National Electric Power Regulatory Authority
Islamic Republic of Pakistan

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No. NEPRA/PAR-146/KE(FPCL)-2015/7250-52
May 15, 2017

Subject: **Decision on the Motion for Leave for Review against Authority's Decision Dated December 29, 2015 in the matter of granting Permission to K-Electric for Negotiation of Power Acquisition Contract (PAC) with FFBL Power Company Limited for Purchase of 52 MW Power [Case # PAR-146/KE(FPCL)-2015]**

Dear Sir,

Please refer to this office letter No. NEPRA/PAR-146/KE(FPCL)-2015/18265-18267 dated 29.12.2015 whereby Decision of the Authority in the matter of granting Permission to K-Electric for Negotiation of Power Acquisition Contract (PAC) with FFBL Power Company Limited for Purchase of 52 MW Power was communicated to the Federal Government for notification in the official Gazette.

2. Please find enclosed herewith the subject decision of the Authority along with Annex-I & II (18 pages) in the matter of Motion for Leave for Review filed by FFBL Power Company Ltd. against NEPRA's decision dated 29.12.2015.

3. The subject Decision of the Authority 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

15/05/17
(Syed Safeer 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 ON THE MOTION FOR LEAVE FOR REVIEW AGAINST AUTHORITY'S DECISION DATED DECEMBER 29, 2015 IN THE MATTER OF GRANTING PERMISSION TO K-ELECTRIC FOR NEGOTIATION OF POWER ACQUISITION CONTRACT (PAC) WITH FFBL POWER COMPANY LIMITED FOR PURCHASE OF 52 MW POWER

1.0 BACKGROUND

1.1 K-Electric filed a Power Acquisition Request (PAR) for purchase of 52 MW electric power from FFBL Power Company Limited (hereinafter referred to as "FPCL" or the "Petitioner") under the Interim Power Procurement (Procedure & Standards) Regulations, 2005.

1.2 FPCL, a subsidiary of the Fauji Fertilizer Bin Qasim Limited (FFBL) was incorporated to design, construct and operate a co-generation facility based on imported coal within Port Qasim Authority in Karachi, Sindh.

1.3 The Authority, in its decision dated December 29, 2015 (hereinafter referred to as the "Decision"), approved the Power Acquisition Request (PAR) and granted permission to K-Electric to purchase 52 MW power from FPCL and negotiate Power Acquisition Contract (PAC) in this regard.

2 FILING OF REVIEW MOTION

2.1 Being aggrieved of the aforementioned Decision of the Authority, FPCL filed a Motion for Leave for Review on January 26, 2016, which was admitted by the Authority in RM 16 – 112 dated April 13, 2016. The FPCL requested to review the following issues:

- Take & Pay and Take or Pay mechanism
- O&M Cost
- Return on Equity
- Miscellaneous

3 Hearing

3.1 In order to provide opportunity of hearing to the applicant in line with the NEPRA Review Procedure Regulations, 2009, the hearing was scheduled on 21st June 2016 which was attended by the representatives of K-Electric, FPCL, media and other stakeholders.

4 Issue-wise discussion and Decision

4.1 The Petitioner's grounds for filing the Review Motion revolve around the Authority's decision to grant tariff on Take or Pay basis instead of the requested Take and Pay arrangement, Variable O&M, Fixed O&M, ROE and Project Cost. As per regulation 3(2) of the National Electric Power Regulatory Authority (Review Procedure) Regulations, 2009, "any party who is aggrieved from any order of the Authority and who, from the discovery of new and important matter of evidence or on account of some mistake or error apparent on the face of record or from any other sufficient reasons, may file a motion seeking review of such order". Therefore, while

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deciding the review motion, the afore-referred regulation has to be kept in mind and the grounds of the Review Motion which do not fulfill the requirements of the said regulation cannot be considered. Issue wise discussion, analysis and decision is as under:

4.2 Take and Pay Arrangement instead of Take Or Pay Mechanism proposed by K-Electric

4.2.1 The Petitioner submitted that the Authority has not appreciated that it is a first of its kind large scale imported coal power project that will sell its output to K-Electric on commercial terms without allocating risk obligations on the Government. The Petitioner further submitted that this project shall encourage competition and inspire confidence among investors. The Petitioner argued that the Authority's aforementioned Decision has not provided the necessary comfort to the Petitioner and the project's lenders who have assumed the commercial risk of developing the project without the key incentives which are typically available with grid-based power projects under the relevant government policies, including Implementation Agreement and Government of Pakistan's Sovereign Guarantee. Since lenders are risk averse, the Petitioner states that the Take and Pay arrangement as opposed to the Take or Pay has made the bankability of the project questionable and in the absence of assured revenue, the project lenders feel unreasonably exposed to risk. The Petitioner submitted that the basis to refuse the request to determine tariff on Take and Pay has not properly been rationalized.

4.2.2 The Petitioner stated that the Authority's claim that the *"system of FFBL and FPCL is common and frequent tripping on account of FFBL system may affect the provision of electricity to the K-Electric which ultimately shall affect the end-consumer on account of non-provision of electricity"* is not technically correct and justified as the tripping of the fertilizer plant will only result in the reduction of power demand from the Petitioner without any implications on the provision of electric power to K-Electric – which will remain uninterrupted. The Petitioner further claimed that Petitioner's systems for FFBL and K-Electric are distinct and separate to each other and provided a single line diagram for the Authority's consideration.

4.2.3 The Petitioner further claimed that the Authority has wrongly attributed that this is a 'co-generation' facility, given the fact that the Petitioner has already filed a licensee proposed modification petition (LPM Petition) seeking that the Petitioner may be designated as a 'generation facility' and the references of it being a co-generation plant/facility may be removed. Therefore, the Petitioner submitted that the Authority's aforementioned Decision may not be read to prejudice the LPM Petition of the Petitioner.

4.2.4 The Petitioner has requested the Authority to consider its request on a non-discriminatory basis, applying the jurisprudence of PSMA tariff petition, which allowed capacity payments through fixed cost obligations to cater the risks associated with project financing and equity. The Petitioner claims that the treatment given to it invariably places the metropolis of Karachi and its consumers in disadvantaged position compared to rest of Pakistan since the potential

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investment will diminish and will be discouraged in absence of critical incentives which are available to NTDC grid based projects and level playing field. It is worth consideration of the Authority that the Petitioner has committed dedicated supply of power to K-Electric and is incurring substantial capital costs to ensure firm availability to K-Electric for dispatch instructions. The Petitioner claims that the Authority's Decision has failed to recognize the prevailing contractual/tariff regime, commercial realities and the fact that it did not provide the requisite comfort to ensure recovery of mandatory payments associated with capacity charge and guaranteed off-take. The Petitioner claimed that the refusal to approve the PAR on take or pay basis undermines the spirit of the contractual and commercial understanding reached between K-Electric and the Petitioner and the learned Authority has exceeded its mandate, inter alia, under Section 32 of the Act and IPPR. The Act requires the Authority to exercise 'minimal regulatory oversight' of the contracts. The Petitioner submitted that the Authority's Decision is not consistent with the requirements of IPPR and follows the tariff determination process similar to 'cost-plus' tariff determination concept. The Petitioner claimed that the Decision unfairly and wrongly discriminates the Petitioner with the projects, which are otherwise similar, but are/were (being) developed under the various power policies of the government. The Petitioner requests that the Authority must not distinguish between the projects on the pretext that some are developed under the policy on take or pay basis. It is imperative that discrimination on the basis of applicable power policy will be against the interest of the Petitioner and will undermine the efforts of the government to alleviate power shortage in the country.

4.2.5 The Authority considered the submissions of the Petitioner and is of the view that the issue has been discussed in details in the original Decision dated 29.12.2015 (Paragraph 16.4& 17.3). The instant tariff has been determined in terms of Section 31(2)(a)(c)&(d) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997. The IPPR does not restrict the Authority for exercising the provisions laid down in the Act and Rules made there-under. The Authority while deciding the matter considered all aspects of the case. The Authority's decision to allow sale of electricity on take and pay was taken in view of the efficiency of the power plant. It would have been unjustified to burden the consumers with a low efficiency project for the entire project life. It is immaterial whether the project is co-generation or simply a generation facility. It has been also observed that the project cost of the FPCL was on higher side as compared to the established benchmarks allowed by the Authority in the case of Upfront tariff for coal based power projects wherein US$ 1.62 Million/MW was allowed for 220 MW power plant along with efficiency of 37% instead of 29% which was proposed by the Company. The Authority also observed that the Company was directed to provide the technical details to establish that due to the tripping in the FFBL system no impact will be made to the K-Electric's system, however, the Company was unable to provide the documentary evidence in support thereof. In view of the aforesaid factors and in order to

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encourage the market to bring more efficient power projects, the Authority decided to allow take and pay mechanism instead of take or pay mechanism.

4.2.6 It is pertinent to mention here that NEPRA (Tariff Standards & Procedure) Rules, 1998 allow tariff on the basis of prudently incurred costs. Further, under the provisions of NEPRA Act, the Authority is required to bring efficiency in the power sector. In view of such provisions, the plants having low efficiency cannot be ensured guaranteed payments on long-term basis. Only those plants that come in the Economic Merit Order should be given dispatch to ensure optimum basket price. Since in the take and pay mechanism, no capacity is committed, therefore, it provides more flexibility to the power producer to sell electric power to more than one buyer, particularly, in view of the envisaged competitive market by the year 2020. Since the Authority has already taken a principle decision that allowing "Take or Pay" arrangement for the plants having efficiency as low as 29.24%, as in the case of the Petitioner, cannot be considered a prudent decision and that too under long-term contracts. The power producer can offer to sell its power to any Bulk Power Consumer at mutually agreed rates which is in line with the section 31(2) of NEPRA Act to bring efficiency in the power sector. In view of the above, the Authority has decided to maintain its earlier decision with respect to take and pay mechanism.

4.3 <u>Variable O&M Cost</u>

4.3.1 The Authority has allowed only 1% coal handling and in-land transportation losses as opposed to the requested losses calculated at 2%. It is worth consideration that coal handling and in-land Transportation involves following activities which cause losses and the requested level of allowable losses needs to be reinstated:

a. Coal loading at Port of Coal Supply;
b. Coal unloading at Port of Coal Discharge;
c. Trucks unloading at Port's Coal Yard;
d. Re-loading of trucks / train at Port for Inland Transportation; and
e. Unloading of Trucks / train at Power Plant Site.

4.3.2 The Authority in its determination dated 26.6.2014 at Paragraph 56(xxi) about coal transportation losses stated that:

"The power producer will be allowed losses on transportation of imported coal up to 2%, whereas on local coal these losses will be allowed up to 1%. If the Coal Supply Agreement caters for the transportation losses in the price, there will be no adjustment in coal pricing on account of transportation losses."

4.3.3 The same has been explained in Review Petition filed by Fazal-e-Akbar & Company on behalf of Asad Umer (Member National Assembly) dated 21-11-2014. The Authority while initiating Suo Moto Review Proceedings in the Fuel Price Adjustment Mechanism Determined in Upfront Coal Tariff decision dated 23.9.2016 stated that:

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"Coal losses shall be calculated at a maximum of 2% on delivered coal price"

4.3.4 In the instant case, 1% of losses were allowed keeping in view the location of the plant. However, keeping in view the submissions of the Company for allowing transportation losses upto 2% in line with other coal power projects, the Authority considers that the petitioner's request in this regard is valid; therefore is being accepted. Accordingly the Authority has decided to allow coal transportation losses maximum of 2%. The Authority further considers that for the purpose of transparency and clarity in the earlier decision for application of upto 2% coal handling and transportation losses, needs to be further clarified. Accordingly the following mechanism has been prescribed in the instant case:

Description	US$ / M.Ton
South Africa	
Coal Price Richards Bay (CP RB)	62.59
Marine Freight (FT m)	13.60
Marine Insurance (MI)	-
Other Charges (OC)	6.26
Discount	-
Coal Price CIF	**82.45**
Coal Losses @ 1% on CIF	0.824
Coal Price after 1% adjustment losses	**83.27**
Inland Freight	2.021
Coal Price with freight	**85.249**
Coal transportation losses @ 2% on coal price	0.853
Total Coal Price with above losses	**86.148**
Heat Rate (HR) (29.24% Net LHV)	11,672.37
heating Value Richards Bay (HV RB)	23,512
PkR to US$ currency exchange rate	102.40
Fuel Cost Component with transportation losses - Rs./kWh	**4.3792**
Fuel Cost Component without above losses:	**4.2939**

Note-1: The reference price is subject to adjustment as per actual in accordance with the prescribed mechanism laid down in the Order of the decision.

Note-2: In case the coal handling and transportation losses are part of the Fuel Supply Agreement (FSA) then there will be no adjustment on this account.

4.4 <u>Fixed O&M</u>

4.4.1 The Authority allowed 0.3731/kWh to the FPCL after indexing the original Upfront allowed fixed O&M of Rs.0.3612/kWh. The Petitioner requested to allow Rs. 0.4971/kWh. In respect of the fixed O&M cost, the Petitioner claims that fixed cost does not have linear relationship and does not vary in direct proportion to the capacity. The smaller the size of the project, the

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higher per unit fixed O&M cost will be incurred. Therefore, the Petitioner has requested that the Authority may allow the O&M cost as originally requested.

4.4.2 The Authority considered the submission of the Petitioner, available information/documents and costs allowed in other similar projects. Having considered the submissions of the Petitioner, the Authority is of the view that being smaller size of the power plant the allowed fixed O&M needs to be reviewed. Accordingly the Authority has assessed Rs.183.49 million per annum on account of fixed O&M. Considering the same reasonable, fixed O&M component has been works out as Rs. 0.2225/kWh as foreign component and Rs.0.2514/kWh as local component. The same is allowed to the Petitioner.

4.5 <u>Return on Equity</u>

4.5.1 The Petitioner claimed that contrary to the established practice of the Authority of calculating the equity returns on ROE basis, which is also reflected in the upfront tariff determination, the Authority has in its Decision, adopted the calculation of returns on IRR basis. The Petitioner has submitted that the Authority may consider the calculation of returns by offering level playing basis and allow the treatment and rates consistent with upfront tariff.

4.5.2 The Authority in case of Upfront Tariff power projects allowed 17% IRR to imported coal based power projects. In the instant case the same IRR has been allowed. The applicant is justifying its claim in shape of ROE which entirely depends upon the period of construction of the power plant. Since the power project has 24 month construction period, therefore, the ROE has been calculated accordingly. In view thereof the submissions of the applicant being without any basis are therefore not accepted.

4.6 <u>Project Cost</u>

4.6.1 The Authority, in the Decision has allowed EPC cost of US$ 80.68 million as against the cost of US$ 91.80 million claimed by the Petitioner. The Petitioner claimed that the reduction of EPC cost by US$ 11.12 million is not supported on sound reasons. The Petitioner has also highlighted the fact that it has deliberately not claimed the costs associated with water supply, project site (land), reverse osmosis (RO) plant etc. The Petitioner submitted that the Authority's Decision unreasonably deprives the Company from recovering its legitimate and prudent costs validly incurred by it. Notwithstanding the aforesaid, the Petitioner has decided to restrict this Review Petition on limited grounds set out in this Petition, rather than seeking the reinstatement of the same in order to demonstrate its commitment and good faith so as to enable the Authority to favorably consider the request of the Petitioner.

4.6.2 The matter has been discussed in detail in the original decision dated 29.12.2015. The project cost requested by the FPCL is on higher side which has been rationalized to US$ (million) 1.75/MW instead of US$ (Million) 1.97 / MW requested in the original request. The Authority

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has to ensure that claimed costs were incurred prudently. Furthermore, the higher cost has not been reflected in term of output / efficiency which will benefit the end-consumers. In terms of Section 7(6) of the NEPRA Act, the NEPRA has to protect the interests of the end-consumers. Since the project was entirely conceived on commercial basis keeping in view the petitioner's own requirements, therefore, the higher cost on this account as claimed cannot be considered as prudent. In view thereof, the Authority has decided to maintain its earlier decision in this regard.

4.7 <u>Economic Dispatch Order</u>

4.7.1 While approving the PAR of K-Electric, the Authority decided to allow the tariff on economic dispatch order. K-Electric requested the Authority that as per Grid Code the economic dispatch order is one of the element whereas the grid constraints, demand/supply is the others, which need to be kept in view while evacuating the power. K-Electric requested the Authority to review the economic dispatch order decision in light of the NEPRA Grid Code. K-Electric further submitted that whether the economic dispatch order will be on entire per unit basis of EPP basis. The submissions of K-Electric are as under:

i. The calculation of the Merit Order Dispatch should include the CPP in addition to EPP for FPCL as the tariff is on a "Take & Pay" basis.
ii. The calculation of the Merit Order Dispatch should also include the Charges for Water cost, ash disposal and limestone as set out in the tariff.
iii. Despite FPCL being in the Merit Order Dispatch, KE should be entitled not to dispatch if it is to comply with the terms of the Grid Code, in particular the scheduling and dispatch codes set out thereunder. If KE is required to make any capacity payments to FPCL, in an event where non-dispatch by KE results from its compliance with the grid code, then KE should be entitled to pass the same to the end-consumers.

4.7.2 The Authority considers that the economic dispatch order criteria has been defined in the Grid Code, therefore, the same has to be followed. The Authority considers that economic dispatch order criteria is on the basis of EPP as laid down in the Grid Code. In order to ensure transparency in line with national grid, the K-Electric shall convey the merit order to the IPPs in advance.

4.7.3 The Authority also considered the request of the K-Electric for allowing capacity charges as pass through in view of the grid code. In NTDC's system the independent system operator record / justifies its operation as and when the economic merit order is not followed due to other parameters as defined in the NEPRA Grid Code. The Authority considers that in case of K-Electric, since its system is integrated wherein generation, transmission and distribution is controlled by it, therefore, absence of an independent system operator may result in a non-transparent dispatch of power plants. Consequently it will be difficult to confirm the veracity

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of any constraints as may be claimed by KE under the relevant provisions of Grid Code. Keeping in view the conflict of interest in absence of independent system operator, the Authority considers that the KE's request on the subject issue cannot be accepted. In view thereof the Authority has decided to maintain its earlier decision.

5. <u>Order</u>

I. The Authority has decided to approve the Power Acquisition Request (PAR) and grant permission to K-Electric for negotiating the Power Acquisition Contract (PAC) for purchase of 52 MW power from the FFBL FPCL along with the following tariff which shall be incorporated in the draft PAC:

Description	Rs./kWh		As per Power Policy
Energy Charge Variable O&MW	1-10 Years	11-30 Years	Indexation / Adjustments
• Fuel cost	4.2939	4.2939	Subject to fuel price variation with adjusted losses at 1% on CIF and 1% with local transportation as per prescribed mechanism (if not included in FSA)
• Foreign	0.0811	0.0811	US$ / PKR & US CPI
• Local	0.0121	0.0121	Local CPI
• Water Cost	0.1590	0.1590	Subject to actual based on documentary evidence
• Ash Disposal	0.1753	0.1753	Subject to actual
• Limestone	0.0897	0.0897	
Total Energy Charge	4.8111	4.8111	
Capacity Charge			
Fixed O&M: Foreign	0.2225	0.2225	US$ / PKR & US CPI
Local	0.2514	0.2514	Local CPI
Working Capital	0.2351	0.2351	KIBOR + 2%
Insurance	0.2134	0.2134	
ROE	1.3447	1.3447	US$ /PKR
Debt Servicing	3.7122	-	KIBOR
Total Capacity Charge @ 85% plant factor	5.9793	2.2671	
Total Tariff Levelized	10.7904	7.0782	

i) The tariff has been calculated on the basis of net capacity of 52 MW and annual generation @ 85% plant factor of 387.19 GWh. The net capacity is subject to adjustment at the time of COD as per IDC test. In case the net capacity is established higher than the minimum capacity, the

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relevant tariff components shall be adjusted accordingly. However, no adjustment is allowed in case the net capacity is established less than minimum net capacity of 52 MW.

ii) *The above tariff is applicable for the period of 30 years on BOO basis commencing from the date of Commercial Operate Date (COD)*

iii) *Debt Service shall be paid in the first 10 years of commercial operation of the plant or 387.192 GWh whichever is earlier.*

iv) *The sole criterion for dispatch of all the coal based power plants shall be the "merit order dispatch". The Seller shall be entitled for the capacity charge in case it falls in the merit order and K-Electric did not procure power from the Seller. The Capacity Charge on this account shall be borne by the K-Electric.*

v) *The dispatch criterian shall be Energy Purchase Price.*

vi) *Thermal efficiency has been taken as 29.24% flat over the project life.*

vii) *Financial charges will be adjusted at COD on the basis of actual subject to the maximum of 3% of the total debt allowed on production of verifiable documentary evidence.*

viii) *Return on Equity (ROE) including Return on Equity During Construction (ROEDC) will be adjusted at COD on the basis of actual equity injections and PKR/US$ exchange rate variation (within the overall equity allowed by the Authority at COD) during the project construction period allowed by the Authority.*

ix) *The component-wise tariff is attached as Annex-I. The debt service schedule is attached as Annex-II.*

x) *The 1-10 years tariff in US Cents is 10.5375/kWh and for 11-30 years is US Cents 6.9123/kWh. The levelized tariff in US Cents is 9.2753/kWh.*

II. The following indexation shall be applicable to the tariff;

i) One Time Adjustment

The tariff has been calculated on the basis of net capacity of 52 MW and annual generation @ 85% plant factor of 387.19 GWh. The net capacity is subject to adjustment at the time of COD as per IDC test to be carried out for determination of the contracted capacity. In case the net capacity is established higher than the minimum capacity, the relevant tariff components shall be adjusted accordingly. However, no adjustment is allowed in case the net capacity is established less than minimum net capacity of 52 MW.

ii) Cost of Debt

The total amount has been assumed as 75% of the total project cost. Debt service component of tariff has been based on 100% local financing.

iii) Interest During Construction

Interest During Construction has been estimated as PKR 1142.71 million. This will be adjusted at COD on account of actual variation in interest on the basis of actual drawdown for the period of 24 months of project construction period. The power producer shall submit the relevant documents to the K-Electric on onward submissions to NEPRA for adjustment of the relevant components.

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iv) Customs Duties, Cess and Withholding Tax

Customs duties & cess @ 5.95% of the 66.75% of the capital cost has been assumed in the project cost which will be adjusted at the time of COD on actual basis. Withholding tax directly imposed on the EPC contractor during the construction period shall be subject to adjustment based on verifiable documents at the time of COD. Withholding tax on dividends shall not be a pass through item.

v) Adjustment of Rupee / Dollar Parity

The relevant tariff components shall be adjusted on account of actual variation of Rupee / US$ parity over the reference Rs. 102.4 /US$.

a.) Adjustment in Insurance as per Actual

The actual insurance cost for the minimum cover required under the contractual obligations with the Power Purchaser not exceeding 1% of the EPC cost will be treated as pass-through item. Insurance component of reference shall be adjusted as per actual on yearly basis upon production of authentic documentary evidence by the power producer according to the following formula:

$$\text{Insurance}_{(Adj)} = \text{AIC} / P_{(Ref)} * P_{(Act)} / 102.4 * ER_{(Rev)}$$

Where:

AIC	=	Adjusted insurance component (Rs./kWh) as per IDC test
$P_{(Ref)}$	=	Reference premium US$ 0.81 million
$P_{(Act)}$	=	Actual premium or 1% of the adjusted EPC whichever is lower
$ER_{(Rev)}$	=	The revised TT & OD selling rate of US$ as notified by the National Bank of Pakistan at invoice date.

b) Return on Equity

The return on equity shall be adjusted on account of actual variation in PKR / US$ parity, actual equity drawdown and IDC test, at the time of COD. The indexation shall be made according to the following formula:

$$ROE_{(Rev)} = ROE_{(Ref)} * ER_{(Rev)} / 102.4$$

Where:

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

III. Pass Through Items

In case the company is obligated to pay any tax on its income from generation of electricity, or any duties and/or taxes, not being of refundable nature, are imposed on the company, the exact

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amount paid by the company on these accounts shall be reimbursed on production of original receipts. This payment shall be considered as a pass-through payment spread over a period of twelve months. Furthermore, in such a scenario, the company shall also submit to the power purchaser details of any tax savings and the power purchaser shall deduct the amount of these savings from its payment to the company on account of taxation. However, withholding tax on dividend will not be passed through.

IV. Indexation

The following indexation shall be applicable to the tariff:

a) Indexation applicable to O&M

The foreign component of fixed O&M shall be adjusted with US CPI notified by US Bureau of Labour Statistics and revised TT & OD selling rate of US$ rate notified by National Bank of Pakistan. The local component of fixed O&M shall be adjusted with local CPI notified by Pakistan Bureau of Statistics. The fixed O&M shall be adjusted on quarterly basis on 1st July, 1st October, 1st January & 1st April of the Financial Year on the basis of available information with respect to exchange rate, US CPI and local CPI. The mode of indexation will be as under:

<u>Fixed O&M</u>

Fixed O&M $_{(FRev)}$	=	Rs. 0.2225/kWh * US CPI $_{(Rev)}$ / 236.15 * ER $_{(Rev)}$ / 102.4
Fixed O&M $_{(LRev)}$	=	Rs. 0.2514/kWh * CPI $_{(Rev)}$ / 198.80

Where:

Fixed O&M $_{(FRev)}$	=	the revised fixed O&M foreign component of tariff
Fixed O&M $_{(LRev)}$	=	the revised fixed O&M local component of tariff
CPI $_{(Ref)}$	=	the reference CPI of 198.80 notified by Pakistan Bureau of Statistics for the month of November 2014
CPI $_{(Rev)}$	=	the revised CPI notified by Pakistan Bureau of Statistics
US CPI $_{(Ref)}$	=	the reference US CPI of 236.15 notified by US Labour Bureau & Statistics (All Urban Consumers) for the month of November 2014
US CPI $_{(Rev)}$	=	the revised US CPI notified by US Labour Bureau & Statistics (All Urban Consumers)
ER $_{(Ref)}$	=	PKR / US$ exchange rate of 102.4
ER $_{(Rev)}$	=	The revised TT & OD selling rate of US$ as notified by the National Bank of Pakistan at invoice date.

Note: The reference numbers shall be revised based on the revised numbers after incorporating the required adjustment at COD.

<u>Variable O&M</u>

Fixed O&M $_{(FRev)}$	=	Rs. 0.0811/kWh * US CPI $_{(Rev)}$ / 236.15 * ER $_{(Rev)}$ / 102.4
Fixed O&M $_{(LRev)}$	=	Rs. 0.0121/kWh * CPI $_{(Rev)}$ / 198.80

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Where:

Fixed O&M (FRev)	=	the revised fixed O&M foreign component of tariff
Fixed O&M (LRev)	=	the revised fixed O&M local component of tariff
CPI (Ref)	=	the reference CPI of 198.80 notified by Pakistan Bureau of Statistics for the month of November 2014
CPI (Rev)	=	the revised CPI notified by Pakistan Bureau of Statistics
US CPI (Ref)	=	the reference US CPI of 236.15 notified by US Labour Bureau & Statistics (All Urban Consumers) for the month of November 2014
US CPI (Rev)	=	the revised US CPI notified by US Labour Bureau & Statistics (All Urban Consumers)
ER (Ref)	=	PKR / US$ exchange rate of 102.4
ER (Rev)	=	The revised TT & OD selling rate of US$ as notified by the National Bank of Pakistan at invoice date.

Note: The reference numbers shall be revised based on the revised numbers after incorporating the required adjustment at COD. The Ash, lime stone and water charges shall be adjusted as per actual.

V. <u>Adjustment for KIBOR variation</u>

The interest part of fixed charge component shall remain unchanged throughout the term except for the adjustment due to variation in interest rate as the result of variation in quarterly KIBOR according to the following formula:

$\Delta I_{(L)}$ = $P_{(LRev)} * (KIBOR_{(Rev)} * 10.10\%) / 4$

Where:

$\Delta I_{(L)}$	=	the variation in interest charges on local loan applicable corresponding to variation in quarterly KIBOR. $\Delta I_{(L)}$ can be positive or negative depending upon whether KIBOR (Rev) > or < 10.10%. The interest payment obligation will be enhanced or reduced to the extent of $\Delta I_{(L)}$ for each quarter under adjustment applicable on quarterly basis.
P (Rev)	=	In the outstanding principal (as indicated in the attached debt service schedule to this order) on a quarterly basis on the relevant quarterly calculations date. Period 1 shall commence on the date on which the 1st installment is due after availing the grace period.

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VI. Cost of Working Capital

Cost of Working Capital at the time of COD, shall be adjusted for actual payment terms agreed in the PPA and Coal Supply Agreement and fuel prices. Thereafter, the cost of working capital shall be adjusted quarterly for variation in KIBOR and fuel prices only.

VII. Fuel Price Variation

The cost of fuel is a pass through item and is variable with dispatch. The Fuel Cost Component is calculated using the delivered coal price at the coal yard, the heating value of coal and the plant heat rate. As a matter of reference the figures indicated by the FFBL Power Company Limited has been taken which are given hereunder:

Description	US$ / M.Ton
South Africa	
Coal Price Richards Bay (CP RB)	62.59
Marine Freight (FT m)	13.60
Marine Insurance (MI)	-
Other Charges (OC)	6.26
Discount	- -
Coal Price CIF	82.45
Coal Losses @ 1% on CIF	0.824
Coal Price after 1% adjustment losses	83.27
Inland Freight	2.021
Coal Price with freight	85.249
Coal transportation losses @ 2% on coal price	0.853
Total Coal Price with above losses	86.148
Heat Rate (HR) (29.24% Net LHV)	11,672.37
heating Value Richards Bay (HV RB)	23,512
PKR to US$ currency exchange rate	102.40
Fuel Cost Component with Losses- Rs./kWh	4.3792
Fuel Cost Component without above losses:	4.2939

- *The reference price is subject to adjustment as per actual in accordance with the prescribed mechanism laid down in the Order of the decision.*
- *In case the coal handling and transportation losses are part of the Fuel Supply Agreement (FSA) then there will be no adjustment on this account.*
- *Marine Insurance will be allowed at 0.1% of the CFR price or actual whichever is lower. For this purpose the Petitioner shall submit all the relevant documents, including insurance invoice, etc.*

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- *Other Charges shall include port/terminal charges, L/C charges, common jetty cost if any etc. This shall be adjusted on actual based on the submission of authentic documentary evidence.*
- *The Petitioner will have the option to procure coal from these loading regions, i.e. South Africa, Australia and Indonesia. In this regard fuel cost component shall be adjusted based on actual weightage. In the instant case, fuel price adjustment mechanism based on South African coal has been prescribed*
- *The Petitioner shall ensure a minimum calorific value of coal of 5500 kCal/kg (NAR). Argus's ICI-2 (which is already benchmark for a coal CV of 5500kCal/kg NAR) or equivalent index shall be used, provided that the index is transparent and liquid.*
- *The pricing mechanism shall be reviewed after three years when the actual coal price, quality, quantity, source, etc., data is available. It can be reviewed earlier if it is noted that current mechanism leads to a coal price that is unrealistic and detrimental to both the interest of consumers and the project sponsors.*
- *Bill of lading will be used as date of coal procurement.*

During the tariff period the fuel cost shall be calculated according to the following formula on monthly basis:

<u>Fuel Cost Component (South African Coal)</u>

$$FCC = \left(\left(\left(CP_{(RB)} + Ft_{(M)} + MI + OC - \text{Discount} + Ft_{(Inland)} \right) \times \frac{HR/}{HV_{(RB)}} \right) \times FC_{(Exch)} \right)$$

$CP_{(RB)}$	=	Actual Weighted Average Richard Bay (South Africa) Coal Prices (CP) in US$/kg on the basis of Opening Inventory of coal and purchases of coal till the month immediately preceding the invoice month indicated in Argus/McCloskey's Coal Price Index (API 4) 6000 kCal/kg NAR
$HV_{(RB)}$	=	Actual Weighted Average Heating Value (HV) (LHV) in Btu/kg of the coal imported from South Africa
HR	=	Heat Rate in Btu/kWh
$Ft_{(M)}$	=	Actual marine freight computed on the basis of approved mechanism in US$/kg
OC	=	Other Charges to include all port and terminal charges etc. in US$/kg
MI	=	Marine Insurance in US$/kg
$FC_{(Exch)}$	=	Average PKR to US$ exchange rate for the month
$Ft_{(Inland)}$	=	Inland Freight expressed in Rs/kg

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VIII. Losses on Transportation of Coal

The power producer will be allowed losses on coal handling, transportation of imported / local coal up to 2%. If the Coal Supply Agreement caters for the transportation losses in the price, there will be no adjustment in coal pricing on account of transportation losses.

IX. <u>Monitoring Mechanism for the use of coal fuel</u>

The Power Producer shall furnish a monthly coal usage and coal procurement statement duly verified and certified by the power purchaser or through internationally recognized reputable third party firm for each month, along with the monthly energy bill. The statement shall cover details such as –

- Quantity of fuel (tons) consumed and procured for each source along with heating value during the month for power generation purposes,
- Cumulative quantity (tons) of coal consumed and procured till the end of that month during the year source wise,
- Actual (gross and net) energy generation (denominated in units) during the month,
- Cumulative actual (gross and net) energy generation (denominated in units) until the end of that month during the year,
- Opening fuel stock quantity (tons),
- Receipt of fuel quantity (tons) at the power plant site and
- Closing fuel stock quantity (tons) for available at the power plant site.

X. <u>Definitions and Interpretations</u>

i. "Auxiliary energy consumption" means the quantum of energy consumed by auxiliary equipment of the generating facility, and transformer losses within the generating facility, expressed in Megawatts as well as in percentage of the sum of gross output at the generator terminals of all the units of the generating plant;

ii. "Capital cost" means the cost of all capital work including plant and machinery, civil work, erection and commissioning and evacuation infrastructure up to inter-connection point;

iii. "Design Coal" means the ideal type of coal or fuel that is selected to be used during performance testing of steam generators in power plant engineering;

iv. "Grace Period" means a period equivalent to the construction period of the coal project.

v. "Installed capacity" means the summation of the name plate capacities of all the units of the generating facility or the capacity of the generating facility (reckoned at the generator terminals), approved by the Authority from time to time as indicated in the generation license;

vi. "Inter-connection Point" shall mean interface point of energy generating facility with the transmission system or distribution system, as the case may be:

vii. "Operation and maintenance expenses" or 'O&M expenses' means the expenditure incurred on operation and maintenance of the project, or part thereof, and includes the expenditure on manpower, repairs, spares, consumables and overheads;

viii. "Project" means a generating facility or the evacuation system up to inter-connection

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point;

ix. "Tariff period" means the period from date of commercial operation.

x. 'Useful Life' in relation to a unit of a generating facility including evacuation system shall mean the period during which the generating facility including evacuation system is expected to be usable for the purpose of generating electricity from the date of commercial operation (COD) of such generation facility, namely coal based power project is 30 years;

xi. "Year" means a period of 12 months.

xii. All plant and equipment shall be new and shall be designed, manufactured and tested in accordance with the acceptable standards.

xiii. The verification of the new machinery will be done by the independent engineer at the time of the commissioning of the plant duly verified by the power purchaser.

xiv. Taxes and duties on the import of plant & machinery during the construction period have been included in the project cost and shall be adjusted on actual at the time of COD on the basis of verifiable documentary evidence.

xv. General assumptions, which are not covered in this determination, may be dealt with as per the standard terms of the Power Purchase Agreement.

xvi. The PPA executed shall be consistent with all applicable documents including Generation License and NEPRA's tariff determination for the power producer. Any provision of PPA which is inconsistent with NEPRA's tariff determination shall be void to that extent and its financial impact shall not be passed on to the end-consumers.

XI. The above tariff shall be incorporated in the Power Acquisition Contract (PAC) between the K-Electric and Seller i.e. FFBL FPCL.

AUTHORITY

24/1/17

(Major (R) Haroon Rashid)
Member

(Syed Masood-ul-Hassan Naqvi)
Member

20.1.17

(Himayat Ullah Khan)
Vice Chairman

(Brig. (R) Tariq Saddozai)
Chairman

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26.01.17

FFBL Power Company Limited - 52 MW Coal Based Generation Power Plant

Annex - 1

Year	Energy Purchase Price (Rs./kWh)							Capacity Purchase Price (Rs./kW/h)								[illegible]	[illegible]
	Coal Component*	Ash Disposal	Lime Stone	Var. O&M Foreign	Var. O&M Local		Total EPP	Fixed O&M Local	Fixed O&M Foreign	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	1.0254	2.6868	5.9793	10.7904	10.5375
2	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	1.1721	2.5401	5.9793	10.7904	10.5375
3	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	1.3399	2.3724	5.9793	10.7904	10.5375
4	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	1.5316	2.1806	5.9793	10.7904	10.5375
5	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	1.7508	1.9615	5.9793	10.7904	10.5375
6	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	2.0013	1.7109	5.9793	10.7904	10.5375
7	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	2.2877	1.4246	5.9793	10.7904	10.5375
8	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	2.6150	1.0972	5.9793	10.7904	10.5375
9	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	2.9892	0.7230	5.9793	10.7904	10.5375
10	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	3.4169	0.2953	5.9793	10.7904	10.5375
11	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.0000	0.0000	2.2671	7.0782	6.9123
12	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.0000	0.0000	2.2671	7.0782	6.9123
13	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.0000	0.0000	2.2671	7.0782	6.9123
14	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.0000	0.0000	2.2671	7.0782	6.9123
15	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.0000	0.0000	2.2671	7.0782	6.9123
16	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.0000	0.0000	2.2671	7.0782	6.9123
17	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.0000	0.0000	2.2671	7.0782	6.9123
18	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.0000	0.0000	2.2671	7.0782	6.9123
19	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.0000	0.0000	2.2671	7.0782	6.9123
20	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.0000	0.0000	2.2671	7.0782	6.9123
21	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.0000	0.0000	2.2671	7.0782	6.9123
22	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.0000	0.0000	2.2671	7.0782	6.9123
23	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.0000	0.0000	2.2671	7.0782	6.9123
24	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.0000	0.0000	2.2671	7.0782	6.9123
25	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.0000	0.0000	2.2671	7.0782	6.9123
26	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.0000	0.0000	2.2671	7.0782	6.9123
27	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.0000	0.0000	2.2671	7.0782	6.9123
28	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.0000	0.0000	2.2671	7.0782	6.9123
29	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.0000	0.0000	2.2671	7.0782	6.9123
30	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.0000	0.0000	2.2671	7.0782	6.9123
Average																	
1-10	4.2939			0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	2.0130	1.6992	5.9793	10.7904	10.5375
11-30	4.2939			0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.0000	0.0000	2.2671	7.0782	6.9123
1-30	4.2939			0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	0.6710	0.5664	3.5045	8.3156	8.1207
Levelized																	
1-30	4.2939	0.1753	0.0897	0.0811	0.0121	0.1590	4.8111	0.2514	0.2225	0.2351	0.2134	1.3447	1.1827	1.2370	4.6868	**9.4979**	**9.2753**

* Without coal transportation losses

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FFBL Power Company Limited - 52 MW Coal Based Generation Power Plant

Gross Capacity	58.000	MWs	US$/PKR Parity		102.40	
Net Capacity	52.000	MWs	Equity	25%	2,598.04	PKR Million
KIBOR	10.10%		Debt	75%	76.11442	US$ Million
Spread over KIBOR	3.50%		Debt in Pak Rupees		7,794.12	PKR Million
Total Interest Rate	13.60%					

Period	Principal Million PKR	Principal Repayment Million PKR	Interest Million PKR	Balance Million PKR	Debt Service Million PKR	Principal Repayment Rs./kWh	Interest Rs./kWh	Debt Servicing Rs./kWh
1	7,794.12	94.34	265.00	7,699.78	$359.34			
2	7,699.78	97.54	261.79	7,602.24	359.34			
3	7,602.24	100.86	258.48	7,501.38	359.34			
4	7,501.38	104.29	255.05	7,397.09	359.34	1.0254	2.6868	3.7122
1st Year		397.03	1,040.32		1,437.35			
5	7,397.09	107.84	251.50	7,289.25	359.34			
6	7,289.25	111.50	247.83	7,177.75	359.34			
7	7,177.75	115.29	244.04	7,062.46	359.34			
8	7,062.46	119.21	240.12	6,943.24	359.34	1.1721	2.5401	3.7122
2nd Year		453.84	983.50		1,437.35			
9	6,943.24	123.27	236.07	6,819.98	359.34			
10	6,819.98	127.46	231.88	6,692.52	359.34			
11	6,692.52	131.79	227.55	6,560.73	359.34			
12	6,560.73	136.27	223.06	6,424.46	359.34	1.3399	2.3724	3.7122
3rd Year		518.79	918.56		1,437.35			
13	6,424.46	140.90	218.43	6,283.55	359.34			
14	6,283.55	145.70	213.64	6,137.86	359.34			
15	6,137.86	150.65	208.69	5,987.21	359.34			
16	5,987.21	155.77	203.57	5,831.44	359.34	1.5316	2.1806	3.7122
4th Year		593.02	844.32		1,437.35			
17	5,831.44	161.07	198.27	5,670.37	359.34			
18	5,670.37	166.54	192.79	5,503.82	359.34			
19	5,503.82	172.21	187.13	5,331.62	359.34			
20	5,331.62	178.06	181.27	5,153.56	359.34	1.7508	1.9615	3.7122
5th Year		677.88	759.47		1,437.35			
21	5,153.56	184.12	175.22	4,969.44	359.34			
22	4,969.44	190.38	168.96	4,779.06	359.34			
23	4,779.06	196.85	162.49	4,582.22	359.34			
24	4,582.22	203.54	155.80	4,378.68	359.34	2.0013	1.7109	3.7122
6th Year		774.88	662.47		1,437.35			
25	4,378.68	210.46	148.87	4,168.21	359.34			
26	4,168.21	217.62	141.72	3,950.60	359.34			
27	3,950.60	225.02	134.32	3,725.58	359.34			
28	3,725.58	232.67	126.67	3,492.91	359.34	2.2877	1.4246	3.7122
7th Year		885.76	551.58		1,437.35			
29	3,492.91	240.58	118.76	3,252.34	359.34			
30	3,252.34	248.76	110.58	3,003.58	359.34			
31	3,003.58	257.21	102.12	2,746.36	359.34			
32	2,746.36	265.96	93.38	2,480.40	359.34	2.6150	1.0972	3.7122
8th Year		1,012.51	424.84		1,437.35			
33	2,480.40	275.00	84.33	2,205.40	359.34			
34	2,205.40	284.35	74.98	1,921.05	359.34			
35	1,921.05	294.02	65.32	1,627.03	359.34			
36	1,627.03	304.02	55.32	1,323.01	359.34	2.9892	0.7230	3.7122
9th Year		1,157.39	279.95		1,437.35			
37	1,323.01	314.35	44.98	1,008.66	359.34			
38	1,008.66	325.04	34.29	683.61	359.34			
39	683.61	336.09	23.24	347.52	359.34			
40	347.52	347.52	11.82	(0.00)	359.34	3.4169	0.2953	3.7122
10th Year		1,323.01	114.34		1,437.35			

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