National Electric Power Regulatory Authority
Islamic Republic of Pakistan

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No. NEPRA/TRF-271/NPGCL-2014/5617-5619
April 14, 2015

Subject: **Determination of the Authority in the matter of Tariff Petition filed by Northern Power Generation Company Ltd. (NPGCL) for the Determination of its Generation Tariff [Case # NEPRA/TRF-271/NPGCL-2014]**

Dear Sir,

Please find enclosed herewith the subject Determination of the Authority along with Annexure-I & II (33 pages) in Case No. NEPRA/TRF-271/NPGCL-2014.

2. The Determination is being intimated to the Federal Government for the purpose of notification in the official gazette pursuant to Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997.

Enclosure: As above

(Syed Safeer Hussain) 14.04.15

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

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

National Electric Power Regulatory Authority
(NEPRA)

PETITION NO: NEPRA/TRF-271/NPGCL-2014

GENERATION TARIFF DETERMINED

BY NEPRA

FOR THE

425-460 COMBINED CYCLE POWER PLANT AT NANDIPUR OF

NORTHERN POWER GENERATION COMPANY LIMITED

UNDER

NEPRA (TARIFF STANDARDS & PROCEDURE) RULES - 1998

Islamabad
April 14 , 2015
~~March~~

Determination of the Authority in the Matter of Tariff Petition Filed by Northern Power Generation Company Limited (NPGCL) for Determination of its Generation Tariff

CASE NO.: NEPRA/TRF-271/NPGCL-2014

PETITIONER

Northern Power Generation Company Limited (NPGCL), Nandipur, District Gujranwala, Punjab

INTERVENER

Nil

COMMENTATOR

Anwar Kamal Law Associates, 1-Turner Road, Lahore

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

(Khawaja Muhammad Naeem)
Member

8/4/15
(Maj. Rtd. Haroon Rashid)
Member

(Himayat Ullah Khan)
Member

(Habibullah Khilji)
Vice Chairman

(Brig. Rtd. Tariq Saddozai)
Chairman
13/4/15

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14.04.15

BACKGRGOUND OF THE CASE

1. Northern Power Generation Company Limited (NPGCL) hereinafter referred to as the "petitioner" vide letter dated 20.5.2014 submitted a petition for determination of generation tariff for 425-460 MW Combined Cycle Power Plant (CCPP) at Nandipur, District Gujranwala pursuant to Rule 3 of the NEPRA (Tariff Standards & Procedure) Rules – 1998 read with paragraph 1.3 of Guidelines for Determination of Tariff for Independent Power Producers by the Government of Pakistan in November 2005 and the applicable provisions of the Government of Pakistan's Policy for Power Generation Projects, 2002 (the"2002 Power Policy"). NPGCL requested to approve the generation tariff together with pertinent indexation to remain effective for the period of 30 years from the Commercial Operation Date (COD).

2. Brief history of the project as indicated in the petition:

   a. As per directive of GOP, issued in view of 3rd meeting of the Committee on Power Demand/Supply, held on 01-09-2005, PC-1 for installation of 450 MW Combined Cycle Power Plant at Nandipur was submitted to GOP on 15-09-2005 which was cleared by CDWP on 24-10-2005.

   b. Due to prospects of power generation by IPP's, the proposal for installation of 450 MW CCPP by the public sector was not approved at the meeting held on 02-12-2005, chaired by the Prime Minister.

   c. Consequently, to cater for the ever-growing electric energy requirements/ deficit, particularly within the load centers of LESCO and GEPCO, it was envisaged to embark upon installation of 3x200 MW Diesel Engine RFO based Combined Cycle Power Plants at Faisalabad, Chichoki Mallian & Nandipur on fast track basis as per directives of the Prime Minister of Pakistan. International tenders for said power plants were invited and publicly opened on 08-11-2006. Following the evaluation of the tenders, the prices of 3x200 MW Diesel Engine RFO based Combined Cycle Power Plants at Faisalabad, Chichoki Mallian were found to be on the higher side. Recommendations/proposal to abandon the Project of Diesel Engines Combined Cycle - Power Plants and in lieu, installation of 450-500 MW RFO based Gas Turbine Combined Cycle Power Plant at Nandipur, was submitted to the Ministry of Water & Power Islamabad on 23-02-2007. ECC in its meeting held on 10-05-2007 approved WAPDA's proposal and it was decided to abandon Diesel Engines Project and to install 450-500 MW RFO based Gas Turbine Combined Cycle Power Plant at Nandipur.

   d. In view of the above decision of ECC, Proforma PC-1 already prepared/ submitted in September-2005 was updated for obtaining the approval of ECNEC since the original PC-1 for Nandipur Project was prepared considering Natural Gas as main fuel & furnace oil as backup fuel and the costs of the plant equipment for CCPP were estimated on the basis of the prices indicated in "Gas Turbine World 2004 GTW Hand Book". The same PC-1 was updated by escalating the base cost @ 6.5% per annum for LCC & FCC and brought to the year 2007-08 and also considering furnace oil as main fuel and HSD for starting & stopping only.

   e. However, in anticipation of the availability of gas fuel in future, the conversion to gas fuel was made part of the revised PC-I. On gas firing, the gross capacity of the Nandipur CCPP will be enhanced from 425 MW to 525 MW.

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f. The Economic Coordination Committee (ECC) of Cabinet approved 425 MW Combined Cycle Power Plant at Nandipur on December 27, 2007 at an agreed EPC price of US$329.00 million. Accordingly, NPGCL entered into an Engineering, Procurement and Construction (EPC) Contract on January 28, 2008 with M/s Dongfang Electric Corporation Ltd., China (DECL).

g. The Executive Committee of National Economic Council (ECNEC) approved the Nandipur Project in its meeting held on 06.02.2008. Letters of Credit for the Project were established by local banks' syndicate, led by Habib Bank Ltd., on September 15, 2008. Work on the Project commenced in October 2008 with the scheduled completion date of April 16, 2011.

h. The Project financing consisted of French portion of EURO 78 million and USD portion of USD 148 million. Buyer's Credit Facility Agreements, namely COFACE for French portion and SINOSURE for USD portion were signed with the foreign syndicate of banks. The payment of L/Cs was to be made through these loans.

i. Project shipments started as per schedule but foreign loans could not be availed due to holding of legal opinion by Ministry of Law, Justice & Parliamentary Affairs, which was a major condition precedent. The availability period of the foreign loans was August 31, 2011 but the said legal opinion was issued on October 19, 2011, after the expiry of the availability period of foreign credit facilities.

j. The funded exposure of the local syndicate of banks reached up to Rs. 14.923 billion, against committed sum of Rs. 5.3 billion, under L/Cs, resulting in an over exposure of Rs. 9.623 billion and the local syndicate withheld Bills of Lading, causing stuck up of shipments at Karachi Port. Consequently, the EPC Contractor demobilized its resources.

k. Owing to the non-clearance of the project equipment and material stored at Karachi ports, the ECC granted waiver in its decisions dated July 20, 2011 and July 03, 2012 on account of demurrage and detention charges incurred up to August 2012.

l. A petition No.67/2011 was filed in Supreme Court of Pakistan on October 05, 2011 by Khawaja Muhammad Asif, Member of the National Assembly of Pakistan. He submitted that two thermal power projects, namely Nandipur and the Chichoki Mallian were deliberately delayed.

m. The Honorable Supreme Court of Pakistan vide order dated 26.10.2011, constituted a commission headed by Mr. Justice Rehmat Hussain Jafferi, former judge of the Supreme Court of Pakistan to conduct an inquiry and determine the negligence on the part of the authorities causing delay in the completion of both the projects, and how much loss had been caused to the national exchequer in terms of opportunity costs and other losses.

n. The Commission submitted its report to Supreme Court of Pakistan on 24.04.2012, comprising of 95 pages. The Commission concluded that:-

The Ministry of Law, Justice, and Parliamentary Affairs Government of Pakistan is responsible for causing delay in completion of the documents.

The negligence on the part of the executive authorities of the Ministry of Law, Justice and Parliamentary Affairs, Government of Pakistan, which has caused the delay and approximately loss of more than Rs.113 billion has been caused to the National Exchequer up to April 2012.

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In view of the severity of power crisis in the country, the Honorable Supreme Court of Pakistan directed the concerned authorities for the early resumption of project work, remobilization of the resources and completion of the projects at the earliest.

o. In March 2012, the Contractor submitted the draft of Amendment No.2 to the Contract Agreement for the implementation of the project work. Ultimately, owing to the prolonged detention of the project material/equipment at Karachi ports and suspension of works at site, the EPC Contractor on 17th of August 2012 served notice for the Termination of the Contract Agreement.

p. In order to persuade the EPC Contractor to withdraw the Termination Notice, efforts at various levels were made. After several rounds of meetings between the Project Authorities and the Contractor, the later conditionally agreed for the resumption of project work subject to the payment of additional costs on account of the Extension of Time (EoT) claims and other costs' escalations and assurance by the NPGCL for the full financing arrangement till the completion of the Project.

q. On January 11, 2013, the revised PC-I was submitted with the total cost of Rs 57.380 billion. Further, the ECC was again approached for the waiver of demurrage and detention charges, amounting to Rs. 786 million accrued beyond August 2012 till June 2013.

r. The Executive Committee of National Economic Council (ECNEC) approved the Nandipur Project in its meeting held on 04.7.2013 at the revised cost of Rs. 57,380 million and Rs. 1,036 million to cover the demurrage & detention charges and Federal Excise Duty (FED) from the period 1st of September 2012 to September 30th 2013 resulting in the total cost of Rs. 58,416 million +FED.

s. With the support of the Ministry of Water & Power, the amendment No. 2 to the Contract Agreement was signed on August 02, 2013. Consequently, the Contractor mobilized at site and formally resumed the project works from Oct 21, 2013.

t. Till December 2013 all the detained material from Karachi ports has been shifted to site and shipments from China are underway. Project activities are progressing on fast track basis for early trial operation of the first unit by May 31, 2014 and subsequently the complete plant within 2015.

3. Project details are as under:

a. Three heavy industrial type combustion Gas Turbine Generator units of 95.4 MW Gross capacity each with heat recovery steam generation (HRSG's) (under reference conditions).

b. Heat recovery steam generators (HRSG's) for recovery of heat from exhaust flue gases of combustion turbines.

c. One Steam Turbine Generator unit of 138.9 MW Gross capacity (under reference conditions).

d. Four 15/132 kV unit transformer of suitable capacity.

e. Three Auxiliary Transformers of suitable capacity.

f. One lot of electrical protection and control equipment.

g. One lot of batteries, rectifiers and inverters.

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h. One lot of earthing system and lightening protection

i. One lot of 132 kV switchyard equipment including breakers, C.Ts, P.Ts.

j. Isolators, post insulators, lightning arrestors, PLC equipment & gantries etc.

k. Main structure for machine hall, exhaust stack, control building and other associated buildings

l. MCC and Control Room Equipment and Accessories

m. Structures for outdoor switch yard.

n. Cooling water supply system with cooling towers

o. Other miscellaneous items to make the plant operationally complete.

p. Ten (10) oil storage tanks of 10,000 M. Tons capacities each, supported with a fuel oil treatment plant, fuel oil piping and firefighting system etc.

		HSFO	GAS Fuel
Gross Capacity (Each Turbine)	=	95.4 MW	103.23 MW
Gross Capacity (Stream Turbine Unit)	=	138.9 MW	150.29 MW
Gross Capacity (Complex)	=	425 MW	460.00 MW
Auxiliary Consumption (Complex)	=	13.649 MW	12.328 MW
Net Capacity (Complex)	=	**411.351 MW**	**447.672 MW**

Petitioner's Submissions

4. The Authority noted that initially, the petitioner used a flat PKR to US$ Exchange Rate (ER) of 67.7 to convert Rs 57.343 billion total project to dollars in the petition. That conversion artificially bloated the project cost in dollar terms. Some commentators, including sections in the media took the corresponding dollar value of the project cost i.e. $ 847 million and multiplied it with the then 100 PKR to $ exchange rate to construe that actual project cost is not Rs 57 billion as claimed by the petitioner but Rs 84.7 billion. This caused confusion during the hearing and took time while clarifying. This issue was raised with the petitioner and subsequently the petitioner provided project cost number based on actual weighted average relevant exchange rates. Following is the project cost component requested by the petitioner:

Project Cost Description	US$ million @ 67.7 ER	US$ million @ actual ER
EPC & Related costs	502.318	446.07
Taxes & Duties	21.773	22.240
Emergency Spare parts	15.000	15.00
O&M Mobilization	5.000	5.00
Non EPC Construction	56.750	46.07
Total Capex	**617.525**	**534.38**
Financing fees & Charges	16.838	13.02
Interest during Construction (IDC)	229.491	146.16
Total Project Cost	**847.016**	**693.565**

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5. NPGCL requested to allow the following tariff:

Tariff	Capacity Charge US Cent/kWh		Energy Charge US Cent/kWh			Total Tariff US Cent/kWh			Total Tariff Rs/kWh		
	RFO/HSD	Gas	RFO	HSD	Gas	RFO	HSD	Gas	RFO	HSD	Gas
Levelized tariff	5.40	4.97	21.43	35.83	7.51	26.83	41.23	12.47	18.17	27.91	8.44
Avg (1-15 years)	5.79	5.32	21.43	35.83	7.51	27.22	41.62	12.83	18.43	28.18	8.69
Avg (16-30 years)	3.58	3.29	21.43	35.83	7.51	25.01	39.40	10.79	16.93	26.68	7.31

6. Petitioner's key assumption of Tariff:

- Debt-equity Ratio: 66:34
- Funding: Debt: 66%, Equity 34%
- IRR: 15%
- KIBOR: 10.59% + 3%
- Efficiency: Gas = 48%, RFO/HSD = 44%
- Reference Ambient Temp: 30 degree C
- Mean Relative Humidity 60%
- Mean Barometric Pressure 989 mbar
- Maximum Ambient Temp: 48.9 degree C
- Design Ambient Temp: 50 degree C
- Power Factor: 0.85
- Frequency 50 Hz
- Output: RFO/HSD = 411.351 MW (Net), Gas = 447.672 MW (Net)
- Btu/kWh at 100% Load: RFO/HSD = 7754.8780 & Gas = 7108.6381
- Calorific Value: RFO / HSD = 18,200 per Lb subject to adjustment at FSA
- Partial loading: Heat rate curves from DECL to be used for the partial Load heat rate calculation and payment in case the plant load falls below 100%

Relief Sought:

7. NPGCL requested the Authority to approve the requested tariff together with the pertinent indexation to remain effective for the period of 30 years from COD.

Proceedings

8. In terms of rule 4 of the Rules, the Petition was admitted by the Authority on 10th July 2014. Notice of admission containing salient features of the petition was published in the national newspaper inviting filing of comments / intervention request / reply within 7 days. In response, no intervention request was filed, however comments from M/S Anwar Kamal Law Associates, Advocate were received.

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AKLA Comments

9. The representative of AKLA drawn the Authority's attention to C.P No. 67/2011 titled Kh. Muhammad Asif Vs. Federation of Pakistan etc. pending adjudication in the Supreme Court of Pakistan. The AKLA with respect to the reports of daily "Dawn" wherein it was stated that "Nandipur Power Plant overshoots cost estimates to Rs. 57 billion" raised following concerns:

   i) Whether the cost is being added to the cost of the Project for determining tariff?

   ii) Whether after this huge hike, the Project is at all feasible?

   iii) Whether the consumers are going to be burdened for this huge hike, for which they are not at all responsible or at fault?

10. The Summary of the comments are as under:

   - The inefficiencies of the project cost should not be passed on to the end consumer. Furthermore, a third party audit must be conducted to determine whether the project cost is justified.
   - The availability of gas to produce electricity over the life of the project needs to be taken care off.
   - O&M and insurance needs to be segregated and explained separately.
   - There is no justification of conversion of cost. An independent inquiry should determine the actual cost of conversion from RFO to gas.
   - The claim with respect to spare part is not justified.

11. The concerns of the commentator have been addressed against relevant issue.

Hearing

12. In order to arrive at a just conclusion, the Authority also decided to conduct a hearing on September 24, 2014 for which notice were published in the newspaper. The hearing was conducted on September 24, 2014 at NEPRA (Conference Room) which was attended by representatives of Nandipur, power purchaser, commentator, and other stakeholders.

13. On the basis of available pleadings, issues were also framed for presenting evidence and arguments during the course of hearing. The same were published in the national newspapers. Having considered the submission of the Petitioner, comments of the stakeholder and keeping in view the available benchmarks the issue-wise details is given in the following paragraphs.

Project Cost

14. During the hearing, the petitioner presented its case and provided reasons for increase in each project component cost. The Authority questioned the wisdom of such high project cost/tariff. The petitioner while realizing that the project cost has a significant delay cost, insisted that abandoning this project would have resulted in a greater loss than restarting the plant. The petitioner further explained that three options were considered 1) contract termination and retendering 2) restarting the work where it was left & 3) complete abandoning of the project. The petitioner stated that retendering would have taken at least 12 to 18 months while termination of contract was not an

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option as it would have incurred a total loss of US$ 379 million that included $ 218 already paid + 161 million contract termination charges. The petitioner while showing commitment to the project informed that project loan amounting to Rs 37.65 billion was arranged in just 55 days and that the project is 5 months ahead of its scheduled commissioning i.e. June 30 2015. On issues of gas conversion, the petitioner informed that if gas was originally available, the plant would have been designed in a way that would have added extra 100 MW to the current capacity of 425 MW. The petitioner informed that the GOP stand committed providing LNG to Nandipur Power Project. The petitioner further informed that the LNG / gas pipeline will have to be built exclusively for this project so SNGPL is not providing the financing for this project as the cost amounting to Rs 3.9 billion has to be borne by the project company.

15. Mr. Anwar Kamal representing Anwar Kamal Law Associate, questioned whether this project will remain feasible and whether it would be fair to pass on the project's inefficiencies to the consumers. The Authority informed that only prudently incurred costs will be allowed.

16. Representative of CPPA, Mr. Rehan Deputy General Manager (Finance) pointed out that the Authority should not revise market/industry standards and benchmarks. He stated that the proposed 44% RFO efficiency is lower than 45% available in the market. Similarly, on gas, the proposed efficiency of 48% is much lower than the 51 % allowed to IPPs. CPPA pointed out that O&M number is on the higher side, albeit CPPA appreciated the fact that NPGCL will be sourcing the O&M contract to a third party. On issue of project cost, Mr. Rehan asserted that the Authority need to be very prudent in allowing $ per MW cost to Nandipur project, as significant deviation from industry standard cost will provide reason for similar claims by IPPs. On the issue of RoE indexation, CPPA stressed that all equity is in pak Rs so, to provide relief to the consumers, dollar indexation on RoE component should not be allowed. CPPA further pointed out that the transmission cost should be deducted from the project cost as per the industry's standard.

17. The petitioner informed that Nandipur project was in the final stage of commissioning and more than 80% of the work was already accomplished. To get a clear picture of this contentious project, the Authority considered it prudent to analyze all the relevant information through different contract agreements, commercial invoices, bank statements, etc. to ascertain the total project cost and the amount of delay cost that is responsible for such exorbitant $ million per MW cost of 1.69. In the Authority's opinion, this exercise would help take the key decisions on delay cost efficiency loss, etc. at this stage rather than at COD and would help form a strong platform for robust decision making at COD stage. Accordingly, the petitioner was asked to submit all the relevant data normally required from an IPP during COD stage adjustments. In response to NEPRA's various communications, the petitioner submitted voluminous folders containing more than 10,000 pages. All related to various agreements, commercial invoices, bank statement, debit invoice, Tax sheet etc.

18. Due to its unique nature, the cost claimed was verified through authentic documentary evidence. All-out efforts were made to ensure imprudent cost conveniently masked under normal acceptable heading is not allowed. The Authority observed that the claimed non EPC cost of 4,589.30 million included a claim of Rs. 81.62 million for Media and documentary. This cost accordingly being imprudent is disallowed. Further, various cost claims were based on insufficient documentation for which the petitioner was directed for earliest submission. All unsubstantiated claims not

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considered at this stage may be considered subject to provision of documentary evidence at the time of COD.

19. The Authority noted that the delay cost has increased the overall tariff on various levels. The project cost was primarily increased through revision in EPC, demurrages and detention charges at port, increase in IDC, etc. the tariff claimed was increased through increase in ROEDC, decrease in efficiency etc.

20. Having considered the respective submission, perusal of evidence/record and after hearing the portion issue-wise findings of the Authority is given as under:-

Whether the EPC cost is justified?

21. According to the petitioner, Nandipur EPC cost was divided into three currencies; i.e. $ 164.914 million, Euro 78 million, Pak rupees 3050 million and Rs 218.916 million taxes on PKR portion. On the basis thereon, the petitioner claimed equivalent to US$ 317.72 million or Rs 27,943.61 million including US$ 6.6 million on account of escalation in PKR portion of EPC. Out of $317.72 million, the petitioner claimed to have paid $294.95 million whereas $ 22.77 remained payable. The following is the summary of the EPC cost claimed:

Particulars		Paid	Payable	Total		
		Original currency		Original	USD	Rs.
EPC (million)						
	USD	151.5	13.4	164.9	164.9	15,063.8
	Euro	77.6	0.4	78.0	109.1	9,021.1
	PKR	2,496.2	772.8	3,269.0	37.1	3,269.0
	PKR escalation	448.0	141.7	589.7	6.6	589.7
Sub total					**317.7**	**27,943.6**

22. To verify the above cost, commercial agreement and invoices, bank statements, debit advice EPC contract, NBP relevant date exchange rates, etc. were reviewed. Based on the analysis of the given data, the Authority observed the following:

EPC - $ Portion

23. Out of $164.914 million claimed EPC, US$ 151.52 million is verified through source documents to have actually incurred at a weighted average exchange rate of 90.3125. The remaining $ 13.397 million is considered payable. Therefore, PKR to US$ exchange rate of 103 has been assumed to convert the balance amount into PKR. In view of the above, a total of $ 164.914 million or Rs 15063.825 million has been considered as $ portion EPC for tariff determination. The remaining $13.397 million will be subject to exchange rate adjustment at the time of COD upon provision of relevant documents.

Euro Portion

24. The petitioner claimed to have work done worth Euros 69.81 million. According to the petitioner, Euro 7.8 million were paid as a 10% advance on the total contract price of Euro 78 million leaving Euro 0.391 million as payables. In support, the petitioner submitted the copies of the EPC invoice

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but didn't substantiate it with the bank statements and debit advices. The Petitioner however, provided a debit advice totaling Euros 35.09 million. During discussion, the petitioner informed that initially the lenders directly paid the EPC contractor without first disbursing the loan to Nandipur project account, therefore, to authenticate the transaction through the project account bank statements at this stage is not possible. The petitioner, however, submitted that they are in contact with National Bank of Pakistan (the Euro L/C bank) and the petitioner will forward the required information as soon as it receives from NBP. Since Euro portion of EPC contract lacked key information to authenticate the claimed transaction cost therefore, the Authority has decided to consider Euros 42.91 million (78-35.09) as payable and converted at current PKR to Euro exchange rate of 115 which will be subject to adjustment only to the extent of variation in exchange rate upon submission of bank statements and debit advices etc.

PKR Portion

25. The PKR portion of EPC was worth Rs 3,050.0 million out of which, the petitioner claimed to have completed work amounting to Rs 2,022.84 million plus Rs. 305.0 million paid as a 10 % advance with Rs 722.21 million payable. The paid amount of Rs 2,022.84 million has been verified through relevant copies of source documents. The local portion of the EPC is subject to 6% income tax. In this regard, the petitioner claimed a total of Rs 168.36 million. The Authority noted that out of total taxes paid, Rs 2.5 million related to 15% surcharge paid on the income tax amount. The petitioner was asked to share S.R.O authenticating 15% surcharge. The Petitioner did not provide the requisite information.

26. The Authority noted that Income tax @ 6% should have been paid on Rs 2,327.85 million (2,022.84 million + 305.0 million) which works out as Rs 148.57 million against Rs 168.36 million claimed. Based on the available information and documents, the Authority has assessed the following in PKR portion of EPC contract:

- Rs 2,327.85 million as paid and verified amount
- Rs 148.57 million as assessed income tax and
- Rs 722.21 million (Rs 3050.0 – Rs 2327.85 million) payable with corresponding income tax of Rs 50.55 million @ 7%(revised from 6% w.e.f FY 2014).

27. The payables will be subject to adjustment at the time of COD upon submission of authentic documentary evidence.

Price Escalations in PKR EPC Portion

28. As per the EPC contract, the PKR portion of the EPC was to be adjusted for changes in cost of the labour, material, transport or other costs of execution of the Works. Accordingly, the petitioner has requested an amount of Rs 589.65 million that include the following:

Work Done	Gross Amount (Rs.)	Amount in USD ($)
Civil Work	422,471,802	4,947,802
Delayed Payments	25,518,430	290,622
Sub Total	**447,990,232**	**5,238,423**

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Work Type	Gross amount (Rs.)	Amount in USD ($)
Payable	141,665,115	1,375,389
Sub Total	**141,665,115**	**1,375,389**
Total Cost	**589,655,347**	**6,613,813**

29. The Civil work amounting to Rs 422.47 million is verified through source document. The petitioner was asked to provide reason for delay payments amounting to Rs 25.5 million. The reply in the matter is pending. Further, the Authority also observed that petitioner didn't provide any basis for payable amounting to Rs 141.66 million.

30. After having gone through the submitted information, the Authority has decided to deduct delayed payment as it related to the inefficiency of the contractor for not making timely payment. Further, the petitioner has not shared basis for payable amounting to Rs 141.665 million therefore it has also been disregarded. While realizing that there may be price escalation payable to the contractor in future, the authority has therefore, decided to allow prudently incurred escalation (if any) at the time of COD upon submission of authentic documentary evidence.

31. Based on the aforesaid discussion, the following is the comparison of the approved vs. claimed EPC cost:

Rs. in million

Particulars	Assessed-Paid		Claimed-Paid		Assessed-Payable		Claimed-Payable		Assessed Total		Claimed Total	
	USD	Rs.	USD	Rs.	USD	Rs.	USD	Rs.	USD	Rs.	USD	Rs.
EPC												
USD	151.52	13,683.89	151.52	13,683.89	13.40	1,379.93	13.40	1,379.93	164.91	15,063.83	164.91	15,063.83
Euro	50.46	4,072.30	108.61	8,970.38	49.35	4,934.82	0.49	50.77	99.81	9,007.12	109.10	9,021.15
PKR	29.36	2,476.44	29.59	2,496.21	7.50	772.77	7.50	772.77	36.86	3,249.20	37.09	3,268.98
PKR escalation	4.95	422.47	5.24	447.99	-	-	1.38	141.67	4.95	4.95	6.61	589.66
Sub total	**236.29**	**20,655.10**	**294.95**	**25,598.47**	**70.25**	**7,087.52**	**22.77**	**2,345.14**	**306.54**	**27,325.10**	**317.72**	**27,943.61**

Whether Revision in EPC Cost due to Project Delay is justified?

32. The petitioner submitted that due to the stoppage of construction material at Karachi ports, owing to the non-issuance of the legal opinion, the work slowed down and suspended in April, 2010. A foreign loan facility that was available till August 31, 2011 couldn't be withdrawn because the legal opinion on the matter was issued on October 21, 2011. EPC Contractor demobilized and subsequently served the notice for the termination of the Contract Agreement on 17.8.2012. For the resumption of work, the EPC Contractor agreed on additional cost of US $ 19 Million on account of extension of time claims, US$ 08 million against remobilization and provisioning of US$ 50 million for the inspection/testing/repair/replacement etc. of defective parts as per actual joint inspection/testing by the Contractor, the Engineer and the Employer.

33. In view of the above major impediments, the project was delayed hence incurred the following additional costs:

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Rs. in million

Causes of Delay	Paid		Payable		Total	
	USD	Rs.	USD	Rs.	USD	Rs.
Remobilization & EOT	28.45	3,013.30	-	-	28.45	3,013.30
Repair & Maintenance USD	10.15	1,014.34	24.52	2,525.27	34.66	3,539.62
Repair & Maintenance PKR	0.76	74.76	0.49	50.00	1.25	124.76
Insurance	0.45	47.89	-	-	0.45	47.89
Sub Total	**39.80**	**4,150.30**	**25.00**	**2,575.27**	**64.80**	**6,725.57**

34. To resume the work on the project that was suspended in April 2010, the petitioner negotiated an amendment-2[1] with the EPC contractor on August 02, 2013. According to the petitioner, the following were the salient features of the additional cost:

    a. US$ 8 million for remobilization of personnel, equipment and other necessary infrastructure

    b. US$ 19 million as compensation on account of Extension of Time (EOT)

    c. US$ 40 million for inspection, repacking, testing, repair of Plant

    d. **US$ 67 million - Total additional EPC Cost**

35. On this issue one of the commentator Mr. Anwar Kamal stated that independent inquiry should be conducted to actually determine whether the costs claimed are justified or not. According to the commentator, none of the three listed revisions are justified by any stretch of imagination.

36. It may be noted that delay cost in such huge magnitude, i.e. $ 64.804 million has never been allowed in any public or private power plant. As per the dates submitted by the petitioner, the work was suspended in April, 2010 and the resumed on October 21, 2013. In between, the plant was left to rust for 1268 days or for about 3.5 years. Keeping in view the past precedent and to be fair to all other IPPs, including Orient, Sapphire, Halmore etc. for which the delay cost was not allowed this cost has been disallowed.

Whether the Non-EPC cost of US$ 46.41 million is justified?

37. The petitioner included the following in the Non-EPC cost:

Rs. in million

Particulars	Paid		Payable		Total[2]	
	Rs.	USD	Rs.	USD	Rs.	USD
Land & Building	402.51	4.28	84.96	0.55	487.47	4.84
Fuel for Testing	-	-	1,408.39	13.67	1,408.39	13.67
Power Dispersal	747.10	8.06	15.00	0.15	762.10	8.20
Transport and Telecommunication	36.58	0.37	35.01	0.34	71.59	0.71

[1] *Amendment -1 in the EPC contract was signed on June 12, 2008 to comply to the financing arrangement , partial modification in the contractor's payment schedule to make it consistent with the GE's (sub-contractor) payment Schedule*

[2] In the petition, the petitioner used straight 67.7 PKR to US$ exchange rate. Subsequently upon our inquiry revised the submitted number based on the actual weighted average exchange rate.

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	Paid		Payable		Total	
	Rs.	USD	Rs.	USD	Rs.	USD
Security	18.56	0.15	76.50	0.74	95.06	0.89
Admin	393.27	4.13	106.73	1.04	500.00	5.17
Engineering Consultancy	183.96	1.99	314.62	3.05	498.58	5.04
Media & Documentary	13.19	0.13	68.43	0.66	81.62	0.80
Demurrage & Container Detention Charges	718.13	7.10	-	-	718.13	7.10
Total Non-EPC	**2,513.30**	**26.20**	**2,109.63**	**20.21**	**4,622.94**	**46.41**

38. **Land Preparation and Building:** According to the petitioner, this includes land preparation costs and civil work not covered in EPC Contract. Under this head, the petitioner claimed $ 4.84 million. Land and Building section comprises numerous small to medium size contracts. These contracts ranged from Rs 75.81 million for building residential houses/hostel to contract worth Rs 0.172 million awarded for PM inaugural plaque. Under this head, the petitioner claimed cost such as a stage for Prime Minister Visit cost, development of Children, establishment of view point etc. These costs being excessive and not directly related to power plant essential operation has been excluded. Some of cost lacked proper documentation therefore has been disregarded in the total assessed Non-EPC cost. The petitioner claimed other cost for internal access road dispensary etc. which though being a genuine requirement, was not backed by any data supporting documents. Such costs were disregarded in the view that it will be allowed on the basis of documentary evidence at the time of COD. In view thereof, the Authority has assessed a total of Rs 363.835 million out of Rs 487.47 million requested as reasonable amount for Land preparation and Buildings.

39. **Fuel for Testing:** This includes costs of fuel required for testing before start of commercial operation of the Project, which will remain unbilled to power purchaser. The petitioner claimed Rs.1,408.39 million or US$ 13.67 Million under fuel for testing. This cost was estimated @ Rs. 98 per Liter HSD price and about Rs. 68000 per ton HSFO price. For tariff assessment, current ex-GST HSD price of 64.51 per Liter and ex-GST RFO price of Rs. 38,265 per ton (including Rs. 1,500 per ton freight) have been assumed. Accordingly an overall cost under this head has been assessed as Rs 812.65 million. This cost will be subject to adjustment on the basis of actual prices prevailed at the time of consumption. The Petitioner shall submit the documentary evidence for ensuring prudent utility practice during testing.

40. **Power Dispersal:** According to the petitioner, cost on account of power dispersal was Rs 762.1 million that also includes payables of Rs 15 million. The Authority considers that power dispersal is the responsibility of the power purchaser. This cost should ideally be reflected in the NTDC investment for which the Authority sets a separate tariff. This point was also raised by CPPA during the hearing. In view thereof, power dispersal cost amounting to Rs 762.1 million has been excluded.

41. **Transport and Telecommunication:** According to the petitioner, it includes vehicles purchased for the Project and SCADA system installation worth Rs. 71.59 million including Rs. 35.01 million payables. Out of the total, Rs. 36.58 million have been verified and for the remaining, budgeted

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amount or bid quotation(s) have been provided. For tariff assessment, the Authority considered a total of Rs. 71.59 million as reasonable amount under transport and telecommunication head.

42. **Security:** According to the petitioner special security arrangements are made for security of foreign workers by hiring the services of separate security company. The petitioner claimed a total of Rs 95.06 million out of which Rs 76.50 million are payables. The paid amount of Rs 18.56 million has been verified and the remaining amount has been supported through budgetary quotations. For tariff determination, the Authority has assessed a total amount of Rs 95.06 million as reasonable amount under the Security head.

43. **Admin and Overhead:** According to the petitioner this includes expenses incurred on salaries wages, POL, office overhead etc. Under this head, the petitioner claimed an amount of Rs. 500 million including payables of Rs 106.73 million. In support, the petitioner only submitted a worksheet that indicated that an expense of Rs 393.27 million has incurred without any back up evidence. The petitioner was asked to verify the expense through certification of an independent auditor. The reply in the matter is pending. The basis for the remaining payable of Rs 106.73 million was not provided. Further, The Authority observed that the petitioner requested the claimed admins cost for 5.84 years, starting from November 2008 to September 2014. The construction time for recently commissioned combined cycle power plant ranges from 2.1 to 2.8 years. For tariff assessment, the Authority has decided to average out the paid expense of Rs 393.27 million and adjusted for normal construction time for similar technology. Accordingly admin and overhead expense works out to be Rs 188.246 million and the same has been allowed.

44. **Employer's Engineer:** The petitioner claimed an owner's engineer's cost i.e. M/s. NESPAK to be Rs 498.58 million, which after subsequent communication with the petitioner was revised to Rs 432.59 million. In support, the petitioner submitted the contract agreement, including amendment 2 and amendment 3. Out of this, the petitioner claimed to have paid Rs 183.96 million, which is verified from the source documents. The petitioner was told to bifurcate the fixed portion or salaries, etc. paid to the consultant during the delay time, so that the delay cost relating to NESPAK payments is isolated. In reply, the petitioner submitted NESPAK estimate which puts the delay cost comprising salaries, and other direct cost from August 2011 to June 2013 at Rs 22.6 million.

45. Based on the available information and revised NESPAK contract agreements, The Authority has decided to allow Rs 406.37 million (432.59 - 26.22) as reasonable amount under Employer's engineer head.

46. **Demurrage and Detention Charges:** According to the petitioner this is the cost incurred by the Company for demurrage and detention of containers at Karachi ports. According to the petitioner this cost from April 2012 to August 2013 was waived off by the Government but the amount of Rs718.13 million remained payable and was paid by the Petitioner. The Authority noted that this cost has been incurred purely on account of the petitioner's inability to remove the equipment within the stipulated time period from the port. Demurrage and Detention Charges is considered inefficiency on the petitioner's part, which cannot be allowed to be passed on the power purchaser and ultimately to the consumers hence disallowed.

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Whether the mandatory spare parts claim of the Petitioner of US$ 15 million is justified?

47. According to the petitioner, mandatory spare parts cover the costs of standard lot of spare parts aimed to reduce the outages for maintenance of the plant as much as possible. Originally, it was not included in the EPC Contract, therefore, this is being added to the Project cost. According to the petitioner, the estimated cost is based on best discounted price for GTs parts. These parts are recommended by the manufacturer and EPC Contractor to ensure availability of the plant. According to the petitioner, the following estimates are in-line with the inventories provided for IPP's of the similar configuration/capacity.

Rs. in million

Work Type	Paid		Payable		Total	
	Rs	US$	Rs	US$	Rs	US$
Spare parts	399.43	3.42	134.82	1.31	534.24	4.73
FOTP	9.10	0.09	-	-	9.10	0.09
BOP Spares	-	-	645.46	6.27	645.46	6.27
Others	-	-	403.54	3.92	403.54	3.92
	-	-	-	-	-	-
Total Spares	**408.53**	**3.51**	**1,183.81**	**11.49**	**1,592.34**	**15.00**

48. "Spare parts" worth $ 3.42 million is verified to have been paid and the petitioner has provided agreement supporting the payables amounting to $ 1.31 million. BoP Spares payables worth $6.27 million is supported from the contractor bid price of the contract. The petitioner didn't provide underlying document in support of "Others" items worth $3.92 million. Therefore, it has not been considered for tariff assessments. Further the Authority noted that since Fuel Oil Treatment Plant (FOTP) claims amounting $0.09 million related repair and replacement of defective parts of FOTP therefore it has also been disallowed. The remaining payable under the overall spares head will be subject to adjustment on the basis of relevant supporting documents at the time of COD. In view of the above, at this stage, total spare parts worth $ 10.99 million (15-3.92-0.09) or Rs 1,179.70 million have been allowed to the project.

Taxes and Duties

49. According to the petitioner Taxes and Duties cover all important taxes and duties as per the 2002 Power Policy. Under this head the petitioner claimed a total of Rs 2,000.92 million. Out of which, Rs 1,674.29 million is paid and Rs 335.61 million claimed to be payable. In support, the petitioner submitted copies of Goods Declarations of Pakistan Customs, Payment Challans of these duties through Pay orders of different banks submitted in Government treasury through National Bank of Pakistan, Copies of Bills of Lading and EPC invoices etc. on the basis of information/evidence provided, the Authority noted that out of total paid claim of Rs 1674.29 million, total taxes & duties including Sindh infrastructure cess amounting to Rs 1,609.561 million has been verified. For the payable amounting to Rs 335.61 million, the petitioner was asked to confirm what part of the main machinery still needed to be imported that prompted the petitioner for such allocations on account of duties and import taxes. The petitioner reply in the matter is still pending.

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50. The Authority has already allowed a total of Rs 6314.75 million payables in foreign portion of EPC contract i.e. Rs 1379.93 million payable in $ portion of EPC and Rs4934.82 million payable in euro portion of EPC. The Petitioner is expected to pay imported and other related duties on the EPC payables. Accordingly, the Authority has decided to assume duties @6% (5% custom and 1% regulatory duty) at remaining portion of EPC contract that work out to be Rs 378.89 million. In view thereof, the Authority has allowed Rs. 1988.45 million on account of duties and taxes. Out of which duties and taxes amounting to Rs 378.89 million will be subject to adjustment on actual at the time of COD.

Whether the cost of US$ 58.64 million for dedicated gas pipeline and other infrastructure & $ 25 million for gas connection is justified?

51. The petitioner requested a cost of conversion of project from current RFO fuel to Gas fuel amounting to US$ 25 Million. In addition the petitioner also requested a cost of US$ 58.644 Million (PKR 3,970,260,000) for dedicated pipe line and other infrastructure required for transmission of Gas. In support, the petitioner submitted SNGPL quotation stating a total cost of Rs 5,567.07 million, out of which Rs 3,970.26 million will be the pipeline cost for Nandipur power project and the remaining for Chichokimalian. The SNGPL has however, linked this agreement with the availability of 1.2 BCF gas from southern sources.

52. Mr. Anwar Kamal of Anwar Kamal Law Associate also stated that the cost itself is ancillary as the most urgent matter to address is the availability of gas to the project.

53. The Authority observed that fuel Conversion is a very important issue that requires thorough technical and financial analysis similar to the one being done for AES's Lal Pir Pakgen, Saba power, KESC unit 3 conversion from RFO to coal. Addressing this issue may broaden the scope of this petition, which may cause delay in finalizing the determination. The Authority however, is cognizant that, albeit the conversion may seem beneficial as according to the petitioner, it would add 35 MW with 4% better efficiency than RFO. However, as the availability of gas is the major issue affecting the power sector, reaping benefits of gas conversion seems to be a distant dream for this project. The petitioner has not confirmed whether or not the project will have a committed uninterrupted gas supply. At this stage, the Authority considers it unfair towards consumer to include gas conversion and infrastructure related cost of $83.64 million in the project cost while disregarding the realities that no firmed gas commitment is available to the project. In view of the above, a gas connection cost of Rs 3,970.26 million and gas conversion cost of $25 million has not been allowed. However, in case of firm commitment of gas supply, gas conversion cost can be considered if the petitioner submits a request under the prescribed law, supported with relevant documents.

Whether the O&M mobilization cost of US$ 5 million is justified?

54. According to the petitioner, O&M mobilization covers the mobilization of O&M Contractor's personnel, i.e. hiring local personnel for operation and maintenance, training on GTG, Steam turbine, BOP, FOTP and auxiliaries etc. under this head the petitioner claimed an amount of $5 million. The petitioner has not shared any bids/quotations on the subject, although it claims to have done the bidding, and GE/Albario and TNB offered O&M contract proposals consisting of mobilization costs. The Authority appreciated that the petitioner has shown commitment to

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outsource the O&M contract to reputable third party contractor unlike the practice in vogue in GENCOs.

55. The Authority has noted that for 425 MW CCPP project, the O&M mobilization cost claimed of $ 5 million is comparable with O&M mobilization cost allowed to IPPs with similar technology. Therefore, at this stage, O&M mobilization cost of $5 million has been allowed, which will be subject to adjustment based on provision of documentary evidence at the time of COD. In view of the aforesaid, following is the breakup of claimed vs. approved Capital Expenditure (Capex).

Rs. in million

Particulars	Paid				Payable				Total			
	Assessed $	Assessed Rs	Claimed $	Claimed Rs	Assessed $	Assessed Rs	Claimed $	Claimed Rs	Assessed $	Assessed Rs	Claimed $	Claimed Rs
EPC												
USD	151.52	13,683.89	151.52	13,683.89	13.40	1,379.93	13.40	1,379.93	164.91	15,063.83	164.91	15,063.83
Euro	50.46	4,072.30	108.61	8,970.38	49.35	4,934.82	0.49	50.77	99.81	9,007.12	109.10	9,021.15
PKR	29.36	2,476.44	29.59	2,496.21	7.50	772.77	7.50	772.77	36.86	3,249.20	37.09	3,268.98
PKR escalation	4.95	422.47	5.24	447.99	-	-	1.38	141.67	4.95	4.95	6.61	589.66
Sub total	**236.29**	**20,655.10**	**294.95**	**25,598.47**	**70.25**	**7,087.52**	**22.77**	**2,345.14**	**306.54**	**27,325.10**	**317.72**	**27,943.61**
Escalation											-	-
Remobilization & EOT	-	-	28.45	3,013.30	-	-	-	-	-	-	28.45	3,013.30
Repair & Maintenance $	-	-	10.15	1,014.34	-	-	24.52	2,525.27	-	-	34.66	3,539.62
Repair & Maintenance Rs	-	-	0.76	74.76	-	-	0.49	50.00	-	-	1.25	124.76
Insurance	-	-	0.45	47.89	-	-	-	-	-	-	0.45	47.89
Sub Total	**-**	**-**	**39.80**	**4,150.30**	**-**	**-**	**25.00**	**2,575.27**	**-**	**-**	**64.80**	**6,725.57**
Spare Parts	3.42	399.43	3.51	408.53	7.58	780.27	11.49	1,183.81	10.99	1,179.70	15.00	1,592.34
Duties and Taxes	18.25	1,609.56	18.98	1,674.29	3.76	378.89	3.26	335.61	22.013	1988.447	22.24	2,009.91
Non EPC	7.58	781.16	26.20	2,513.30	11.23	1,156.58	20.21	2,109.63	18.81	1,937.75	46.41	4,622.94
O&M Mobilisation	-	-	-	-	5.00	515.00	5.00	515.00	5.00	515.00	5.00	515.00
Gas Connection	-	-	-	-	-	-	38.55	3,970.36	-	-	38.55	3,970.36
Gas Conversion	-	-	-	-	-	-	25.00	2,575.00	-	-	25.00	2,575.00
Capex	**265.54**	**23,445.26**	**383.44**	**34,344.89**	**97.82**	**9,918.26**	**151.28**	**15,609.83**	**363.36**	**32,946.00**	**534.72**	**49,954.73**

Financing Fees & Charges

56. According to the petitioner, it includes the up-front fee, commitment fee, lenders' consultant's fee, agency commission, LC charges etc. all amounting to Rs 1,104.659 million. Out of this the petitioner claimed to have paid Rs 1,044.275 million, while the remaining Rs 60.58 million are payables. The petitioner claimed Rs 718.64 million as a financing fee on local financing and $4.53 million as a financing fee on foreign debt.

57. According to the petitioner, initially it took two loans, one Euro 68.968 million and another US$ 150.152 million backed by COFACE, France and SINOSURE, China which were signed with the syndicate of foreign banks led by BNP Paribas, Paris, France. The foreign financing fee worth $ 4.53 million relates to these facilities. The Petitioner further informed that because the foreign loan became ineffective due to holding of legal opinion by Ministry of Law and Justice, the following three (3) loans - all in local currency were availed:

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	Rs in Million
Syndicated Term Finance Agreement (STFF-III)	13,500
Syndicated Term Finance Agreement (STFF-II)	5,000
Syndicated Term Finance Agreement (STFF-I)	19,150
Total	**37,650**

58. The local financing fee of Rs 718.64 million relates to above mentioned PKR loan agreements. In support, the petitioner provided bank statement, invoices and debit note. The Authority however, observed that some of the transactions were not backed by proper documentation therefore, those transactions have been disregarded and accordingly communicated to the petitioner for providing the same. The Authority also noted that the petitioner also didn't provide a strong basis for payables worth Rs 60.58 million. Those have not been considered by the Authority for financing fee assessment. Accordingly, based on the available information, financing fee on local portion of works out to be Rs 610. 37 million or equivalent $7.34 million and the same has been allowed to the petitioner.

59. Further, the Authority noted with concern that the petitioner albeit signed foreign local agreements but didn't utilize the loan, because of various issues associated with holding of legal opinion. According to the opinion of the Authority, foreign financing fee amounting to $4.53 million in principal can't be allowed to be charged to the consumer regardless of whether or not the petitioner is directly responsible for the delay. Its allowance will create a wrong precedence in the industry and pave way for similar imprudent request from other investors. Therefore, foreign financing fee worth $4.53 million is disallowed and financing fee of Rs 610.37 million only on availed local loan is allowed.

Whether Interest During construction (IDC) cost of US$ 146.16 million requested by Petitioner that includes significant delay cost is justified?

60. Under this head the petitioner claimed a total of Rs 14.323.85 million. Out of the total, Rs 10,667.945 million were claimed to have been paid and Rs 3,655.90 million payables as indicated below.

Payment against FPAD MARK UP	Million Rs	Million $
STFF-I		
FPAD (Jan 2009 to Sep 2013)	8,410.86	88.36
Payment against MARK UP	-	-
STFF-I	-	-
Period Sep 6, 2013 TO 30 June 2014 Dec, 2013	1,829.14	18.15
STFF-II	-	-
Period Up to Dec, 2013 to June 2014	267.78	2.60
STFF-III	-	-
Period Up to 31 Nov, 2013 to May 2014	200.49	1.97
Total	**10,708.26**	**111.07**

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Payment against FPAD MARK UP	Million Rs	Million $
Estimated Mark-up up to January, 2015	2,053.51	19.94
Estimated Mark-up From Feb-15 to June-15	1,602.40	15.56
Grand Total	**14,364.17**	**146.57**

61. In support of markup, the petitioner submitted HBL bank invoice claiming this for period started from Jan 2009 until September 2013. The Authority noted with disappointment that despite various communications, the petitioner didn't provide basis along with backup calculation for FPAD amounting to Rs 8,410.86 million. Further, the petitioner was sent typical template for calculation of IDC which is normally shared with IPPs approaching its COD. The Petitioner again didn't submit the IDC calculation as per the standard IDC template.

62. Based on our inquiry from various source, it came to the Authority's notice that FPAD is actually Forced Payment Against Document (FPAD) that was paid due to ineffectiveness of foreign loan facilities i.e. EUR 68.968 million and US$ 150.152 million. The local syndicate of banks, which had originally agreed to a loan amount of Rs 5.3 billion started to pay for import equipment's through L/C. Local bank exposure reached close to Rs 15 billion. As a result, the local syndicate banks started to charge FPAD which is considered to be very excessive above 4% to 4.5% over base rates. The petitioner was then forced to disregard foreign financing and resorted to local financing after mid-of 2013 for which IDC worth Rs 5,953.31 million has been claimed.

63. In the opinion of the Authority since FPAD amounting to Rs 8,410.86 relates to the project delay cost therefore, it would be imprudent to pass it on to the consumers therefore disallowed. As mentioned above, the project took three different PKR loans with the following margins:

	Rs in Million	Terms
STFF-III	13,500	6 Months KIBOR + 1.5%
STFF-II	5,000	6 Months KIBOR + 2.0%
STFF-I	19,150	6 Months KIBOR + 2.0%
Total	**37,650**	

64. The Authority observed that in the absence of exact dates of debt drawdowns and applicable KIBOR, IDC can't be accurately calculated. The matter of IDC is further complicated by the fact that this project, which should have been completed in April 16, 2011 in about 30 months of construction time is going to take 80.55 months to be commissioned in June 2015. The Authority is of the view that perhaps, better margin negotiating is among the few good things that can be attributed to this project.

65. For such a long construction time and in the absence of debt drawdowns details, the Authority was constrained to assess the IDC based on the following key assumptions:

    a. To assume equity drawdowns pattern as a representation of debt draw pattern

    b. In the absence of PPA definition for construction start date, establishment of L/C is assumed as start of work commencement as agreed by the petitioner and EPC contractor which in the instant case is Dongfang Electric Corporation Limited (DEC). The L/C was established on October 15, 2008.

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c. Assumed debt to equity ratio of 70:30

d. For limiting the construction time to a reasonable level, the Authority assumed 34 months as construction time which is similar to IDC time period allowed in the case of Sapphire Electric's which has similar delay issues albeit not on a scale comparable to Nandipur.

e. The weighted average margin over KIBOR for all the 3 three loans works out to be 1.82% which is 1.18% less than the 3% benchmark allowed to IPPs. Even though the petitioner has not formally claimed any benefit in this regard, however, for IDC calculation, the Authority has decided to share the benefit of better margin negotiating between the power purchaser and power producer in the ratio of 60:40 pursuant to Para 1.5 of the "Guidelines for Determination of Tariff for IPPs". Accordingly, total weighted average margin over 6 months KIBOR works out to be 2.292%.

f. Further, the petitioner took loans, totalling Rs. 37,650 million. While, the capex assessed loan works out to be significantly lower i.e. Rs 23,062.2 million. This is addressed by averaging out the overall IDC with a factor of 0.61 (23,062.2 /37,650).

66. Based on the above the assumption, the Authority has accordingly assessed and allowed IDC of Rs 7,372.95 million or equivalent $82.26 million.

Whether the reduction in efficiency to 44% on RFO/HSD (caused by the machinery being stranded at the Karachi port) is justified?

67. On this issue the petitioner submitted that due to suspension of works and demobilization of EPC contractor, most of the material/equipment remained detained at Karachi sea ports in harsh weather/atmosphere and some equipment/material at Nandipur site from April 2010 to August 2013

68. According to the petitioner, due to long detention of material in aggressive environment at Karachi sea ports, the EPC contractor refused to maintain/hold contractual guarantees of performance parameters i.e. the load and thermal efficiency/heat rate. This is why; in tariff petition submitted to NEPRA, slightly lower efficiencies were anticipated. However the actual performance parameters i.e. efficiency/heat rates will be concluded after performance test. The petitioner suggested that if the performance parameters are found different than already submitted to NAPRA, same will be communicated for final tariff determination.

69. The petitioner also acknowledged that EPC contractor/OEM keeps margin for performance parameters, the petitioner however, is hopeful that the concluded parameters after performance test will be very close/equal to guaranteed parameters. The petitioner further listed down the following reasons for reduction in efficiency on RFO/HSD

a. Due to long detention of gas turbine at Nandipur site in open atmosphere, the scale/corrosion on compressor blades may significantly hammer gas turbine heat rate, consequently reduce compressed air flow/pressure

b. The scale/corrosion on gas turbine blades may also contribute to reduced thermal efficiency

c. Due to long detention, the scale/corrosion formation in the exhaust duct of gas turbine will cause back pressure and hence, though minor, may result in reduced thermal efficiency/load

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d. Due to long detention at Karachi port and at site in harsh weather, the formation of scale/corrosion on HRSG tubes and fins may result in back pressure to gas turbine, lowering the heat transfer to steam/water in the tubes and hence reduced steam flow to steam turbine, which will also contribute in reduced load/ thermal efficiency.

e. The formation of scale/corrosion on coolers and condenser tubes will adversely affect the coolers/ condenser's performance and consequently the load/thermal efficiency may be hammered.

f. Long detention of different pumps in open and aggressive atmosphere and formation of scale/corrosion/pitting will contribute in lowering the pump's performance and consequently may contribute in lowering the complex efficiency.

g. Long detention/storage of steam turbine and possible formation of scale/corrosion on turbine blades will also contribute in lowering of steam turbine performance.

70. According to the petitioner, the cumulative effect of all above reasons may significantly contribute in hammering the plant performance parameters i.e. heat rate/thermal efficiency.

71. On this issue the Mr. Anwar Kamal stated that there has been no wear and tear from use so it cannot be hypothetically determined that there has been reduction in the efficiency as the same cannot be dependent on idle time. He stressed that actual audited figures must be provided in this regard along with a calculated study by the manufactures to verify the same. According to Mr. Anwar Kamal, if certain parts are affected, then it needs to be physically verified by NEPRA.

72. The Authority noted that the efficiency of frame 9E gas turbine as specified by GE for dual fuel operation (i.e., RFO and Natural Gas) is in the range of 52% to 52.7 % and this efficiency is independent of type of fuel used for the generation. However about 2-3% less power and 1-2% higher heat rates are observed around the world when gas turbines are operating on distillate fuel as compared to natural gas. The Authority however is cognizant of the fact that the plant equipment were exposed to severe weather conditions in open environment without proper protection near coastal region where humidity and salt content in atmosphere are higher. Therefore, there is possibility of reduction in efficiency. Typically the performance degradation for combined cycle gas turbine, during first 3 years of normal operation, as per GE is 2% - 6% if degraded parts are not replaced. If 6% efficiency loss is taken due to nonoperational status then the plat efficiency should be (52.7% - 6% = 46.7%) 46.7 %. The Authority is also aware that RFO/HSD operation may further decrease the efficiency which is observed around the world while shifting from one fuel to the other. This makes the plant efficiency 45%, still much higher than the 44% efficiency claimed by the petitioner. In the opinion of the Authority, 44% claimed efficiency is considerably on the lower side therefore, the petitioner request in this regard is rejected. Based on the aforesaid discussion, the Authority has assessed plant efficiency of 45%.

73. Efficiency/ net capacity working on operation of gas has not been carried out as the gas connection and gas pipeline cost has not been considered at this stage. Further, open cycle efficiencies on HSD/RFO and gas has not been deliberated upon because pre-COD open cycle operation has been assumed to be dealt in PPA which is in accordance with NEPRA practice for IPPs.

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Whether gross capacity of 425 MW on RFO operation is justified?

74. According to the petitioner, it did a comprehensive examination of all available technologies and reviewed Gas/ Steam Turbine manufacturers, and decided to base on three PG9171E GE Turbines of 95.4 MW (Gross) each with a heat recovery steam generator (HRSG) to provide steam to one condensing type Steam Turbine of 138.9 MW (Gross) in combined cycle mode. According to the petitioner the steam turbines will be manufactured by Dongfang Electric Corporation, China. When all the turbines run in parallel, the plant will generate 425 MW (Gross) output and 411.351 MW (Net) on RFO at reference conditions as mentioned below.

Reference Ambient Air Temperature for performance	30.0 degree C
Mean Relative Humidity	60%
Mean Barometric Pressure	989 mbar
Maximum Ambient Temperature	48.9 degree C
Design Ambient Temperature	50 degree C
Power factor	0.85
Frequency	50 Hz at 0.85 pf
	RFO/HSD
Gross Capacity (Each Turbine)	95.4 MW
Gross Capacity (Steam Turbine Unit)	138.8 MW
Gross Capacity (Complex)	425 MW
Auxiliary Consumption (Complex)	13.649 MW
Net Capacity (Complex)	411.351 MW

75. The Authority considered the Petitioner's submissions and relevant documents submitted in support of net capacity. The Authority is cognizant of the fact that the plant equipment stranded in the port for more than three years, therefore, the net capacity is expected to be decreased. Similarly reduction on account of gas plant operation on RFO is also expected. Keeping in view the reduction gross capacity due to nonoperational status and reduction normally observed around the world for operating gas turbine on RFO, the net capacity taken by the Petitioner seems justified. The Authority therefore decided to consider the net capacity of 411.351 MW on RFO for calculating the existing generation tariff. However, the Petitioner is required to conduct Initial Dependable Capacity (IDC) test on Commercial Operation Date (COD) in order to establish the actual net capacity. The adjustment will be made if higher net capacity is established. However, no adjustment of the relevant tariff component shall be allowed in case the net capacity is established less than 411.351 MW.

Fuel cost component

76. The petitioner has requested the following fuel cost component:

Period	Fuel	Fuel Price Component Rs./ KWh
Years 1-30	RFO	13.8023
Years 1-30	HSD	23.5489
Years 1-30	GAS	4.4324

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77. The petitioner has determined the above Fuel cost component (FCC) based on RFO price of Rs 68,013.4 per Ton (inclusive of transportation), the HSD price of 98.15 per Liter and gas price of 588.23 per MMBTU. The petitioner has used 44% efficiency for RFO/HSD and 48% for gas.

78. As the option of gas conversion has not been considered at this stage, therefore, fuel cost component for gas has not been determined. Based on current ex GST fuel price of Rs 38,265 per ton (inclusive of assumed transportation cost of 1500 per ton), RFO Calorific Value of 18,364 Btu per lb while taking allowed RFO efficiency of 45% and LHV/HHV adjustment factor of 1.05, the RFO fuel component works out to be Rs 7.5247 per kWh. The same shall be adjusted on account of fuel price variation.

Operation and Maintenance

Variable O&M

79. According to the petitioner, the local variable O&M component includes the cost of lubricant consumption and other direct local consumables. Whereas, the foreign portion of variable O&M includes imported spare parts to be changed on normal scheduled maintenance and unscheduled maintenance. It also includes chemicals as well as specialized technical services from manufacturer, during the maintenance of the plant. The turbines and associated equipment have manufacturers' recommended over hauling schedules that are based on actual running hours. The actual timing of the major overhauling depends on the actual dispatch provided to the plant. The labor for the variable O&M is in fixed O&M.

Fixed O&M

80. According to the petitioner this component represent the salaries, wages and other cost for employees, land rent, plant administration, security, transportation, overheads, office costs, professional fee such as audit tax and legal fee as well as some other operational costs such as environmental monitoring that don't change the dispatch level. The petitioner has assumed 30% of total fixed O&M to be local while the remaining 70% foreign portion.

81. The petitioner has informed that it has not signed Operation & Maintenance contract. As a reference, it has taken market based O&M estimation which is subject to finalization, if required, after the signing of Operation & Maintenance contract. Accordingly, the petitioner has requested the following O&M component

82. In the absence of firm O&M contract, the Authority is constrained to use benchmark O&M cost of recently commissioned IPP that are similar to the petitioner's project. The following table will indicate the O&M cost of IPPs applicable for a quarter Jan-Mar 2015:

O&M	Saif	Orient	Sapphire	Halmore	Average	Nandipur
Variable O&M (Rs/kWh)						
HSD/RFO Foreign*	0.4971	0.3319	0.4915	0.4994	0.4550	0.5296
HSD/RFO Local	-	-	-	-	-	0.1778
Total Variable	**0.4971**	**0.3319**	**0.4915**	**0.4994**	**0.4550**	**0.7074**
Fixed O&M (Rs/kW/h)						
Local	0.1018	0.1717	0.0979	0.0992	0.1177	0.0898
Foreign	0.1320	0.1478	0.1272	0.1291	0.1340	0.1273
Total Fixed	**0.2338**	**0.3195**	**0.2251**	**0.2283**	**0.2517**	**0.2172**

Note: *These IPPs are all dual fuel gas and HSD fired. For comparison its HSD O&M cost has been compared with RFO O&M cost of Nandipur as both RFO and HSD have been considered to have similar O&M cost.*

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83. Based on the above comparison, the Authority noted that the requested variable O&M cost of Rs 0.7074 per kWh is considerably on the higher side when compared with the average of Rs 0.4550 per kWh of the above mentioned four CCGT plants. The Authority has therefore, decided to allow average O&M cost of 0.4550 per kWh for Nandipur project. The Authority also observed that the requested fixed O&M cost of 0.2172 per kW/hr is comparable with the average of O&M cost of similar IPPs, therefore the same has been allowed. Further, the Authority will determine separate O&M cost for Gas operation once the petitioner apply for gas conversion as per applicable law.

Insurance cost component

84. According to the petitioner, insurance components consist of all risk insurance / reinsurance for the Project as well as business interruption insurance which are a lender stipulated requirement. The petitioner has requested Rs 0.1258/kW/h as insurance component which has been assumed at 1.35% of the requested EPC price. Since no insurance agreement has been provided the Authority decided to use the benchmark 1.35% of EPC cost as insurance cost on the allowed EPC of $ 306.54 million to work out the insurance component of Rs. 0.1183 per kW per hour, which will be subject to adjustment at actual, maximum of 1.35% of then EPC approved cost at the time of COD.

Return on Equity and Return on Equity During Construction

85. For construction phase, the petitioner claimed return on total of Rs 18.429 billion equity or $ 201 million at the weighted average exchange rate of 91.61 for 85.64 months' time, starting from May 13, 2008. The petitioner claimed total return of RoE component of Rs 1.676/kW/h that includes Rs 0.8198/kW/h RoE and Rs 0.8562/kW/h ROEDC component.

86. In support, the petitioner submitted debit note for Rs. 3160.79 million transfers from NPGCL to the project and bank statements for Rs 14.638 billion. The petitioner was informed to confirm the equity injection claimed through certification from the independent auditor, as mere provision of debit notes are not sufficient evidence of equity injections. The petitioner reply in the matter is pending.

87. In the absence of complete documents on equity injection, the Authority faced similar constraints for ROEDC assessment as encountered for IDC assessment. Accordingly, the petitioner submitted drawdowns dates were assumed which were adjusted downward to reflect allowed construction time of 34 months while using assessed equity of $ 135.89 million, assuming equity ratio of 30% of the total project cost. ROEDC, @ 15% return works out to be $ 19.07 million, which translate into a tariff component of Rs 0.0830/kW/Hr. and the same is therefore being allowed to the project. RoE on assessed equity of $ 135.89 million works out to be $ 20.38 million or component Rs 0.5826 /kW/h. Accordingly the Authority has allowed a total return of Rs 0.6657/kW/h. This will be subject to adjustment at the time of COD based on allowable revisions in project cost, net capacity etc. The withholding tax on dividend has not been considered for tariff assessment.

Debt Servicing Component

88. The petitioner claimed a total of Rs 1.5669 /kW/h based on the following perimeters.

	Debt1	Debt2	Debt3
Loan Amount (Rs. in million)	19,150.0	5,000.0	13,500.0

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Particulars	Debt1	Debt2	Debt3
Loan Repayment Years	15	15	15
Instalments per annum	2	2	2
No of Instalments	30	30	30
KIBOR 6 Months	0.1059	0.1059	0.1059
Spread	2.00%	2.00%	1.50%
Total Interest	**12.59%**	**12.59%**	**12.09%**

89. The Authority appreciated that the petitioner managed to secure all the above loan at significant discount to the 3% margin allowed to IPPs. The petitioner however, has not claimed any benefit in this regard. Pursuant to Para 1.5 of the Guidelines for Determination of Tariff a power plant is entitled to get the 40% benefit of the reduced margin. For IDC assessment as discussed above, this benefit works out to be 0.4722%. For determination of debt servicing, 0.4722% has been added to the weighted average margin of 1.82% to give us an overall margin of 2.292%. With current 6 month KIBOR of 8.53%, repayment period of 15 years and assessed loan of Rs 28,650.52 (70% of total project cost of Rs 40,929.32 million) debt servicing has been allowed as Rs 1.0834 /kW/h. This will be subject to adjustment at the time of COD based on allowable revisions in project cost, net capacity etc.

ORDER

90. 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 NPGCL's Nandipur Power Project (hereinafter 'The Petitioner"):

Reference Tariff

Rs. in million

Tariff Components	Year 1 to 15	Year 16-30	Indexation
Capacity Charge PKR/kW/Hour)			
O&M Foreign	0.1273	0.1237	US$ /PKR & US CPI
O&M Local	0.0898	0.0898	Local CPI (General)
Cost of Working Capital	0.1144	0.1144	KIBOR
Insurance	0.1183	0.1183	US$ /PKR (If any)
Debt Service	1.0834	-	KIBOR
Return on Equity	0.6657	0.6657	US$ /PKR
Total Capacity Charge	**2.2039**	**1.1205**	
Energy Charge on Operation on RFO Rs./kWh			
Fuel Cost Component	7.5247	7.5247	Fuel Price
Variable O&M	0.4550	0.4550	US$/PKR & US CPI

Note: i) Component wise proposed tariff for operation on RFO is indicated at Annex-I.

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ii) Debt Servicing Schedule is attached as Annex-II.

91. The following adjustments /indexations shall be applicable to reference tariff;

<u>One Time Adjustment</u>

Adjustment in EPC Cost

92. The Authority has assessed total EPC cost of 306.54 million at equivalent US dollar. That include the following payables:

Rs. in million

EPC Cost Payables	Amount in million
US$ portion	13.4
Euro Portion	42.911
PKR portions	772.77

93. 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 103 and Euro portion at assumed PKR to Euro exchange rate of 115.

94. The adjustment shall be only for currency fluctuation against the reference parity values according to the following mechanism;

$$\text{EPC payables (\$ portion)}_{(Adj.)} = \text{PKR 1,379.63 million} / 103 \times E_{(PR)}$$

$$\text{EPC payables (Euro Portion)}_{(Adj.)} = \text{PKR 4,934.82 million} / 115 \times E_{(PR)}$$

Where:

$E_{(PR)}$ = Respective Weighted Average PKR/EURO and PKR/US$ parity based upon timing of the payment

95. 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

96. The reference tariff has been determined on the basis of minimum net capacity of 411.351 MW 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 411.351 MW net capacity at reference site conditions. The adjustments shall be made according to the following formula:

$CC_{(Adj.)} = CC_{(Ref)} \times 411.351 / NC_{(IDC)}$

$CC_{(Adj.)}$ = Adjusted relevant Capacity Charge components of tariff

$CC_{(Ref)}$ = Reference relevant Capacity Charge components of tariff

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$NC_{(IDC)}$ = Net Capacity at reference site conditions established at the time of IDC test

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

97. The actual insurance cost for the minimum cover required under contractual obligations with the Power Purchaser not exceeding 1.35% 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 NPGCL.

Adjustment in Return on Equity (ROE)

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

$ROE_{(Rev)} = ROE_{(Ref)} \times ER_{(Rev)} / 103$

Where;

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

Indexations:

99. 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**

$F\ O\&M_{(LREV)}$ = Rs. 0.0898/kW/Hour × $CPI_{(REV)}$ / 198.80

$F\ O\&M_{(FREV)}$ = Rs. 0.1273/kW/Hour × US $CPI_{(REV)}$/236.151× $ER_{(REV)}$/103

Where:

$F\ O\&M_{(LREV)}$ = The revised applicable Fixed O&M Local Component of the Capacity Charge indexed with Local CPI

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$F\ O\&M_{(FREV)}$	=	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:

$V\ O\&M_{(FREV)}$ = Rs. 0.4550/kWh × $US\ CPI_{(REV)}$/236.151 × $ER_{(REV)}$/103

Where:

$V\ O\&M_{(FREV)}$	=	The revised applicable Variable O&M Foreign Component of the Capacity Charge indexed with US CPI and Exchange Rate variation
$US\ CPI_{(REV)}$	=	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 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;

$\Delta I_{(L)}$ = $P_{(LREV)}$ × ($KIBOR_{(REV)}$ – 10.822%)/2

Where:

$\Delta I_{(L)}$	=	the variation in interest charges corresponding to variation in biannual KIBOR. Δ I can be positive or negative depending upon whether $KIBOR_{(REV)}$ > or <10.822%. The interest payment obligation will be enhanced or reduced to the extent of Δ 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

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on which the first installment is due after availing the grace period.

iv) **Fuel Price Variation**

The Variable Charge Part of the tariff relating to fuel cost shall be adjusted on account of the fuel price variations according to the mechanism given below:

$FC_{(Rev)} = FC_{(Ref)} \times FP_{(Rev)} / FP_{(Ref)}$

Where:

$FC_{(Rev)}$ = Revised fuel cost component on RFO.

$FP_{(Rev)}$ = The new price of RFO per Metric Ton as per original OMC invoice

$FP_{(Ref)}$ = Reference RFO price of Rs 38,265 per ton

100. For one-time adjustment of relevant tariff components at COD according to the mechanism laid down in this order, NPGCL shall submit the relevant documents to NEPRA within 30 days of COD for adjustment.

Adjustment on account of Calorific value

101. The Adjustment on account of variation in calorific value will be allowed as per the following mechanism:

a. The reference CV will be 18,364 Btu/lb. There will however be no adjustment below the minimum limit of 18,200 Btu/lb

b. NPGCL shall maintain and submit, annually a detailed record of consignment wise CV of the oil received and consumed for power generation for the adjustment on account of variation against the reference CV duly supported with the copies of test reports certified by the fuel supplier

102. **Terms and Conditions of Tariff:**

a. Capacity Charge Rs./kW/hour applicable to dependable capacity at the delivery point.

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

c. All new equipment will be installed and the plant will be of standard configuration.

d. Dispatch criterion will be based on the Energy Charge.

e. Scheduled Outage periods per annum shall be in accordance with the 2006 standardized PPA.

f. NTDC will be responsible for constructing the interconnection to the grid.

g. All invoicing and payment terms are assumed to be in accordance with the 2006 standardized PPA.

h. Tolerance in Dispatch shall be in accordance with 2006 standardized PPA.

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i. If there is any change in any assumption that may lead to change in the tariff shall be referred to NEPRA for approval.

j. 100% of debt has been assumed to be local provided however that in the event NPGCL uses a mix of foreign and local loan, the future benefits of the lower interest rates shall be passed on to the Power Purchaser.

k. No corporate income tax and no minimum turnover tax have been assumed.

l. Working capital has been financed by a separate Working Capital facility, and is not included in the project cost.

103. The above tariff and terms and conditions be incorporated in the Power Purchase Agreement between NPGCL (Nandipur power project) and CPPA.

104. The above determination is intimated to the Federal Government for notification in the official gazette under section 31(4) of the Regulations of Generation, Transmission, and Distribution of Electric Power Act, 1997.

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NPGCL's 411.351 MW Nandipur Combined Cycle Power Plant

Year	Energy Purchase Price (Rs./kWh)			Capacity Purchase Price (PKR/kW/Hour)								Capacity Charge@ 60%	Total Tariff Rs. /kWh	Total Tariff Cents/kWh
	Fuel Component	Var. O&M Foreign	Total EPP	Fixed O&M Local	Fixed O&M Foreign	Cost of W/C	Insurance	ROE	Debt Repayment	Interest Charges	Total CPP			
1	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.2290	0.8544	2.2058	3.6763	11.6560	11.3165
2	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.2544	0.8290	2.2058	3.6763	11.6560	11.3165
3	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.2827	0.8007	2.2058	3.6763	11.6560	11.3165
4	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.3141	0.7693	2.2058	3.6763	11.6560	11.3165
5	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.3490	0.7344	2.2058	3.6763	11.6560	11.3165
6	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.3878	0.6956	2.2058	3.6763	11.6560	11.3165
7	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.4310	0.6525	2.2058	3.6763	11.6560	11.3165
8	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.4789	0.6046	2.2058	3.6763	11.6560	11.3165
9	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.5321	0.5513	2.2058	3.6763	11.6560	11.3165
10	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.5912	0.4922	2.2058	3.6763	11.6560	11.3165
11	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.6569	0.4265	2.2058	3.6763	11.6560	11.3165
12	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.7300	0.3535	2.2058	3.6763	11.6560	11.3165
13	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.8111	0.2723	2.2058	3.6763	11.6560	11.3165
14	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.9012	0.1822	2.2058	3.6763	11.6560	11.3165
15	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	1.0014	0.0820	2.2058	3.6763	11.6560	11.3165
16	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.0000	0.0000	1.1224	1.8706	9.8503	9.5634
17	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.0000	0.0000	1.1224	1.8706	9.8503	9.5634
18	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.0000	0.0000	1.1224	1.8706	9.8503	9.5634
19	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.0000	0.0000	1.1224	1.8706	9.8503	9.5634
20	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.0000	0.0000	1.1224	1.8706	9.8503	9.5634
21	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.0000	0.0000	1.1224	1.8706	9.8503	9.5634
22	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.0000	0.0000	1.1224	1.8706	9.8503	9.5634
23	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.0000	0.0000	1.1224	1.8706	9.8503	9.5634
24	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.0000	0.0000	1.1224	1.8706	9.8503	9.5634
25	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.0000	0.0000	1.1224	1.8706	9.8503	9.5634
26	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.0000	0.0000	1.1224	1.8706	9.8503	9.5634
27	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.0000	0.0000	1.1224	1.8706	9.8503	9.5634
28	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.0000	0.0000	1.1224	1.8706	9.8503	9.5634
29	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.0000	0.0000	1.1224	1.8706	9.8503	9.5634
30	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.0000	0.0000	1.1224	1.8706	9.8503	9.5634
Average														
1-15	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.5301	0.5534	2.2058	3.6763	11.6560	11.3165
16-30	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.0000	0.0000	1.1224	1.8706	9.8503	9.5634
1-30	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.2650	0.2767	1.6641	2.7735	10.7532	10.4400
Levelized														
1-30	7.5247	0.4550	7.9797	0.0898	0.1273	0.1213	0.1183	0.6657	0.3558	0.5184	1.9965	3.3276	**11.3073**	**10.9779**

Net Capacity (MW)	411.3510
Reference Exchange rate (PKR/US$)	103.0000
Refrence US CPI	198.8
Refernce Local CPI	236.151
KIBOR	10.822%
Net Thermal Efficiency	47.70%
Levelized Tariff (@ 60% plant Factor) Rs /kWh	11.3073

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Debt Servicing Schedule

Net Capacity	411.35
No of hours in a year	8,760
Generation	3,603
Loan Amount	28,651
Loan Repayment Years	15
Instalments per annum	2
No of Instalments	30
KIBOR 6 Months	8.53%
Spread	2.29%
Effective Interest Rate	**10.822%**

Year	Quarter	Principal Amount Million Rs.	Repayment Million Rs.	Mark Up Million Rs.	Debt Service Million Rs.	Principal Amount Million Rs.	Annual Principal Repayment Rs/Kw/hr	Annual Interest Rs/kW/hr	Annual Debt Serving Rs/kW/hr
1	1	28,651	402	1,550	1,952	28,249			
	2	28,249	423	1,529	1,952	27,825	0.2290	0.8544	1.0834
2	3	27,825	446	1,506	1,952	27,379			
	4	27,379	470	1,482	1,952	26,909	0.2544	0.8290	1.0834
3	5	26,909	496	1,456	1,952	26,413			
	6	26,413	523	1,429	1,952	25,890	0.2827	0.8007	1.0834
4	7	25,890	551	1,401	1,952	25,339			
	8	25,339	581	1,371	1,952	24,758	0.3141	0.7693	1.0834
5	9	24,758	612	1,340	1,952	24,146			
	10	24,146	645	1,307	1,952	23,500	0.3490	0.7344	1.0834
6	11	23,500	680	1,272	1,952	22,820			
	12	22,820	717	1,235	1,952	22,103	0.3878	0.6956	1.0834
7	13	22,103	756	1,196	1,952	21,347			
	14	21,347	797	1,155	1,952	20,550	0.4310	0.6525	1.0834
8	15	20,550	840	1,112	1,952	19,710			
	16	19,710	885	1,067	1,952	18,824	0.4789	0.6046	1.0834
9	17	18,824	933	1,019	1,952	17,891			
	18	17,891	984	968	1,952	16,907	0.5321	0.5513	1.0834
10	19	16,907	1,037	915	1,952	15,870			
	20	15,870	1,093	859	1,952	14,776	0.5912	0.4922	1.0834
11	21	14,776	1,152	800	1,952	13,624			
	22	13,624	1,215	737	1,952	12,409	0.6569	0.4265	1.0834
12	23	12,409	1,281	671	1,952	11,129			
	24	11,129	1,350	602	1,952	9,779	0.7300	0.3535	1.0834
13	25	9,779	1,423	529	1,952	8,356			
	26	8,356	1,500	452	1,952	6,856	0.8111	0.2723	1.0834
14	27	6,856	1,581	371	1,952	5,275			
	28	5,275	1,667	285	1,952	3,609	0.9012	0.1822	1.0834
15	29	3,609	1,757	195	1,952	1,852			
	30	1,852	1,852	100	1,952	0	1.0014	0.0820	1.0834

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