



Registrar

National Electric Power Regulatory Authority

Islamic Republic of Pakistan

NEPRA Tower, Ataturk Avenue(East), G-5/1, Islamabad
Ph: +92-51-9206500, Fax: +92-51-2600026
Web: www.nepra.org.pk, E-mail: registrar@nepra.org.pk

No.NEPRAPAR-136/6395-6397
April 28, 2015

Subject: **Decision of the Authority in the matter of Power Acquisition Request filed by K-Electric Ltd. under the NEPRA Interim Power Procurement (Procedures and Standards) Regulations, 2005 for Permission to Negotiate Power Acquisition Contract for purchase of 12.5 MW (Coal Fired) from Al-Abbas Sugar Mills Ltd. [Case # NEPRA/PAR-136]**

Dear Sir,

Please find enclosed herewith the subject Decision of the Authority (11 pages) in Case No. NEPRA/PAR-136.

2. The Decision is being intimated to the Federal Government for the purpose of notification in the official gazette in accordance with the provisions of Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997).
3. The Order is to be notified in the official Gazette.

Enclosure: As above

(Syed Safer Hussain)

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.



Decision of the Authority in the matter of Power Acquisition Request filed by K-Electric Limited under the NEPRA Interim Power Procurement (Standards & Procedure) Regulations 2005 for permission to negotiate power acquisition contract for purchase of 12.5 MW (Coal Fired) from Al Abbas Sugar Mills Limited

1. Filing of the Power Acquisition Request

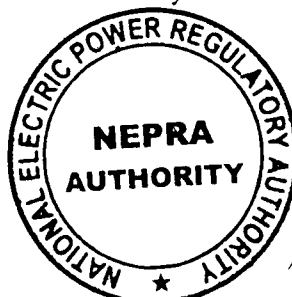
1.1 K-Electric Limited (hereinafter referred to as "K-Electric") (formerly Karachi Electric Supply Company Limited) filed a Power Acquisition Request (PAR) dated 14th July 2014 in respect of purchase of 12.5 MW Coal Fired power from Al-Abbas Sugar Mills Limited (hereinafter referred to as "AASML") under NEPRA's Interim Power Procurement (Procedures & Standards) Regulations 2005 along-with a Power Sale Proposal received from AASML, containing plant specifications and details forming the basis of the tariff proposed by AASML. K-Electric requested the Authority for approval of the instant PAR based on the Power Sale Proposal submitted by AASML so as to enter into a formal arrangement with AASML for acquisition of power.

1.2 During scrutiny of the PAR by Registrar office NEPRA, it was noted that approval from Board of Directors of K-Electric for purchase of Power from AASML was not provided with the PAR. K-Electric was therefore directed vide letter dated July 21, 2014 to submit the requisite information/ documents for further processing of the case. K-Electric vide its letter No. SBD/AR/NEPRA-10/2014-0724 dated July 24, 2014, resubmitted the PAR signed by its CEO who was duly authorized by Board of Directors of K-Electric.

2. Facts of the Case

2.1 AASML is a public limited company listed at the Karachi Stock Exchange (Guarantee) Limited. AASML owns a thermal captive power plant with generation license No. SGC/58/2010 issued on 19th May 2010 for 15 MW (installed capacity) and 13.10 MW (net capacity). The license is valid for a period of 15 years till 18th May 2025.

2.2 The plant consists of one (01) Shin Nippon, Japan/SNM, C8-R13-R steam turbine and is located on Main National Highway, near Dhabeji Town, District Thatta, Province of Sindh. The Plant was dedicated for the purpose of Ferro Alloy Furnace. However, the Ferro Alloy Furnace





operations were shut down by AASML since it could not compete in the market with the imported material from China. Hence the power plant remained idle.

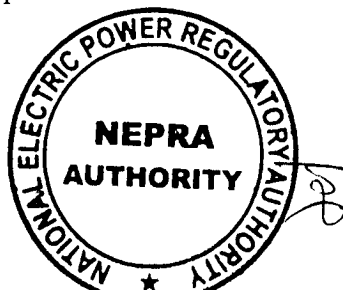
3. Project Brief;

A brief of project's technical & financial details, as submitted by K-Electric are as under;

Project Capacity	15 MW (Gross)										
Proposed Contract Capacity	12.5 MW (Net)										
Plant Efficiency	18.5% (Net)										
K-Electric's Demand	Peak Demand of 2778 MW with load Shed of 532 MW in 2013										
Interconnectivity	Evacuation at 11 kV to K-Electric. Already connected and adequate										
Cost of Interconnection	N/A as already connected										
Project Location	Dhabeji, Thatta, Sindh, Pakistan										
Plant Type	Steam Turbine										
Contract Term	5 Years from Commercial Operations Date										
Power Purchaser	K-Electric Limited										
Fuel Type	Steam (Non-Coking) Coal										
Operation Costs	<table><thead><tr><th>Annual Operating Cost</th><th>(PKR 000)</th></tr></thead><tbody><tr><td>Fuel Cost</td><td>857,575</td></tr><tr><td>Other Variable Costs</td><td>46,168</td></tr><tr><td>Total Fixed Costs</td><td>192,148</td></tr><tr><td>Total Costs</td><td>1,095,891</td></tr></tbody></table>	Annual Operating Cost	(PKR 000)	Fuel Cost	857,575	Other Variable Costs	46,168	Total Fixed Costs	192,148	Total Costs	1,095,891
Annual Operating Cost	(PKR 000)										
Fuel Cost	857,575										
Other Variable Costs	46,168										
Total Fixed Costs	192,148										
Total Costs	1,095,891										
Tariff	PKR 10.01 / kWh @ 100% Dispatch, PKR 10.32 / kWh @ 85% Dispatch										
Concession Documents	Power Acquisition Contract (PAC)										
Contract Nature	Take or Pay										
Generation License	Available and valid until 18-May-2025										
Applicable Framework	Interim Power Procurement Regulations 2005										

4. Admission of the Power Acquisition Request

The PAR was admitted by the Authority on August 27, 2014. Although IPPRs do not provide for holding a public hearing but for the purpose of transparency through participation of the stakeholders in the tariff setting process and in order to meet the ends of natural justice, the





Authority decided to hold a public hearing on November 12, 2014 and accordingly Notice of public hearing along with salient features was published in the leading national newspapers on November 01, 2014 and letters thereof were issued to stakeholders separately.

5. Proposed Tariff

K-Electric in the instant PAR proposed the following tariff on Take or Pay basis:

Year	Fuel Component	Ash Removal	Variable O&M	Total EPP	Fixed O&M	Insurance	Working Capital Charges	Return on Investment	Total CPP	Total Tariff @ 100	Capacity Charges @ 85%	Total Tariff Rs/kWh @ 85%
1	7.83	0.22	0.20	8.25	0.64	0.10	0.19	0.83	1.75	10.01	2.06	10.32
2	7.83	0.22	0.20	8.25	0.64	0.10	0.19	0.83	1.75	10.01	2.06	10.32
3	7.83	0.22	0.20	8.25	0.64	0.10	0.19	0.83	1.75	10.01	2.06	10.32
4	7.83	0.22	0.20	8.25	0.64	0.10	0.19	0.83	1.75	10.01	2.06	10.32
5	7.83	0.22	0.20	8.25	0.64	0.10	0.19	0.83	1.75	10.01	2.06	10.32

6. Hearing

Hearing in respect of the PAR filed by K-Electric regarding purchase of 12.5 MW power from AASML was held on November 12, 2014 at Karachi. No comments /intervention request were received in response to the advertisement thereof.

7. Issues for Hearing

Following issues were framed for discussion during the hearing;

- Whether the proposed net efficiency of 18.5% is justified?
- Whether the proposed two part tariff comprising of Energy Charge and Capacity Charge is justified?
- Whether the tariff adjustment/ indexation mechanism proposed by K-Electric is justified?
- Whether the proposed Fixed O&M tariff component of Rs. 0.64/ kWh is justified?
- Whether all aspects and procedural requirements regarding environmental issues have been fulfilled?
- Whether the proposed PAR is in the interest of consumers of K-Electric?

8. Efficiency

- 8.1 K-Electric submitted that AASML is a captive power unit having a very low efficiency of 18.5% LHV (net) as opposed to 36% or higher in the case of new larger capacity coal fired power





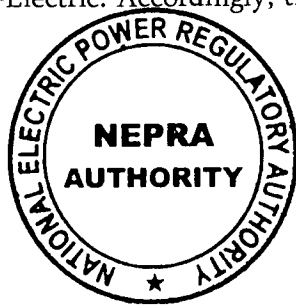
plants. K-Electric during the hearing explained that this plant was manufactured particularly for the industrial purposes and not for the utilities. The performance of the unit i.e. efficiency depends on the boiler efficiency, main steam pressure & temperature and efficiency of the steam power cycle depends on the amount of steam extraction for feed water heating. The boiler efficiency achievable is 80% and the cause of low efficiency is deposits of solid fuel and high unburned carbon loss. The steam power cycle efficiency is 25% because of full condensing of inlet steam flow to turbine as no steam extraction is provided for feed water heating before economizer inlet of the boiler. K-Electric further submitted that the gross efficiency of the unit is 20% (25% x 80%), the gross heat rate is 17,770 Btu / kWh and net achievable efficiency is 18.5% (Net Heat rate 18440 Btu/ kWh).

8.2 The Authority noted that the proposed thermal efficiency of 18.5% net, is on the lower side as compared to approved efficiencies of IPPs and GENCOs. The Authority has earlier allowed efficiency of 22.49% to the existing bagasse based power plants which were also using existing low pressure boilers. The Authority in order to further evaluate this, gathered additional data and record of power plant facilities. It was noted that AASML had previously in 2010 entered into agreement with K-Electric for supplying power at an efficiency of 19.78%. The record shows that AASML could not achieve the efficiency levels on sustainable basis and the agreement was discontinued. The Authority, based on the analysis, also notes that reportedly AASML was able to achieve efficiency close to 19%. In view of the above and considering that the power plant will be supplying power at 11KV level, the Authority allows net thermal efficiency of 19% (LHV) to AASML.

9. Auxiliary Consumption

9.1 K-Electric has submitted that the plant has a gross capacity of 15 MW with available capacity of 13.72 MW Gross. K-Electric proposed a net capacity of 12.5MW after having Auxiliaries of 1.2 MW i.e. 8.75%.

9.2 The Authority has noted that according to the Generation License of AASML, its net capacity is 13.10 MW after allowing auxiliary consumption of 0.90MW. The Authority also noted that the auxiliary of 8.75% proposed by K-Electric is on the higher side. The Authority has therefore decided to allow auxiliary consumption of 6.42% i.e. 0.88 MW on the same basis as allowed in the generation license. The Authority has also decided to accept the available capacity of 13.72 MW claimed by K-Electric. Accordingly, the net capacity of AASML works





out to be 12.84 MW which has been considered for calculation of the reference tariff of the current PAR with 85% plant availability.

Description	Proposed (MW)	Allowed (MW)
Gross Capacity	15	15
Derated Capacity	13.72	13.72
Auxiliary Consumption	1.2	0.88
Net Capacity	12.50	12.84

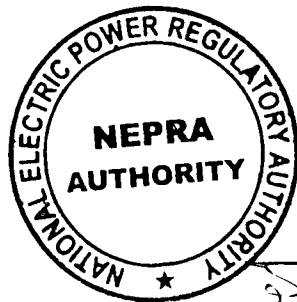
10. Tariff

10.1 K-Electric has proposed a two part tariff comprising of Energy Purchase Price and Capacity Purchase Price on Take or Pay basis, on the pretext that the AASML will be supplying all net electrical output to K-Electric Grid Station and K-Electric is obligated to off-take all declared available capacity.

10.2 The Authority noted that allowing tariff on Take or Pay basis is not justified as K-Electric's load profile does not remain same all the time as there are seasonal variations in demand and supply of electricity at K-Electric system, therefore, AASML dispatch may vary on day to day basis. which may negatively impact the capacity payments to be made to AASML by K-Electric and may unreasonably increase the per unit cost of electricity purchased by K-Electric. The Authority also in other such cases for CPPs / Renewable plants, has allowed energy based tariff. Accordingly, for the instant PAR, the Authority has decided to allow single part tariff i.e.energy based tariff on "Take and Pay" basis.

11. Fuel Cost Component

11.1 K-Electric proposed Fuel Cost Component of Rs. 7.83 / kWh based on plant efficiency of 18.5% (18440 Btu/ kWh) at a reference coal price of Rs.10,117/- per ton with coal calorific value (NAR) of 6000 kcal / kg, using exchange rate of Rs. 98.30/ US\$. Per metric ton price of Coal has been calculated by K-Electric as under;





Fuel Price

FOB Price (API-4 Index) Richards Bay (US\$/ MTon)	73.70
Marine Freight (US\$/ MTon)	17.00
CFR Price (US\$ / MT)	90.70
L/C Opening Charges, Insurance, Excise & Taxation, Document Retirement Charges etc. @ 2.05% of CFR Price (US\$/MT)	1.86
Stevedoring, Weightment, Wharfage, KPT dues, Clearing & Forwarding Charges (PKR/ MTon)	375
Total Price (PKR/ MT)	9,474
Coal Handling Loss @ 1.5% of Total Price (PKR / MT)	142
Transport Rate (PKR / MTon)	500
NET PRICE AT SITE (PKR / MTon)	10,117

11.2 The Authority in order to simplify the mechanism and also to be in line with the already allowed mechanism in upfront coal tariff, has approved the following mechanism for calculating coal price;

FOB Price (Richard Bay (South Africa)-API-4) (US\$/MTon)	73.70
Marine Freight (US\$/MTon)	17.00
Marine Insurance @ 0.10% of FoB Price (US\$/MTon)	0.07
All Other Costs including inland transportation @10% of FoB Price (US\$/MTon)	7.37
Total Imported Coal Price (US\$/MTon)	98.14
Coal Price per M/Ton at Site (PKR)	9,648

11.3 The FOB purchase price of coal will be the price as per Richard Bay (South Africa) API-4 Index of the date of actual purchase. Marine freight will be charged as per actual based on shipper's invoice.

11.4 Based on the reference price of Rs.9,648/ Ton (US\$ 98.14/ Ton x PKR. 98.30) with calorific value (NAR) of 6000 kcal / kg and efficiency of 19%, the Fuel Cost component works out to be Rs. 7.2773 / kWh.

11.5 Coal handling Loss on transportation of imported coal up to maximum of 1.0% is allowed, with the condition that if the Coal Supply Agreement caters for transportation losses in the price, there will be no adjustment in coal pricing on account of transportation losses.





12. Ash Removal Charges

K-Electric's proposed Ash handling / removal component at Rs. 0.22 / kWh, which includes costs associated with ash handling system including ash collection system (for both dry and wet ash), shifting to ash storage area, ash dumping / disposal systems and also includes acquisition of ash disposal sites and its maintenance, being reasonable is hereby allowed.

13. Variable O&M

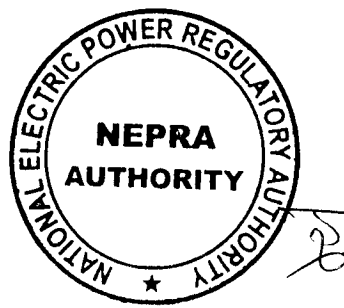
K-Electric's proposed variable O&M component at Rs. 0.20 / kWh (*Rs. 0.09/ kWh for stores & spares and Rs.0.11/ kWh for Water charges*), which includes cost of consumables such as lubricants, chemicals, spares, stores, coal handling at plant site including stacking and piling, minor maintenance and water charges, being reasonable is hereby allowed.

14. Fixed O&M

14.1 K-Electric has proposed Fixed O&M cost component of Rs.0.75/ kWh (at 85% dispatch), based on a cost of Rs.69.824 Million p.a. However, as per the breakup of fixed cost, provided by K-Electric afterwards, the same is Rs. 58.512 Million p.a. resulting in Fixed O&M Cost Component of Rs. 0.63/ kWh.

14.2 K-Electric has submitted that Fixed O&M cost represents fixed cost of staff for operations and maintenance of the plant, cost of spares and services for routine maintenance and major overhaul, coal/ ash handling costs, third party services, administrative cost and office expenditure. K-Electric, while justifying the high Fixed O&M cost component as compared to the upfront coal tariff, submitted that requirement of operation of a single unit is same irrespective of size of the unit and its cost cannot be compared with a 220MW unit which produces approximately 123,868 MWh per month at 85% availability factor as compared to 7,650 MWh per month of AASML. K-Electric also referred to the fixed O&M cost component of Rs.0.72/ kWh, allowed by the Authority in case of SSJD Energy Ltd.

14.3 The Authority noted that K-Electric has included an amount of Rs. 1.80 million on account of Coal / Ash Handling in the fixed O&M cost. This cost component is being allowed by the Authority separately hence not included under the Fixed O&M cost component. In view of the aforementioned, the fixed O&M cost component works out to be Rs. 0.5932/ kWh and is approved by the Authority.





15. Insurance Component

15.1 K-Electric proposed Insurance component at Rs. 0.12 / kWh (at 85% disptach), calculated at Insurance expenses of Rs. 11.190 million p.a. which includes insurance of Plant and Machinery, Stock in Trade (Coal), stores & spares and also covers terrorism and atmospheric disturbance. However, no details or documentary evidence in support of proposed insurance expense has been provided.

15.2 The Authority in case of upfront coal tariff has allowed insurance component based on actual insurance cost with maximum of 1% of the 70% of Capital Cost. The Authority in other IPPs cases, has allowed insurance cost as per actual subject to maximum of 1% to 1.35% of the EPC cost.

15.3 Since AASML is captive unit, therefore, no EPC cost is available. However, K-Electric, has worked out total fixed assets of AASML as Rs. 550 Million. Based on the parameters of upfront coal, Insurance premium has been calculated at 1% of the 70% of Rs. 550 Million and accordingly the Insurance component works out to be Rs. 0.0403 / kWh and is approved by the Authority.

16. Return on Investment

16.1 K-Electric's proposed return on investment component is Rs. 0.975/kWh worked out @ 16.5% of the total fixed asset cost of Rs. 550 Million. No break-up of total assets in terms of debt and equity has been provided.

16.2 The Authority, in the absence of actual cost breakup in terms of Debt and Equity has decided to allow Return on Investment (RoI) on Weighted Average Cost of Capital (WACC) basis, assuming a Debt to Equity ratio of 75:25. By allowing 24.5% return on equity and 3 months Kibor of 10.16% +300 basis points return on debt, the WACC, on the total fixed assets cost of Rs. 550 Million, works out to be Rs. 87.97 million. Accordingly the RoI component works out to be Rs. 0.9202 / kWh. The ROI component of tariff will be allowed onetime adjustment only, for variation in 3 months Kibor, on the first date of supply of Electric Power by Al-Abbas Sugar Mills Limited to K-Electric.





17. Cost of Working Capital

K-Electric proposed cost of working capital of Rs. 0.219/kWh (at 85% dispatch), based on imported coal inventory equivalent to 45 days plus Energy Purchase Price for 25 days at 100% plant load. The Authority has decided to allow cost of working capital for imported coal inventory of 45 days plus fuel cost component equivalent to 25 days at 100% plant load, which at 3 months Kibor (10.16%) plus 200 basis points works out to be Rs. 0.1997/kWh.

18. Assessed Reference Tariff

On the basis of discussion in the preceding paragraphs, the assessed reference tariff on units delivered basis is summarized as under, which is required to be adjusted on the first date of supply of Electric Power by Al-Abbas Sugar Mills to K-Electric as per the indexation / adjustment mechanism provided hereunder;

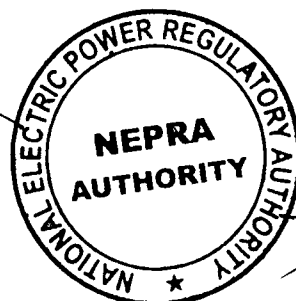
Tariff Table								
Component	FCC	Ash Removal	Var. O&M	Fixed O&M	Cost of W/C	Insurance	ROI	Total Tariff Rs. /kWh
Rate (Rs. / kWh)	7.2773	0.2200	0.2000	0.5932	0.1997	0.0403	0.9202	9.4506

19. Procedural Requirements of Environmental Issues

K-Electric, on the issue as to whether all aspects and procedural requirements regarding environmental issues have been fulfilled, submitted that all such issues were dealt with at the time of grant of generation license in 2010, which is valid till 2025.

20. Impact of PAR on existing Tariff of K-Electric

K-Electric, on the issue of impact of current PAR on its existing tariff, submitted during the hearing, that its total power purchase for last year was 7,282 GWh at a cost of Rs. 82 Billion at an average tariff of Rs.11.39/ kWh and the proposed tariff from AASML @ 85% capacity utilization is Rs.10.32/kWh, which on marginal basis will reduce the overall tariff being lower than its average power purchase price. The Authority observed that average power purchase rate of K-Electric for the FY 2013-14 was Rs. 11.34/kWh including purchase from NTDC and the reference tariff being allowed through current PAR being lower than the average power purchase cost, will be in the interest of consumers.





21. Order

In pursuance of the Regulation 4(1) of the NEPRA Interim Power Procurement (Procedure & Standards) Regulations 2005, K-Electric Limited is granted permission for power acquisition from Al-Abbas Sugar Mills Limited on take and pay basis. K-Electric is directed to submit its proposed Power Acquisition Contract to be executed with Al-Abbas Sugar Mills Limited for approval of the Authority as required under the IPPRs 2005.

22. Reference Tariff Table

Tariff Table								
Component	FCC	Ash Removal	Var. O&M	Fixed O&M	Cost of W/C	Insurance	ROI	Total Tariff Rs. /kWh
Rate (Rs. / kWh)	7.2773	0.2200	0.2000	0.5932	0.1997	0.0403	0.9202	9.4506

23. The above mentioned reference tariff is required to be adjusted on the first date of supply of Electric Power by Al-Abbas Sugar Mills Limited to K-Electric as per the indexation / adjustment mechanism provided hereunder.

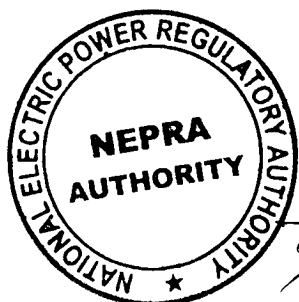
24. Tariff Adjustments / Indexations

The reference tariff is subject to following adjustments / indexations:

24.1 Fuel Cost component

24.1.1 Fuel Cost component will be adjusted on monthly basis, based on the weighted average cost of the opening stock plus purchases made till the month immediately preceding the invoice month. The purchase price of coal will be the price as per Richard Bay (South Africa)-API-4 index FOB of the date of purchase plus marine insurance at 0.10% of FOB price and all other costs including inland transportation at 10.00% of FOB price. For the purpose, the Power Producer shall furnish a monthly coal usage and coal procurement statement.

24.1.2 Marine freight shall be charged at actual based on shipper's invoice.





24.2 Adjustment on Account of Inflation

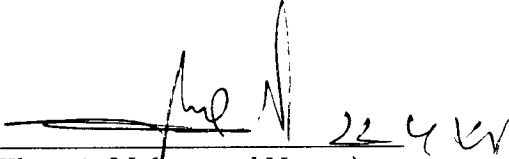
24.2.1 Ash Removal, Variable O&M and Fixed O&M Cost Components, will be adjusted on latest available information with respect to CPI (General) as notified by FBS on quarterly basis. Reference CPI for this indexation will be 195.57 as of March 2015.

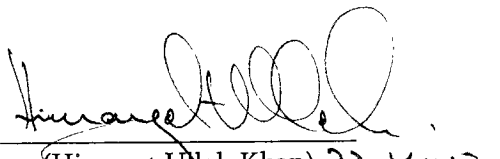
24.2.2 Insurance component will be adjusted annually as per the actual amount of premium paid subject to maximum of 1% of 70% of the total fixed assets value of Rs. 550 million.

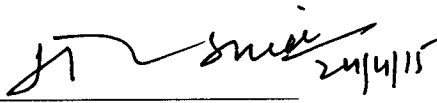
24.2.3 Cost of Working Capital component, will be adjusted on quarterly basis for variation in 3 months KIBOR and weighted average cost of coal inventory.

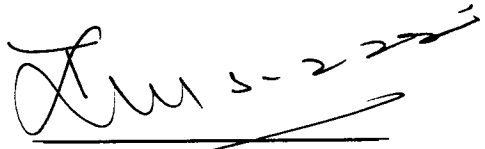
25. The above Order is to be notified in the official gazette in accordance with the provisions of Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act 1997.

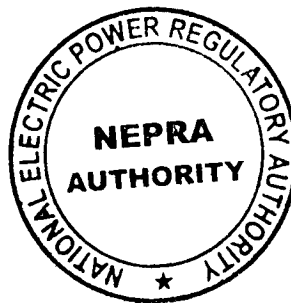
AUTHORITY

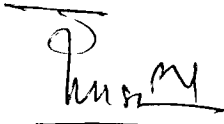

(Khawaja Muhammad Naeem)
Member


(Himayat Ullah Khan) 23.4.15
Member


(Maj. (R) Haroon Rashid)
Vice Chairman


(Brig. (R) Tariq Saddozai)
Chairman
24/4/15




28.04.15