17.3448 million against US\$ 24.57 million requested.

# Interest during Construction

- 37. The Petitioner claimed a total IDC Rs 2,690 million out of which Rs 1373 million was claimed to be paid (as of 30.09.2016) and the remaining Rs 1317 million payable up to COD. In support of the above the Petitioner submitted financing agreements, bank statements and bank advices. During the analysis of the IDC cost head, the following were observed.
  - A musharka agreement for 100% local loan is signed by the Petitioner with Habib Bank Limited as the lead banker; the United Bank Limited, Bank Alfalah Limited, National Bank of Pakistan, Askari Bank Limited, The Bank of Punjab, Mezaan Bank Limited, Albaraka Bank Limited, NIB Bank Limited, Habib Metropolitan Bank Limited, Soneri Bank Limited, Pak Oman Investment Company Limited, Pak china Investment Company Limited, and PAIR Investment Company Limited were also part of the consortium.
  - As per the agreements the loan is obtained for a term of 10 years plus 30 months grace at interest rate of 06 month KIBOR+300 basis points with semi-annual installments.
  - Financial close was achieved on May 29, 2014 and the first disbursements from the banks were released on June 2<sup>nd</sup>, 2014. It may be noted that construction started On February 10, 2014. As per the Notice To Proceed (NTP)
  - The requested IDC of (Rs 1,373 million) includes cost of bridge finance amounting to Rs 89.52 million on account of Advance Mobilization payment to EPC contractor prior to financial close. This facility was obtained from Habib Bank Limited. Bridge finance was obtained at a rate of 03 Months KIBOR+100 basis point on a principle amount of



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Rs 2.346 million w.e.f from Jan 30, 2014 and the principal amount is repaid on June 14, 2014.

38. Subsequent to the petition, the Petitioner also provided IDC paid upto December 31, 2015 which increased the total IDC paid from Rs 1373 million to Rs 1624 million. IDC paid till December 31, 2015 was verified from the relevant documents and found correct. It was further noted that the requested construction time of 30 months is slightly more than the 24 months construction time allowed in case of JDW Cogen Power project and FFBL Power Company Limited. It is understood that the proposed project capacity is slightly more than the capacities of the two Cogen project mentioned above. The Authority also considered that the Petitioner power project has already started the testing phase of its power plant 3-4 months head of the 30 months constriction time agreed with the EPC contractor which in the instant case is August 10, 2016. In view of the above, the Authority considers 28 months construction time will be sufficient for the assessment of IDC and corresponding RoEDC. Accordingly for the interest to be paid till CoD i.e. Jan to May 29, 2016, a KIBOR of 6.51% + 3% margin was assumed for IDC calculation. Accordingly, IDC payable upto assessed COD of May 29, 2016, works out to be Rs 635.344 million which shall be subject to adjustment at the time of COD. Further Bridge finance was re-determined based on the revised dates starting from NTP i.e. Feb 10, 2015 and accordingly allowed as Rs 81.4 million against Rs 89.2 million requested. In total IDC works out to be Rs 2,341.291 million and the same has therefore been allowed to the Petitioner.

# Custom Duties, Local Withholding Taxes and Cess

- 39. Under this account, the Petitioner claimed total amount of Rs 371 million, out of which, Rs 220 million claimed to be paid as of 30.09.2015 and the remaining Rs 151 million is payable till COD. In support thereof, the Petitioner submitted the commercial invoices, Goods Declarations, bank statements, Cess Challans, WHT receipts and other supporting documents.
- 40. According to the Petition, significant portion of custom duties and taxes is still not paid. It was observed that, FEL was unable to submit a complete documents on account of claimed duties amounting to Rs 371 million. Only an amount of Rs 161 million was verified to be paid based on the documents submitted. The duties and taxes are pass through items and are adjusted anyway on actual at the time of COD, therefore, the requested Custom duties amounting to Rs 371 million is reasonable and therefore, allowed to the Petitioner subject to adjustment at actual at the time of COD.

## Lender's Fee and Charges

41. Under this head, the Petitioner claimed a total amount of Rs 519 million, out of which an amount of Rs 456 million is paid as of 30.09.2015 while the remaining amount of Rs 63 million is yet to be



paid till COD. In support of the above, the Petitioner submitted the relevant financing agreements, bank statements, various letter of credit and all the documents.

42. The claimed amount Rs 519 million works out to be 3.16% of the total assessed debt, which is less than the benchmark financing fee rate of 3.5% of total debt therefore, the Lender fee and charges amounting to Rs 519 million is allowed to FEL. Out of this an amount Rs 73.65 million is payable which shall be subject to adjustment at the time of COD based on the submission of relevant document.

Comparison	FEL 1	Requested	FEL Allowed		
Capacity MW		118.80		118.80	
Project Cost	US\$ Million	US\$M/MW	US <b>\$</b> Million	US\$M/MW	
CAPEX					
EPC Cost	162.64	1.37	167.29	1 41	
Other CAPEX	24.57	0.21	17.34	0.15	
Total CAPEX	187.20	1.58	184.63	1 55	
Custom Duties/Withholding Taxes	3.51		3.51	1.35	
Lenders' Fees & Charges	4.92		4.92		
Interest during Construction	25.50		25.14		
Total Project Cost	221.13	1.86	218.20	1.84	

43. Summary of the total project is indicated hereunder:

# Whether the arrangements of take or pay basis is reasonable and justifiable?

44. In response to this first issue the Petitioner informed that take or Pay arrangement is essential for bankability of the project under project financing mode. The Petitioner further informed that Cogen Policy 2008 provides for capacity payments based on plant availability including the crushing season Article (ii) of the Policy:

"...... the capacity payment will be made on basis of available capacity......"

45. The Petitioner further referred to the Authority's determination in case of tariff given to PSMA which states in Article 9 of the Tariff Determination that

".....lenders are not comfortable lending to power sector projects unless their loan pay back is ensured through capacity payments, a two-part tariff is being allowed ......"

46. The Authority having considered the argument put forward by the Petitioner in support of two part tariff observed that under Section 7 of the NEPRA Act, the determination of tariff and the





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terms and conditions thereof is a core function of NEPRA which cannot be delegated to anybody else. Further, the guidelines of Federal Government are applicable only when they are not inconsistent with the provisions of the NEPRA Act. As per the NEPRA Act, it is the obligation of NEPRA to ensure provision of affordable and economical electric power to the consumers. Therefore, if the policy or guidelines of the Federal Government are such which contradict with the functions of NEPRA, then the same are not binding on NEPRA.

47. In the same context the Authority considers that two part tariff bound the power purchaser in a take or pay contract which is inefficient and against the spirit of competition. The Authority considers that it will be against the spirit of the provisions of NEPRA, which require to bring not only efficiency in the power sector but also to protect the interest of the consumers. Allowing the projects long-term take or pay arrangement having very low efficiency cannot be justified and will be an imprudent decision. The Petitioner's decision for setting up a plant of low efficiencies is Petitioner's commercial decision for which consumers should not be suffered. Therefore, the Petitioner request of take or pay tariff is rejected and the Petitioner is allowed a take and pay arrangement for dispatch. For this purpose, economic dispatch merit order will be used considering the energy component only.

#### O&M cost

- I. Whether the Variable O&M cost is justified?
- II. Whether the Fixed O&M cost is justified?

### Variable O&M

48. According to the Petitioner, it is considering to award O&M contract to LEPM. However, the proposed term sheet contains a number of cost exclusions such as chemicals, lubricants, ash disposal, spares parts etc. The Petitioner informed that due to Fatima Group's vast engineering expertise and with the assistance of OEMs and EPC Contractor the Petitioner has estimated an amount of US cents0.40 per KWh as the variable portion of the operations and maintenance costs.

### Fixed O&M

49. According to the Petitioner, Fixed O&M has been based on fixed annual costs of US\$ 6.72 million which includes O&M cost including O&M fee and Corporate & Administration Cost including Plant Security. O&M cost consists of O&M fee payable to independent operator and Petitioner's O&M personnel costs. Since the Petitioner is considering outsourcing the O&M therefore, LEPM proposed cost is used as fixed O&M fee. The proposed cost varies year on year depending upon the number of personnel supplied by LEPM therefore 12 years cost has been levelized while calculating the O&M cost for any year. Details of the costs applicable to Fixed O&M component are provided hereunder.



End ORM	Rs million
Fixed O&M cost payable to independent operators and Petitioner's	468
Comparisonnel	
Corporate and Administration Cost (including Plant Security)	241
Iotai	709

50. The Petitioner subsequently on April 22, 2016 informed that its O&M numbers have changed as it has changed its O&M contractor to CdF instead of previous LEPM. Following is the latest requested O&M numbers:

	Rs/kWh
Variable O&M Foreign-(Spares & Chemicals)	0.2040
Variable O&M Local – Ash	0.1595
Variable O&M Local	0.0535
Total Variable O&M	0.4170
	Rs/kW/h
Fixed O&M Foreign	0.2262
Fixed O&M Local	0.5420
Total Fixed O&M	0.7682

# Revised Requested O&M Expense

- 51. It was noted with concern that the requested O&M is significantly higher than O&M allowed to coal and bagasse based power plants. If compared with O&M cost recently allowed to FFBL (on the basis of March 2016 USCPI and Pak CPI numbers), FEL requested total O&M cost of Rs 1.13 /kWh (at plant factor of 88%) is more than twice the FFBL's total O&M cost of Rs 0.48/kWh. Similar is the case with upfront O&M component, i.e. of Rs 0.506/kWh vs. Rs 1.13/kWh requested. Against comparison to FFBL, FEL pointed out that in case of FFBL, a cost sharing arrangements have been agreed with Fauji Fertilizer Company Limited (FFCL) for the reason that a large chunk of power of the combined complex will be utilized by FFCL and the rest to be sold to K-Electric's grid via FFBL. Therefore FEL argued that there are some common O&M cost which have been shared between FFBL and FFCL thus reducing the FFBL's O&M component so, both are not comparable.
- 52. This argument of FEL is not valid because it needs to be understood that there is a project cost sharing based on steam proportion usage between FFBL and FFCL and not O&M sharing. O&M cost is unit based hence, carving out different section of one whole power complex doesn't change the O&M component. Even for the argument sake if it is assumed that there are some cost saving in the O&M cost, that can't be more than double the FFBL's O&M cost.
- 53. The Petitioner was told vide a letter dated April 01, 2016 to give details of O&M related cost so that the different components of O&M costs are known. In reply, the Petitioner submitted O&M



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agreement (initialed) which didn't indicate an individual component of O&M except it only give foreign staff salaries. The Petitioner further submitted excel sheets, justifying its O&M claim but that lacked underlying agreement to back the calculation.

54. In the absence of complete O&M agreement substantiating each component of cost, the Authority is constrained to allow O&M expense allowed in the upfront tariff of 220 MW unit. The Petitioner has informed that it will not be using limestone for Sulphur treatment so the plant will have no limestone cost. Further, the proposed ash disposal cost of Rs 0.1595/kWh is lower than the Rs 0.22/kWh allowed in the upfront tariff therefore, it is allowed as claimed which will be subject to adjustment at actual at the time of COD. In view thereof, and based on the benchmark energy of 791.632 GWh, the following O&M numbers have been allowed to the Petitioner:

O&M Expense Allowed	Local	Foreign
Fixed O&M (Rs/kWh)	0.1821	0.1894
Variable O&M (Rs/kWh)	0.0476	0.0743
Ash disposal Rs/kWh	0.1595	

Whether the proposed Heat Rates are reasonable?

55. The Heat Rates have been proposed in line with corresponding efficiencies under Article (i) of the Cogen Policy 2008 which states:

# "The tariff will be levelized for 30 years and will be available for 60 MW's or above capacity based on 28% net thermal efficiency."

- 56. The Petitioner further informed that the proposed efficiency of 28% is above the actual weighted average net plant efficiency of the Project of 26.5%. Differential being recovered from Sugar Mills through sale of steam.
- 57. The Authority has considered the submission of the Petitioner and is of the view that in terms of section 7, read with section 31 of Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, the determination of tariffs, rates, charges and other terms and condition for supply of electric power services is the exclusive domain of the Authority. It was noted that the Petitioner actual efficiency without extraction of steam during crushing season would be 29.21%. The same is also guaranteed by its EPC contractor. The reduction in efficiency to 26.5% is only due to steam usage. It is understood that the Petitioner is getting a hit of ~1.5% in the thermal efficiency (requested 28% vs actual 26.5%), however, the consumer is also being burdened with efficiency drop of 1% (28% requested vs 29.21%). It was further observed that steam being produced through the plant boiler will be used by Fatima Sugar Mill and the benefit



derived through sale of steam to sugar mill from the power plant (whose cost will be paid by the consumer) is not being reflected anywhere in proposed tariff. In view thereof, the Petitioner request of 28% efficiency is rejected and the Petitioner is instead being allowed net thermal efficiency of 29.21 %.

## Whether the Dependable Capacity is justified?

58. On this issue the Petitioner submitted that as per Article (ii) Cogen Policy 2008

"...For power and steam used in process by sugar mills, the <u>contract capacity of 51.75 MW</u> has been calculated based on weighted average gross output during season and off season less auxiliary power. ...."

59. According to the Petitioner, the calculated dependable capacity works out to 102.5 MW for a 2x59.4 MW plant against 100.53 proposed by FEL. The Petitioner further informed that the increased availability of 88.0% guaranteed by FEL (as compared to the benchmark 85.0%) offers higher production scenario than benchmark established under Authority Determinations. In support the Petitioner submitted the following working:

Description	Units	
Weighted Average Net Capacity as per Co-Gen Policy	MW	102.5
No of Units @ 85% Availability	MWh	762,954
Weighted Average Net Capacity of FEL	MW	100.53
No of Units @ 88% Availability	MWh	774,966

60. The net annual average capacity is based on the auxiliary consumption of 9.48% which is on the higher side. Auxiliary consumption of 9% was allowed in case of upfront coal tariff for 220 MW units and also in case of JDW which even proposed small units i.e. 40 MW  $\times$  2. Therefore, based on the auxiliary consumption of 9%, the weighted average capacity for FEL Cogen power plant works out to be 102.657 MW and the same is therefore being adopted for calculation of tariff which shall be subject to adjustment at actual at the time of COD provided that the adjustment lead to increase in the allowed capacity of 102.657 MW.

# Whether requested plant availability of 88% is justified?

61. The FEL, offered plant availability of 88% is above the benchmark availability of 85% determined by the Authority for coal-based power projects. Therefore, the availability of 88% is being accepted.



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# Whether the requested Working Capital is reasonable?

62. FEL has sought a working capital equivalent to 90 days coal inventory and 30 days Energy Payment receivable, which is in line with provisions for coal-based power projects determinations of the Authority

# Whether the proposed Capital Structure of the project is justified?

63. The Petitioner proposed a debt equity structure of 75; 25. The Authority has allowed a Debt to Equity Ratio between 80:20 and 70:30. The proposed capital structure of 75:25 is in line with limits permitted by the Authority in different cases, therefore, it is allowed. The capital structure shall be subject to change at actual at the time of COD provided the revised capital structure remains within the benchmark ratio as stated above.

# Whether the requested IRR of 17% is reasonable?

64. The proposed IRR of 17% is in line with returns allowed for bagasse-based and imported coal projects in respective upfront tariff determinations by the Authority. Further, FFBL was also recently allowed an IRR of 17%. The request for 17% IRR being reasonable is allowed to the Petitioner.

# Whether all aspects and procedural requirements regarding environmental issues have been fulfilled?

65. According to the Petitioner, Environmental Approval from Environment Protection Department, GoPb vide letter no. DD/ (EIA)/EPA/F-52(IEE)/Cir/2011/281 dated March 8, 2013 and letter no. DD/ (EIA)/EPA/F-52(IEE)/Cir/2011/262 dated February 10, 2014. Environmental approval has already been given by the relevant agency therefore, this issue stands addressed.

# Whether technical studies including short circuit and transient stability studies have been carried out and approved by NTDC or not?

66. According to the Petitioner, Interconnection Study Report - I vide NTDC letter no. GM/WPPO/DH/1608 dated February 20, 2015. Interconnection Study Report - II vide NTDC letter no. GMPP/CEMP/TRP/5359-61 dated January 29, 2016 was completed. These studies have been completed and copies already submitted, therefore, this issue stands addressed.

# Whether Assumption Of Coal Transportation As Pass Through Is Reasonable?

67. In response to this issue, the Petitioner submitted that due to geographic location of sugar mills, inland freight is an essential component of fuel cost. This has been allowed as pass through cost



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for all fuels in one form or another. The Petitioner further informed that project is willing to work out a robust and transparent mechanism to ensure the reasonability of such cost.

68. It was clarified that the coal transportation is going to be integral part of FEL's fuel cost. FEL's plant is cogeneration plant from which Fatima Sugar Mill will be utilizing steam and power for the mill uses. Which means the location is already fixed and for all the practical reasons, the new plant can't be located in the coastal areas to minimize the transportation cost. Hence the need for coal transportation is legitimate and therefore such provision is allowed to FEL.

# Whether the proposed Calorific Value of coal and bagasse is justified?

- 69. On this issue the Petitioner informed that the proposed Bagasse NCV of 1740 kcal/kg is in line with the Authority Determinations in similar bagasse based projects. Coal NCV of 6000 kcal/kg is most widely used benchmark for South African coal (also proposed by Argus in recent hearing before the Authority). The Petitioner further informed that the price of coal will be adjusted based on actual CV of coal received.
- 70. The proposed CV of bagasse is similar to the CV assumed in the bagasse upfront tariff determination. The coal CV of 6000 kCal/kg may be high but the provision of CV adjustment is already allowed to upfront coal projects. In view thereof, the CV proposed for bagasse and coal being reasonable is allowed subject to adjustment at actual at the time of COD.

### ORDER

71. Pursuant to Section 31 (4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 read with Rule 16 (11) of NEPRA Tariff Standards and Procedure Rules, 1998, the National Electric Power Regulatory Authority (hereinafter "the Authority") has hereby determined the following reference tariff for Fatima Energy Limited (hereinafter "The Petitioner"):

### **Reference Tariff**

Tariff Components	Year 1 to 10	Year 11-30	KS. In million
Capacity Charge (Rs/kWh)			Indexation
Fixed O&M Foreign	0.1894	0.1894	LISS /PKR & LIS CDI
Fixed O&M Local	0.1821	0.1821	Local CPI (General)
Cost of Working Capital	0.1333	0.1333	KIBOR +2%
Insurance	0.2230	0.2230	US\$ /PKR (If any)
Debt Service	3.7550	0	KIBOR+3%
Return on Equity	1.5661	1.5661	US\$ /PKR
Total Capacity Charge	6.0488	2.2938	
Energy Charge Rs./kWh			



Tariff Components	Year 1 to 10	Year 11-30	Indexation
Fuel Cost Component (Bagasse)	5.2104	5.2104	Fuel Price
Fuel Cost Component (Coal)	3.2684	3.2684	Fuel Price
Variable O&M Local	0.0476	0.0476	Local CPI (General)
Variable O&M Foreign	0.0743	0.0743	US\$/PKR & US CPI

Note:

- i) The tariff has been calculated on the basis of net capacity of 102.657 MW and annual generation @ 88% plant factor of 791.362 GWh. The net capacity is subject to adjustment at the time of COD as per IDC test. In case the net capacity is established higher than the minimum capacity, the relevant tariff components shall be adjusted accordingly. However, no adjustment is allowed in case the net capacity is established less than minimum net capacity of 102.657MW.
- ii) The above tariff is applicable for the period of 30 years on BOO basis commencing from the date of Commercial Operate Date (COD)
- iii) Debt Service shall be paid in the first 10 years of commercial operation of the plant or 791.362 GWh whichever is earlier.
- iv) The Seller shall be entitled for the capacity charge in case it falls in the merit order and CPPA-G did not procure power from the Seller.
- v) Thermal efficiency has been taken as 29.21%.
- vi) Component wise proposed tariff for operation on Bagasse and on Coal is indicated at Annex-I & II respectively.
- vii) Debt Servicing Schedule is attached as Annex-III.
- 1. The following adjustments /indexations shall be applicable to reference tariff;

#### One Time Adjustment

#### Adjustment in EPC Cost

2. The Authority has assessed total EPC cost of 167.29 million at equivalent US dollar. That include the following payables:

US\$ Portion	25.212
Euro Portion	4.735

- 3. Since the exact timing of the above mentioned payables to EPC contractor is not known at this point in time therefore, adjustment for relevant foreign currency fluctuation for the portion of payment in the relevant foreign currency will be made at COD. In this regard, the sponsor will be required to provide all the necessary relevant details along with documentary evidence. At this stage \$ portion of EPC is converted to equivalent Rs at assumed PKR to US\$ exchange rate of 105.5 and Euro portion at assumed PKR to Euro exchange rate of 111.62.
- 4. The adjustment shall be only for currency fluctuation against the reference parity values according to the following mechanism;

EPC payables (\$ portion) (Adj.)

PKR 2,659.911 million / 105.5× E (PR)

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EPC payables (Euro Portion) (Adj.) = PKR 528.575 million /  $111.62 \times E_{(PR)}$ 

Where:

- E (PR) = Respective Weighted Average PKR/EURO and PKR/US\$ parity based upon timing of the payment
- 5. The tariff components i.e. Insurance, ROE, Principal Repayment and Interest Charges etc. shall be adjusted based on EPC currency fluctuation at COD and based on other project cost items that are allowed to be adjusted as prescribed in the determination.

## Adjustment due to Variation in Net Capacity

6. The reference tariff has been determined on the basis of minimum net capacity of 102.657MW at delivery point at mean site conditions. All the tariff components except fuel cost component shall be adjusted at the time of COD based upon the Initial Dependable Capacity (IDC) tests to be carried out for determination of contracted capacity. Adjustment shall not be made if IDC is established less than 102.657 MW net capacity at reference site conditions. The adjustments shall be made according to the following formula:

CC (Adj.) =		CC (Ref) x 102.657/ NC (IDC)
CC (Adj.) =		Adjusted relevant Capacity Charge components of tariff
CC (Ref) =		Reference relevant Capacity Charge components of tariff
NC (IDC)	= test	Net Capacity at reference site conditions established at the time of IDC

Note:- Reference capacity charge components of Tariff i.e. Revised O&M Foreign, Revised O&M Local, Insurance, Debt Servicing., Return on Equity etc. to be adjusted as per IDC test.

### Adjustment in Insurance as per actual

7. The actual insurance cost for the minimum cover required under contractual obligations with the Power Purchaser not exceeding 1.0% of the EPC cost will be treated as pass-through. Insurance component of reference tariff shall be adjusted as per actual on yearly basis upon production of authentic documentary evidence by FEL.

### Adjustment in Return on Equity (ROE)

8. Return on Equity will be quarterly adjusted on account of variation in PKR/US\$ parity according to the following formula:

ROE (Rev) = ROE (Ref)  $\times$  ER (Rev)/ 105.5

Where;

ROE (Rev) = Revised ROE

ROE (Ref)

Reference ROE



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 $ER_{(Rev)} = The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan$ 

#### Indexations:

- 9. The following indexation shall be applicable to the reference tariff as follows;
  - a) Indexation applicable to O&M

The Fixed O&M local component of Capacity Charge will be adjusted on account of Inflation (CPI) and Fixed O&M foreign component on account of variation in US CPI and dollar/Rupee exchange rate. Quarterly adjustment for local inflation, foreign inflation and exchange rate variation will be made on 1" July, 1" October, in January and 1" April based on the latest available information with respect to CPI notified by the Federal Bureau of Statistics (FBS), US CPI issued by US Bureau of Labor Statistics and revised TT & OD selling rate of US Dollar notified by the National Bank of Pakistan. The mode of indexation will be as under:

i) Fixed O&M

F O&M (LREV)	Ξ	Rs. $0.1821/kWh \times CPI_{(REV)} / 203.28$
F O&M (frev)	=	Rs. 0.1894/kWh × US CPI (REV)/238.132× ER (REV)/105.5
Where:		
F O&M (LREV)	=	The revised applicable Fixed O&M Local Component of the Capacity Charge indexed with Local CPI
FO&M (frev)	=	The revised applicable Fixed O&M Foreign Component of the Capacity Charge indexed with US CPI (All Urban) and Exchange Rate variation
CPI (REV)	=	The revised Local CPI (General)
US CPI (REV)	=	The revised US CPI (All Urban)
ER (REV)	=	the Revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan

#### ii) Variable O&M

The formula for indexation of variable O&M component will be as under:

V O&M (LREV)	=	Rs. 0.0476/kWh × CPI (REV)/203.28
V O&M (FREV)	=	Rs. 0.0743/kWh $\times$ US CPI (rev)/238.132 $\times$ ER (rev)/105.5
Where:		
V O&M (LREV)	=	The revised applicable Variable O&M local Component of the Capacity Charge indexed with CPI

V O&M (FREV) = The revised applicable Variable O&M Foreign Component of the Capacity Charge indexed with US CPI and Exchange Rate variation



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US CPI (REV)	=	The revised US CPI
ER (REV)	=	the Revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan
Note:		The reference USCPI and Local CPI values are of March 2016. The reference Variable O&M indicated above shall be replaced with the revised number at COD after incorporating the required adjustment based upon the IDC test.

### iii) Adjustment for KIBOR variation

The interest part of fixed charge component will remain unchanged throughout the term except for the adjustment due to variations in interest rate as a result of variation in 6 months KIBOR according to the following formula;

 $\Delta I_{(L)} = P_{(LREV)} \times (KIBOR_{(REV)} - 9.53\%)/2$ 

Where:

 $\Delta I_{(L)}$  = the variation in interest charges corresponding to variation in biannual KIBOR.  $\Delta I$  can be positive or negative depending upon whether KIBOR<sub>(REV)</sub> > or <9.53%. The interest payment obligation will be enhanced or reduced to the extent of  $\Delta I$  for each half of an year under adjustment applicable on biannual basis

P (LREV) = is the outstanding principal (as indicated in the attached debt service schedule to this order) on 6 month basis on the relevant biannual calculations date. Period 1 shall commence on the date on which the first installment is due after availing the grace period.

#### iv) Fuel Price Variation

The reference coal and bagasse based fuel cost components have been computed on the basis of net caloric value of 6000 kCal/kg and 1740 Kcal/kg, respectively while using net thermal efficiency of 29.21% for both the fuel. While calculating fuel cost component, a coal CIF price of US\$ 63.15 per ton and the bagasse price of US\$29.19 per ton have been assumed. The adjustment in price of coal will be allowed to the Petitioner based on the revised coal price. The request for revision in coal price shall be in accordance with coal price adjustment mechanism that will be approved by the Authority in pursuance to the suo moto proceeding which has already been initiated. Since the Bagasse pricing is linked with the price of coal therefore, fuel cost component adjustment mechanism based on bagasse as a fuel shall also be given once the coal pricing mechanism is revised/updated.

### 10. Terms and Conditions of Tariff:

a. The tariff is applicable for a period of 30 years commencing from the date of the Commercial Operation.



- b. All new equipment will be installed and the plant will be of standard configuration.
- c. Dispatch criterion will be based on the Energy Charge.
- d. Scheduled Outage periods per annum shall be in accordance with the 2006 standardized PPA.
- e. FEL is constructing 37 km line for interconnection purposes and has requested that once constructed, ownership of the line may be transferred to NTDCL who shall also be responsible for its O&M subject to the reimbursement of the capital cost incurred in the construction of the transmission line at actuals. This is a critical issue between NTDCL and FEL and both parties are advised that before achieving the COD all matters relating to interconnection, including its O&M and reimbursement of the capital cost shall be settled on priority basis.
- f. All invoicing and payment terms are assumed to be in accordance with the 2006 standardized PPA.
- g. Tolerance in Dispatch shall be in accordance with 2006 standardized PPA.
- h. If there is any change in any assumption that may lead to change in the tariff shall be referred to NEPRA for approval.
- i. 100% of debt has been assumed to be local provided however that in the event FEL uses a mix of foreign and local loan, the future benefits of the lower interest rates shall be passed on to the Power Purchaser.
- j. No corporate income tax and no minimum turnover tax have been assumed.
- k. Working capital has been financed by a separate Working Capital facility, and is not included in the project cost.
- 11. The above tariff and terms and conditions be incorporated in the Power Purchase Agreement between FEL and CPPA-G.



12. The order is to be intimated to the Federal Government for notification in the official Gazette under section 31 (4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997.

AUTHORITY 7/6/16 (Syed Masood ul nassan Nagy (Maj. (R) Haroon Rashid) Member Member 6.16 (Himayat Ullah Khan) (Brig. (R) Tariq Saddozai) Member/Vice Chairman Chairman ERR NEPRA ũ THORIT

17.06.16

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	Ene	Energy Ch	arge Rs/kW	h			Cana	ity Purchase	Price (D)(D)	Daya:	556]		<u>Anr</u>	<u>1ex -</u>
Year	Fuel Cost		r. 0&M	Total	F	ixed O&M			THE (PKR/KV	vn)			Total	To
	Bagasse	Foreign	Local	EPP	Local	Foreign	Cost of W/C	Insurance	ROE	Debt Repaymen	t Charges	Total CPP	Tariff Rs. /kWh	Ta Cents
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2	5.2104	0.0743	0.0476	5.3322	0.1821	0.1894	0.1333	0 2230	1 5661	1.515	2 240	6.0488	11.3810	1
	5.2104	0.0743	0.0476	5.3322	0.1821	0.1894	0.1333	0 2230	1.5661	1.003	2.092	6.0488	11.3810	1
4	5.2104	0.0743	0.0476	5.3322	0.1821	0.1894	0.1333	0 2230	1.5001	1.825	1.930	6.0488	11.3810	1
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6	5.2104	0.0743	0.0476	5.3322	0.1821	0,1894	0 1333	0.2230	1 5001	2.199	1.556	6.0488	11.3810	1
7	5.2104	0.0743	0.0476	5.3322	0.1821	0.1894	0 1333	0.2230	1.5661	2.414	1.341	6.0488	11.3810	1(
8	5.2104	0.0743	0.0476	5.3322	0.1821	0.1894	0 1333	0.2230	1.5001	2.649	1 106	6.0488	11.3810	1(
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14	5.2104	0.0743	0.0476	5.3322	0.1821	0 1894	0.1333	0.2230	1.5661			2.2938	7.6260	7
15	5.2104	0.0743	0.0476	5.3322	0.1821	0 1894	0.1333	0.2230	1.5661			2.2938	7.6260	7
16	5.2104	0.0743	0.0476	5.3322	0 1821	0.1894	0.1333	0.2230	1.5661			2.2938	7.6260	7
17	5.2104	0.0743	0.0476	5,3322	0 1821	0.1894	0.1333	0.2230	1.5661			2.2938	7.6260	7
18	5.2104	0.0743	0.0476	5.3322	0 1821	0.1894	0.1333	0.2230	1.5661			2.2938	7.6260	7
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28	5.2104	0.0743	0.0476	5 3322	0.1821	0.1894	0.1333	0.2230	1.5661			2.2938	7.6260	7.:
29	5.2104	0.0743	0.0476	5.3322	0 1821	0 1804	0.1333	0.2230	1.5661			2.2938	7.6260	7.
30	5.2104	0.0743	0.0476	5.3322	0 1821	0.1894	0.1333	0.2230	1.5661			2.2938	7.6260	7.:
rage		1				0.1034	0.1333	0.2230	1.5661			2.2938	7.6260	7.2
10	5.2104	0.0743	0.0476	5,3322	0 1821	0 100 1	0.1000							
-30	5.2104	0.0743	0.0476	5 3322	0 1821	0.1894	0 1333	0.2230	1.5661	2.3871	1.3679	6.0488	11.3810	10.7
30	5.2104	0.0743	0.0476	5.3322	0.1821	0.1094	0.1333	0.2230	1.5661	#DIV/0!	#DIV/0!	2.2938	7.6260	7.2
elized						0.1094	0 1333	0.2230	1.5661	2.3871	1.3679	3.5455	8.8777	8.4
30	5.2104	0.0743	0.0476	5.3322	0.1821	0 1804	0 1 2 2 2							
		<u>-</u>	ovolizoo	T		0.1094	0.1333	0.2230	1.5661	1.4469	1 0007	4.7413	10.0736	9.5

POWER RE.

NEPRA AUTHORITY

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	FATIMA ENERGY LIMITED 118.8 MW CoGen Power Plant (Operation on Cost)															
		Energy Purchase Price (Rs./kWh)				T							Ann	<u>ex - II</u>		
	Year Fuel		Ash	Ash Var. (		Total		Fixed O&M		ady r dichase Flice (FNR)				<u> </u>	Total	Total
		Component	Disposal	Foreign	Local	EPP	Local	Foreign	W/C	Insurance	ROE	C Debt Repayment	Interest	Total		
	1	3.2684	0.1595	0.0743	0.0476	3.5498	0.1821	0 1894	0 1333	0.2220	4.5604				13.78001	Cents/Kvvii
	2	3.2684	0.1595	0.0743	0.0476	3.5498	0.1821	0 1894	0.1333	0.2230	1.5001	1.5153	2.2396	6.0488	9.5985	9.0982
	3	3.268	0.1595	0.0743	0.0476	3.5498	0.1821	0 1894	0 1333	0.2230	1.0001	1.6632	2.0918	6.0488	9.5985	9.0982
	4	3.2684	0.1595	0.0743	0.0476	3,5498	0 1821	0 1894	0.1333	0.2230	1.5661	1.8255	1.9295	6.0488	9.5985	9.0982
	5	3.2684	0.1595	0.0743	0 0476	3,5498	0.1821	0 1894	0 1323	0.2230	1.5661	2.0036	1.7514	6.0488	9.5985	9.0982
	6	3.2684	0.1595	0.0743	0.0476	3.5498	0.1821	0 1894	0.1333	0.2230	1.5661	2.1991	1.5559	6.0488	9.5985	9.0982
	7	3.2684	0.1595	0.0743	0.0476	3.5498	0.1821	0.1894	0.1333	0.2230	1.5661	2.4136	1.3413	6.0488	9.5985	9.0982
	8	3.2684	0.1595	0.0743	0.0476	3,5498	0 1821	0.1894	0.1333	0.2230	1.5661	2.6491	1.1058	6.0488	9.5985	9.0982
	9	3.2684	0.1595	0.0743	0.0476	3 5498	0 1821	0.1894	0.1333	0.2230	1.5661	2.9076	0.8474	6.0488	9.5985	9.0982
	10	3.2684	0.1595	0.0743	0.0476	3 5498	0 1821	0.1894	0.1333	0.2230	1.5661	3.1913	0.5637	6.0488	9.5985	9.0982
	11	3.2684	0.1595	0.0743	0.0476	3,5498	0.1021	0.1894	0.1333	0.2230	1.5661	3.5027	0.2523	6.0488	9.5985	9.0982
	12	3.2684	0.1595	0.0743	0.0476	3,5498	0.1821	0.1894	0.1333	0.2230	1.5661			2.2938	5.8436	5.5389
	13	3.2684	0.1595	0.0743	0.0476	3 5498	0 1821	0.1894	0.1333	0.2230	1.5661			2.2938	5.8436	5.5389
	14	3.2684	0.1595	0.0743	0.0476	3 5498	0.1821	0.1804	0.1333	0.2230	1.5661			2.2938	5.8436	5.5389
	15	3.2684	0.1595	0.0743	0.0476	3 5498	0.1821	0.1094	0.1333	0.2230	1.5661			2.2938	5.8436	5.5389
	16	3.2684	0.1595	0.0743	0 0476	3 5498	0.1821	0.1094	0.1333	0.2230	1.5661			2.2938	5.8436	5.5389
	17	3.2684	0.1595	0.0743	0.0476	3 5498	0.1821	0.1894	0.1333	0.2230	1.5661			2.2938	5.8436	5.5389
	18	3.2684	0.1595	0.0743	0 0476	3 5498	0.1821	0.1094	0.1333	0.2230	1.5661			2.2938	5.8436	5.5389
	19	3.2684	0.1595	0.0743	0.0476	3 5498	0.1821	0.1094	0.1333	0.2230	1.5661			2.2938	5.8436	5.5389
	20	3.2684	0,1595	0 0743	0.0476	3 5498	0.1021	0.1094	0.1333	0.2230	1.5661			2.2938	5.8436	5.5389
	21	3.2684	0,1595	0 0743	0.0476	3 5498	0.1021	0.1094	0.1333	0.2230	1.5661			2.2938	5.8436	5.5389
	22	3.2684	0.1595	0.0743	0.0476	3 5498	0.1821	0.1894	0.1333	0.2230	1.5661			2.2938	5.8436	5.5389
	23	3.2684	0.1595	0.0743	0.0476	3 5498	0.1821	0 1904	0.1333	0.2230	1.5661			2.2938	5.8436	5.5389
	24	3.2684	0.1595	0.0743	0.0476	3 5498	0.1821	0.1094	0.1333	0.2230	1.5661			2.2938	5.8436	5.5389
SOWER REG	25	3.2684	0 1595	0.0743	0.6476	3 5498	0.1821	0.1094	0.1333	0.2230	1.5661			2 2938	5.8436	5.5389
	26	3.2684	0.1595	0 0743	0.0476	3 5498	0.1021	0.1094	0.1333	0.2230	1.5661			2.2938	5.8436	5.5389
15/	27	3.2684	0.1595	0.0743	0.0476	3 5498	0.1021	0.1894	0.1333	0.2230	1.5661			2.2938	5.8436	5.5389
·····································	28	3.2684	0.1595	0.0743	0.0476	3,5498	0 1821	0.1894	0.1333	0.2230	1.5661			2.2938	5.8436	5.5389
AUTHORITY 2	29	3.2684	0.1595	0.0743	0 0476	3 5498	0 1821	0.1894	0.1333	0.2230	1.5001			2.2938	5.8436	5.5389
13	30	3.2684	0.1595	0.0743	0.0476	3 5498	0 1821	0.1894	0.1333	0.2230	1.5661			2.2938	5.8436	5.5389
	Average						0.1021	0.1034	0.1333	0.2230	1.5661			2.2938	5.8436	5.5389
VAN + NX	1-10	3.2684	0.1595	0.0743	0.0476	3 5498	0 1821	0.1904	0.4000			·				
	11-30	3.2684	0 1595	0.0743	0.0476	3 5498	0.1021	0.1894	0.1333	0.2230	1.5661	2.3871	1.3679	6.0488	9.5985	9.0982
	1-30	3.2684	0.1595	0.0743	0.0476	3.5498	0.1821	0.1894	0 1333	0.2230	1.5661	#DIV/0!	#DIV/0!	2.2938	5.8436	5.5389
	Levelized			i			0.1021	0.1034	0.1333	0.2230	1 5661	2.3871	1.3679	3.5455	7.0952	6.7253
	1-30	3.2684	0.1595	0.0743	0.0476	3,5498	0 1821	0 1804	0 1333	0.0000	1 5004	4 4 4 4 4 4				
		<b>—</b> —			evelized	d Tariff	=	8 2011	Re /LIAL	0.2230	7 9590	1.4469	1.0007	4.7413	8.2911	7.8589
				-		- • ••••		0.2011	113./11411		1.0209 (	Jents/KW	n		$\mathbb{A}$	
															N.	

	A	118.800 MWs								
Weighted Average Net Capacity KIBOR Spread over KIBOR Total Interest Rate		102.657 6.53% 3.00% 9.53%	MWs	Debt in Pak	Rupees	16,623.72				
Period	Principal Million PKR	Principal Repayment Million PKR	Interest Million PKR	Balance Million PKR	Debt Service Million PKR	Principal Repayment Rs./kWh	Interest Rs./kWh	Debt Servicing Rs./kWh		
	16,623.72	515.36	792.12	16,108.36	\$1,307,48					
	16,108.36	539.92	767.56	15,568.45	\$1,307.48	1 3335	1 0700			
		1,055.28	1,559.68			1.9709	3.3044			
	15,568.45	565.64	741.84	15,002.80	1,307 48					
4 7	15,002.80	592.60	714.88	14,410.21	1 307 48	1 4636	1 9400			
Zilu rear		1,158.24	1,456.72		2,614.96	1.4000	1.0400	3.3044		
	14,410.21	620.83	686.65	13,789,37	1 307 48					
3rd Voor	13,789.37	650.42	657.06	13,138.95	1.307.48	1 6064	1 6080			
Jurear		1,271.25	1,343.71		2,614.96		1.0980	3.3044		
	13,138.95	681.41	626.07	12,457.54	1,307,48					
Ath Yost	12,457.54	713.88	593.60	11,743.67	1.307.48	1,7631	1 5/12			
401 Tear		1,395.29	1,219.67		2,614.96		1.0412	3.3044		
	11,743.67	747.90	559.59	10,995.77	1.307.48		r			
5th Voor	10,995.77	783.53	523.95	10,212.24	1.307.48	1,9352	1 3602			
	10.010.0	1,531.43	1,083.53		2,614.96		1.0092	3.3044		
$-\frac{11}{12}$	10,212.24	820.87	486.61	9,391.37	1.307.48					
6th Vear	9,391.37	859.98	447.50	8,531.39	1,307.48	2,1240	1 1804	- 3 3044		
12	0.504.00	1,680.85	934.11		2,614.96			3.3044		
- 14	8,531.39	900.96	406.52	7,630.43	1,307,48					
7th Year	7,630.43	943.89	363.59	6,686.54	1,307.48	2.3312	0.9731	3 3044		
15	6 600 54	1,844.85	770.11		2,614.96			0.0044		
	0,086.54	988.87	318.61	5,697.67	1,307.48	T				
8th Year	5,097.07	1,035.99	271.49	4,661.68	1,307.48	2.5587	0.7457	3 3044		
17	4 664 69	2,024.85	590.11		2,614.96			0.0044		
$-\frac{1}{18}$ - +	4,001.08	1,085.35	222.13	3,576.33	1,307.48					
9th Year	3,576.33	1,137.07	170.41	2,439.26	1,307.48	2.8083	0.4960	3 3044		
10	2 420 00	2,222.42	392.54		2,614.96					
	2,439.20	1,191.25	116.23	1,248.01	1,307.48					
Oth Voor	1,240.01	1,248.01	59.47	-	1,307.48	3.0824	0.2220	3.3044		
un tear		2,439.26	175.70		2,614.96		·			



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