National Electric Power Regulatory Authority
Islamic Republic of Pakistan

Registrar

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No.NEPRA/TRF-210/SEPL-2012 /2176-2178
March 5, 2014

Subject: **Decision of the Authority in the matter of Motion for Leave for Review filed by SAR Energy (Pvt.) Ltd. against the Authority's Decision Dated <u>February 8, 2013 [Case No.NEPRA/TRF-210/SEPL-2012]</u>**

Dear Sir,

Please find enclosed herewith the subject Decision of the Authority along with Annexure-I, II (27 pages) in Case No. NEPRA/TRF-210/SEPL-2012.

2. The Determination is being intimated to the Federal Government for the purpose of notification of the approved tariff in the official gazette pursuant to Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997) and Rule 16(11) of the National Electric Power Regulatory Authority Tariff (Standards and Procedure) Rules, 1998.

3. Please note that Order of the Authority's Decision along with reference tariff table and debt service schedule as attached thereto needs to be notified in the official gazette.

Enclosure: <u>As above</u>

05.03.14

(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 OF THE AUTHORITY IN THE MATTER OF MOTION FOR LEAVE FOR REVIEW FILED BY SAR ENERGY (PVT) LTD. AGAINST THE AUTHORITY'S DECISION DATED FEBRUARY 08, 2013 CASE NO. NEPRA/TRF-210/SEPL-2012

BACKGROUND

1. SAR Energy (Pvt.) Limited (hereinafter referred to as the "petitioner") filed a motion for leave for review (hereinafter referred to as the "review motion") under rule 16 (6) of National Electric Power Regulatory Authority (Tariff Standards and Procedures) Rules, 1998 (hereinafter referred to as the "tariff rules") against the decision of the National Electric Power Regulatory Authority (hereinafter referred to as the "Authority") dated February 08, 2013 (hereinafter referred to as the "original decision").

2. Brief facts of the case are that the petitioner had filed a tariff petition under rule 3 of the tariff rules on July 09, 2012 for decision of feasibility stage reference tariff in respect of its 1.30 MW hydropower project envisaged to be set up at Machai Canal, District Mardan, Khyber Pakhtunkhwa. In accordance with sub-rule 3 of rule 4 of the tariff rules, the petition was admitted for hearing by the Authority on August 16, 2012. Consequent to the admission, notice of admission/public hearing was published in the national newspapers on September 07, 2012 inviting thereby all the stakeholders, interested/affected persons or parties to participate in the tariff setting process through filing of comments / intervention requests. Further, in accordance with sub-rule 5 of rule 4 of the tariff rules, the Authority also gave directions for service of notices to the respondents and other parties which in the opinion of the Authority were likely to be affected or interested or may be of assistance to the Authority in arriving at a just and informed decision, for filing comments, replies or communications in opposition or in support of the tariff petition. In accordance with section 7 (5) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 the Authority also sought recommendations of the

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Government of Khyber Pakhtunkhwa on the tariff petition. In response to the aforesaid notices, no intervention request was filed. However, comments were received from the Ministry of Water & Power, Punjab Power Development Board (hereinafter referred to as "PPDB"), Peshawar Electric Supply Company (hereinafter referred to as "PESCO") and National Transmission & Despatch Company Limited (hereinafter referred to as "NTDC") regarding project cost, hydrological data, return on equity, O&M costs, etc. Public hearing in this regard was held on September 26, 2012 at Islamabad, which was attended by the representatives of the petitioner, PHYDO, Ministry of Water & Power, PESCO and various other stakeholders. The Authority after due consideration and on the basis of grounds recorded in the original decision held that the feasibility study submitted by the petitioner was sub-standard and therefore cannot form the basis for a tariff decision. The Authority accordingly dismissed the tariff petition for lack of reliable and necessary information with the direction that the petitioner may file a fresh tariff petition based on a complete and accurate feasibility study in accordance with the law.

3. The petitioner in the review motion has requested that its tariff be determined giving due weight age to small size of the project, time spent on the project development and considering difficulties associated with the projects in troubled areas such as Khyber Pakhtunkhwa. The petitioner has also attempted to clarify the issues identified by the Authority in the original decision and also resubmitted necessary documents and information to substantiate its stance and claimed costs.

PROCEEDINGS

4. In order to determine maintainability or otherwise of the review motion, the Authority decided to hold a preadmission hearing on March 21, 2013. After having heard the petitioner and considering the information and evidence submitted by the petitioner, the Authority admitted the review motion for regular hearing.

5. In accordance with rule 16 (7) of the tariff rules, the Authority considered it just and appropriate to provide an opportunity of hearing to parties to the proceedings. The

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Authority accordingly gave directions for service of notices to the petitioner and other concerned parties for attending the hearing. The hearing earlier scheduled in May 2013 was rescheduled on request of the petitioner. First hearing in this regard was held at NEPRA Office, Islamabad on June 11, 2013 which was attended by the petitioner, representatives of PHYDO, PESCO, Indus River System Authority and other stakeholders. During the hearing the Authority allowed PESCO further time to give its comprehensive comments. Second hearing in this matter was held at NEPRA Office, Islamabad on June 21, 2013 which was attended by the petitioner, representatives of Ministry of Water and Power, PESCO, PHYDO and other stakeholders. PESCO has also filed its comments in writing which have been considered by the Authority.

KEY TECHNICAL AND FINANCIAL INFORMATION SUBMITTED BY THE PETITIONER

6. Summary of the key technical and financial information provided by the petitioner is as follows:

Type of the project	Low head run of the canal hydropower project
Capacity	1.30 MW gross (1.261 MW net)
Annual plant factor	65%
Minimum and maximum head height	4.02 meters and 5.25 meters
Minimum and maximum water discharge	17.68 m^3/s and 40.0 m^3/s
Annual saleable energy generation	7.18 GWh.

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Total project cost	US $ 5.026 million
Debt equity ratio	80 : 20
Debt repayment period	10 years after commercial operations date (hereinafter referred to as "COD")
Interest rate on local loan	KIBOR plus 4.50% per annum equivalent to 15% per annum
Return on equity	22% per annum (IRR based 20.50% net of withholding tax)
Construction period	32 months
Tariff control period	30 years
Project basis	BOOT
Levelized tariff	Rs. 11.6457 / Kwh. US cents 12.7555 / Kwh.
Reference exchange rate	Rs. 91.30 = 1 US$

ISSUES

7. Based on the available information including but not limited to comments of the stakeholders, proceedings of the case, feasibility study and other information submitted by the petitioner following main issues were framed for discussion and consideration by the Authority:

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- Whether or not to admit the review motion and to determine the tariff of the petitioner on the basis of available information?

- Whether the capacity and annual generation claimed by the petitioner are justified?

- Whether the terms and conditions of debt claimed by the petitioner are justified?

- Whether construction period claimed by the petitioner is justified?

- Whether project cost claimed by the petitioner is justified?

- Whether return on equity as claimed by the petitioner is justified?

- Whether O &M costs claimed by the petitioner are justified?

- Whether insurance during operations as claimed by the petitioner is justified?

- Whether water use charges as claimed by the petitioner are justified?

8. Whether or not to admit the review motion and to determine tariff of the petitioner on the basis of available information?

8.1 The Authority noted that the feasibility study presented by the petitioner was substandard and the petitioner failed to respond to Authority queries appropriately. The Authority further observed that it had earlier vide original decision dismissed tariff petition of the petitioner, for lack of reliable and necessary information.

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8.2 The Authority has deliberated on the way forward in this case in detail and has noted that there is merit in pleadings of the petitioner regarding financial and technical resource constraints faced by developers of small hydro power projects. The Authority also observed that the petitioner has requested for grant of feasibility stage tariff and the Authority will have an opportunity to consider the tariff of the petitioner in further detail at the EPC stage, when additional details regarding technical parameters and costs will be available. The Authority also considered that the Government of Sind and PPDB in their comments on the tariff petition had supported the development of hydropower projects. The Authority considers that there is need to promote development of small hydro power projects in the private sector. Keeping in view all the aforesaid facts, the Authority has decided to admit the review motion and to determine tariff of the petitioner on the basis of information available with it.

9. Whether the capacity and annual generation claimed by the petitioner are justified?

9.1 The petitioner has claimed following capacity and annual generation:

Installed capacity	1.30 MW
Auxiliary consumption	0.039 MW
Net capacity	1.261 MW
Annual plant factor	65%
Annual saleable generation	7.180 Gwh.

9.2 The Authority noted that PESCO has raised some concerns regarding the claimed capacity and annual generation. Further, power purchaser will be required to bear hydrological risk for this project. The Authority observed that PESCO needs to suggest the capacity and annual generation to be allowed to the petitioner by the Authority. The Authority hereby directs the petitioner and PESCO to hold consultative meetings in the matter of capacity and annual generation before

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negotiating the power purchase agreement and filing of EPC stage tariff petition. The Authority will take into consideration comments of PESCO regarding capacity and annual generation while finalizing the EPC stage tariff petition.

9.3 The Authority has considered claimed capacity and annual generation of the petitioner and has observed that auxiliary consumption has been claimed @ 3% of installed capacity. The Authority after considering some of the regional benchmarks of auxiliary consumption has decided to allow auxiliary consumption @ 1% of installed capacity to the petitioner. The Authority has also decided to allow plant capacity and annual plant factor as claimed by the petitioner. Accordingly the plant capacity and annual generation allowed by the Authority are as follows:

Installed capacity	1.30 MW
Auxiliary consumption	0.013 MW
Net capacity	1.287 MW
Annual plant factor	65%
Annual generation	7.328 Gwh.

10. <u>Whether the terms and conditions of debt claimed by the petitioner are justified?</u>

10.1 The petitioner has proposed following debt terms:

Debt as a percentage of total project cost	80%
Interest rate	KIBOR + 4.50 %
Debt repayment period	10 years after COD
Repayment basis	Biannual

The petitioner has submitted that it has assumed that all the lending for the project will be arranged locally.

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10.2 PPDB in its comments has submitted that the Authority may fix maximum ceiling of interest rates keeping in view the same allowed in comparable cases. The Authority has considered the proposed debt terms of the petitioner and has noted that the spread of 4.50% over KIBOR requested by the petitioner is unjustified. The Authority has decided to allow maximum spread of 3% over three months KIBOR to the petitioner and to allow debt repayment on quarterly basis. The Authority allows the other terms and conditions of debt detailed above to the petitioner.

11. <u>Whether construction period claimed by the petitioner is justified?</u>

11.1 The petitioner has submitted that construction period of 32 months has been assumed by it as envisaged in the feasibility study. The Authority after considering the timeframe considered reasonable for the construction of small hydro power project of the petitioner, hereby allows the petitioner maximum project construction period of 30 months. The petitioner is hereby directed to try to negotiate shorter construction period with the EPC contractor(s), than the 30 months maximum project construction period allowed by the Authority. The petitioner is directed to submit detail of any liquidated damages, penalties, etc. (by whatever name called), actually recoverable by the petitioner from the EPC contractor(s), pertaining to the construction period allowed by the Authority, for adjustment in the project cost, along with its application for allowing tariff adjustments at the COD. Further, the construction start date should be negotiated by the petitioner with the power purchaser and should be incorporated in the Power Purchase Agreement. The petitioner will be allowed adjustments at the COD for maximum project construction period of 30 months starting from the construction start date stipulated in the Power Purchase Agreement.

12. <u>Whether project cost claimed by the petitioner is justified:</u>

12.1 The petitioner has claimed following project cost:

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	US$ in millions
EPC cost	
Civil works	1.379
Electrical works	0.270
Mechanical works	1.160
Land acquisition and preliminary works	0.219
	3.028
Development cost	1.076
Insurance during construction	0.041
Cost of loan arrangement	0.170
Interest during construction	0.596
Duties and charges	0.114
Total project cost	*5.026*

12.2 EPC cost

12.2.1 The Authority observed that EPC cost per MW claimed by the petitioner works out to US $ 2.329 million and minimum head height claimed by it is 4.02 meters. NTDC in its comments on the tariff petition has submitted that total project cost claimed by the petitioner is on the higher side and needs to be further substantiated by the petitioner. PPDB in its comments on the tariff petition has submitted that the existing benchmarks established by the Authority for other hydro power projects should be considered while allowing EPC cost to the petitioner.

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12.2.2 The Authority observed that data regarding two other hydropower projects located on the same Machai canal is available with it. The Authority has found that it has already allowed US $ 1.937 million per MW CAPEX to hydropower project of Blue Star Energy (Pvt.) Limited in 2008, which was also being developed on the Machai canal, and had a minimum head height of 9 meters as per its feasibility report. Further, Machai hydropower project, another small hydropower project, being built on Machai canal having net head of 7.88 meters has filed a tariff petition before the Authority in which its claimed EPC cost is US $ 3.060 million per MW. The Authority noted that although all these projects are being developed on the same canal i.e. Machai canal, however each project has its own specific dynamics. The Authority after consideration of the bills of quantities included in the feasibility study of the petitioner and comparison on an aggregate basis of the costs allowed to hydropower project of Blue Star Energy (Pvt.) Limited with the petitioner's claim, has decided to allow following EPC cost to the petitioner:

	Foreign component	Local component
	US $ in millions	Rs. in millions
Civil works	-	76.500
Electrical and mechanical works	1.325	-
Land acquisition and preliminary works	-	15.200
	1.325	*91.700*

12.2.3 The total EPC cost allowed by the Authority converted at reference exchange rate of 1 US $ = Rs. 91.30 works out to US $ 2.329 million or US $ 1.792 million per MW.

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12.3 Development cost

12.3.1 The petitioner has provided following break-up of project development cost claimed by it:

	US $ in millions
Pre-qualification	0.033
Feasibility study	0.110
Field investigations	0.030
Employer's office including advisors	0.219
Consultant @ 6% of EPC	0.096
Employer's office	0.591
Total cost	1.076

12.3.2 According to feasibility study of the petitioner all these costs have been classified under local component. The Authority considers the claim of the petitioner to be on the higher side. The Authority has noted that some of the costs have been claimed more than once under different heads e.g. cost of employer's office. The Authority after consideration of such costs allowed to other petitioners has decided that development cost of Rs. 14.50 million (equivalent US $ 0.159 million) be allowed to the petitioner.

12.4 Insurance during construction:

12.4.1 The petitioner has claimed US $ 0.041 million on account of insurance expense during the project construction period. The Authority has in comparable cases allowed insurance during construction with maximum ceiling of 1.35% of EPC cost. Accordingly, the petitioner is allowed US$ 0.031 million on account of pre-COD insurance cost claimed by it. This cost will be subject to adjustment at COD

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on the basis of actual expense, duly verifiable with the relevant supporting documents, up to a maximum limit of 1.35% of the approved EPC cost.

12.5 <u>Cost of loan arrangement:</u>

12.5.1 The petitioner has claimed US $ 0.170 million on account of cost of loan arrangement and has provided following break-up of this cost:

	US $ in millions
Due diligence by lenders	0.055
Registration of documents	0.005
Fees of advisors appointed by lenders	0.110
Total	0.170

The petitioner has requested that this cost may be allowed up to 5% of the loan amount.

12.5.2 PPDB and NTDC in their comments have submitted that the petitioner has claimed financial charges @ 4.2% of the estimated debt portion of the project's capital cost. PPDB has suggested that the already established benchmark of 3% of the total debt as maximum for this cost component may be kept in view for the petitioner as well.

12.5.3 The Authority has considered claim of the petitioner and has observed that the Authority normally allows financial charges up to maximum limit of 3% of the debt (excluding the impact of interest during construction and financial charges). The Authority has accordingly decided to allow financial charges of US $ 0.062 million to the petitioner. These financial charges are subject to adjustment at COD

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on the basis of actual expense, up to a maximum of 3% of the allowed debt (excluding the impact of interest during construction and financial charges), on production of authentic documentary evidence.

12.6 <u>Interest during construction:</u>

12.6.1 The petitioner has claimed an amount of US $ 0.596 million on account of interest during the project construction period (hereinafter referred to as "IDC"). According to the information provided by the petitioner, the IDC has been calculated on the basis of construction period of 30 months at interest rate of 15% per annum (KIBOR of 10.50% plus spread of 4.50%). The terms and conditions allowed by the Authority pertaining to the construction period and interest rate on debt are detailed in earlier parts of this decision. The Authority noted that IDC at this stage is a provisional figure which will vary on account of actual KIBOR, actual debt draw downs, etc. The Authority has accordingly decided to accept the IDC claimed by the petitioner at this stage. The IDC will be adjusted at COD on the basis of actual debt draw downs (within the overall debt allowed by the Authority at COD) and actual interest rates not exceeding the limit of 3 months KIBOR plus 3%, during the project construction period allowed by the Authority.

12.7 <u>Duties and taxes:</u>

12.7.1 The petitioner has requested for allowing duties and charges of US $ 0.114 million and has submitted that under this cost head it has assumed duties on foreign component of EPC @ 5% and port clearance, handling and inland transportation @ 3%.

12.7.2 The Authority has considered request of the petitioner and has observed that port clearance, handling and inland transportation are normally the responsibility of the EPC contractor(s) and has therefore decided not to allow these costs as a part of duties and taxes. Based on foreign component of EPC cost allowed, the Authority has assessed duties and taxes of US $ 0.066 million at this stage. Further,

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adjustment of duties and taxes on actual at COD stage, will be allowed for only those duties and taxes which are imposed on the petitioner. Adjustment of taxes/duties payable on fees/charges, etc. of various third parties, not directly imposed on the petitioner, will not be allowed. The mechanism for adjustment of duties and taxes at actual on COD is detailed in paragraph (I) (d) of the order.

12.8 Recapitulating the approved project cost of the petitioner, the costs under various heads is given hereunder:

	Approved (US $ in millions)
EPC cost	2.329
Development cost	0.159
Insurance during construction	0.031
Cost of loan arrangement	0.062
Interest during construction	0.596
Duties and taxes	0.066
	3.243

13. Whether return on equity as claimed by the petitioner is justified?

13.1 The petitioner has requested for allowing return on equity of 22% per annum and an IRR of 20.50% per annum net after deduction of withholding tax. Ministry of Water & Power, PESCO, NTDC and PPDB have opposed this claim of the petitioner. The Authority has observed that it is allowing 17% return on equity (IRR based) to promote hydro power generation sector. The return on equity allowed to hydro power generation sector is 2% more than the return on equity allowed in the case of thermal power projects. The Authority finds no justification to increase the rate of return on equity of the petitioner and has decided to allow 17% (IRR based) return on equity to the petitioner as has already been allowed to other hydro power projects.

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13.2 The petitioner has also submitted that its proposed project is being developed on BOOT basis and therefore has claimed redemption of equity after the retirement of debt. The Authority has noted that the claim of the petitioner is consistent with the treatment allowed to other hydro power projects and has therefore decided to allow redemption of equity after retirement of debt.

13.3 The Authority has assessed return on equity during construction (hereinafter referred to as "ROEDC") and return on equity after COD on the basis of terms and conditions allowed to the petitioner as detailed in this decision and equity draw down schedule claimed by the petitioner. The ROEDC will be adjusted at COD on the basis of actual equity injections (within the overall equity allowed by the Authority at COD) during the project construction period allowed by the Authority.

14. <u>Whether O &M costs claimed by the petitioner are justified?</u>

14.1 According to the feasibility study submitted by the petitioner, O & M costs have been estimated @ 2% of the project cost with 75% of the resultant O & M cost being considered as fixed and the remaining 25% of the resultant O & M cost being considered as variable. The petitioner has not provided any subdivision of the claimed O & M cost into local component and foreign component. However, the petitioner has requested for allowing indexation of O & M costs as follows:

Local	WPI
Foreign	European CPI/US CPI, PKR/US $ and PKR/Euro

14.2 PPDB in its comments on the tariff petition has requested the Authority to allow O & M costs to the petitioner as per the benchmarks already established by the Authority.

14.3 The Authority after due consideration has decided to allow O & M costs to the petitioner @ 2% of its project cost, excluding interest during construction,

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assessed by the Authority at the feasibility stage. Further, as considered in the feasibility study the Authority has decided to consider 75% of the allowed O & M costs as fixed and 25% of the allowed O & M costs as variable. Moreover, the O & M costs are considered to be local by the Authority. The petitioner in its tariff petition at EPC stage can submit further segregation of O & M costs into local component and foreign component for consideration of the Authority.

15. <u>Whether insurance during operations as claimed by the petitioner is justified?</u>

15.1 The petitioner has claimed US $ 0.409 million per annum as insurance expense in the post-COD 30 years of tariff control period. Moreover the petitioner has requested for allowing indexation of US $ to PKR for this cost.

15.2 In accordance with the established benchmark, the Authority has decided to allow insurance during operations up to 1.35% of the allowed EPC cost. In case of insurance denominated in US $, insurance cost component of tariff will be adjusted on account of US$/PKR exchange rate variation on annual basis. Further, insurance component of the reference tariff will be adjusted as per actually incurred prudent costs, subject to maximum of 1.35% of the EPC cost, on annual basis upon production of authentic documentary evidence by the petitioner.

16. <u>Whether water use charges as claimed by the petitioner are justified?</u>

16.1 In the original petition the petitioner claimed water use charges of Rs. 0.15/kwh, however this claim was withdrawn by the petitioner in the review motion, in accordance with the stipulation in the 'Policy For Hydropower Generation Projects 2006' of Government of Khyber Pakhtunkhwa, that it will not levy any water use charges for the projects up to 50 MW capacity. The Authority after considering the withdrawal of claim of water use charges by the petitioner and abovementioned stipulation of the 'Policy For Hydropower Generation Projects 2006' of Government of Khyber Pakhtunkhwa, has decided not to allow any water use charges to the petitioner.

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ORDER

Pursuant to Rule 6 of the National Electric Power Regulatory Authority Licensing (Generation) Rules, 2000, SAR Energy (Private) Limited (the petitioner) is allowed to charge the following specified/approved tariff for delivery of electricity to the power purchaser:

Tariff Components	Years 1-10 Rs./kWh	Years 11-30 Rs./kWh	Indexation
Fixed charges:			
Fixed O & M local	0.4948	0.4948	WPI
Insurance	0.3918	0.3918	US$/PKR
Debt service	6.2926	-	KIBOR
Return on equity	1.3740	1.4362	US$/PKR
Return on equity during construction	0.2010	0.2010	US$/PKR
Variable charge:			
Variable O&M local	0.1649	0.1649	WPI

i) The reference tariff has been calculated on the basis of net annual benchmark energy generation of 7.328 GWh at annual plant capacity factor of 65% for installed capacity of 1.30 MW.

ii) The above charges will be limited to the extent of net annual energy generation of 7.328 GWh. Net annual energy generation supplied to the power purchaser in a year, in excess of benchmark energy of 7.328 GWh will be charged at 10% of the prevalent approved tariff.

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iii) Payment on account of hydrological risk shall be made by the power purchaser on the basis of benchmark monthly energy generation based on the average historic hydrology for that particular month.

iv) In the above tariff no adjustment for carbon emission reduction receipts, has been accounted for. However, upon actual realization of carbon emission reduction receipts, the same shall be distributed between the power purchaser and the petitioner in accordance with the approved mechanism given in the applicable government policy.

v) The reference PKR/dollar rate has been taken as 91.30.

vi) The above tariff is applicable for a period of thirty years commencing from the commercial operations date.

vii) The component wise tariff is indicated at Annex-I.

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

I. <u>One Time Adjustments</u>

The following onetime adjustments shall be applicable to the reference tariff:

a. Insurance will be adjusted as per actually incurred prudent costs, subject to maximum limit of 1.35% of the approved EPC cost, on production of authentic documentary evidence at the time of COD.

b. Cost of loan arrangement/financial charges will be adjusted at COD on the basis of actual expense, up to a maximum of 3% of the total debt allowed (excluding the impact of interest during construction and financial charges), on production of authentic documentary evidence.

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c. The interest during construction will be adjusted at COD on the basis of actual debt draw downs (within the overall debt allowed by the Authority at COD), actual interest rates not exceeding the limit of 3 months KIBOR plus 3% during the project construction period allowed by the Authority.

d. Duties and/or taxes, not being of refundable nature, imposed on the petitioner up to the commencement of its commercial operations will be subject to adjustment at actual on COD, as against US $ 0.066 million allowed now, upon production of verifiable documentary evidence to the satisfaction of the Authority.

e. The return on equity during construction will be adjusted at COD on the basis of actual equity injections (within the overall equity allowed by the Authority at COD) during the project construction period allowed by the Authority.

f. The return on equity (including return on equity during construction) will be adjusted at COD on the basis of PKR/US$ exchange rate variation.

g. At the COD for all project costs payable in PKR, the amounts allowed in US $ will be converted into PKR using the reference PKR/dollar rate of 91.30.

h. Any liquidated damages, penalties, etc. (by whatever name called), actually recoverable by the petitioner from the EPC contractor(s), pertaining to the construction period allowed by the Authority, will be adjusted in the project cost.

i. The reference tariff table shall be revised at COD while taking into account the above adjustments. The petitioner shall submit its request to the Authority within 90 days of COD for necessary adjustments in tariff.

II. <u>Pass-Through Items</u>

No provision for income tax has been accounted for in the tariff. If any tax is imposed on the petitioner, the exact amount paid by the petitioner shall be

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reimbursed by the power purchaser to the petitioner on production of original receipts. This payment will be considered as a pass-through payment spread over a 12 months period. Furthermore, in such a scenario, the petitioner shall also submit to the power purchaser details of any tax shield savings and the power purchaser shall deduct the amount of these savings from its payment to the petitioner on account of taxation.

Withholding tax on dividends is also a pass through item just like other taxes as indicated in the government guidelines for determination of tariff for new IPPs. The power purchaser shall make payment on account of withholding tax at the time of actual payment of dividend, subject to maximum of 7.5% of 17% return on equity according to the following formula:

Withholding tax payable = $[\{17\% * (E_{(Ref)} - E_{(Red)})\} + ROEDC_{(Ref)}] \times 7.5\%$

Where:

$E_{(Ref)}$ = Adjusted reference equity at COD

$E_{(Red)}$ = Equity redeemed

$ROEDC_{(Ref)}$ = Reference return on equity during construction

In case the petitioner does not declare a dividend in a particular year or only declares a partial dividend, then the difference in the withholding tax amount (between what is paid in that year and the total entitlement as per the net return on equity) would be carried forward and accumulated so that the petitioner is able to recover the same as a pass through from the power purchaser in future on the basis of the total dividend payout.

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III. Hydrological Risk

Hydrological risk will be borne by the power purchaser. The petitioner shall receive an assured minimum amount every month from the power purchaser to cover its fixed costs (fixed O&M, debt servicing, insurance, return on equity including return on equity during construction) in case the plant is available but sufficient water i.e. at least equal to the average historic hydrology for that particular month is not available to generate electricity. The power purchaser before signing the power purchase agreement should verify the month wise benchmark hydrology.

IV. Indexations:

The following indexation shall be applicable to the reference tariff:

i) Indexation applicable to O&M

The O&M cost will be adjusted on account of local inflation. Quarterly adjustments for inflation will be made with effect from 1st July, 1st October, 1st January and 1st April on the basis of latest available information with respect to CPI - General (notified by the Pakistan Bureau of Statistics). The mode of indexation will be as follows:

$$F\ O\&M_{(REV)} = F\ O\&M_{(REF)} * CPI\text{-}G_{(REV)} / CPI\text{-}G_{(REF)}$$

$$V\ O\&M_{(REV)} = V\ O\&M_{(REF)} * CPI\text{-}G_{(REV)} / CPI\text{-}G_{(REF)}$$

Where:

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F O&M (REV)	=	The revised applicable fixed O&M component of tariff
V O&M (REV)	=	The revised applicable variable O&M component of tariff
F O&M (REF)	=	The reference fixed O&M component of tariff for the relevant period
V O&M (REF)	=	The reference variable O&M component of tariff for the relevant period
CPI - G (REV)	=	The revised consumer price index (general)
CPI - G (REF)	=	188.68 consumer price index (general) of December 2013 notified by the Pakistan Bureau of Statistics

ii) Adjustment of insurance component

In case of insurance denominated in US $, insurance cost component of tariff will be adjusted on account of US$/PKR exchange rate variation on annual basis. Further, insurance component of the reference tariff will be adjusted as per actually incurred prudent costs, subject to maximum of 1.35% of the EPC cost, on annual basis upon production of authentic documentary evidence by the petitioner.

iii) Return on equity

The return on equity component of tariff will be adjusted on the basis of revised TT & OD selling rate of US Dollar as notified by the National Bank of Pakistan according to the following formula:

$$ROE_{(REV)} = ROE_{(REF)} \times ER_{(REV)} / ER_{(REF)}$$

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Where:

$ROE_{(REV)}$	=	Revised return on equity component of tariff expressed in Rs/kWh.
$ROE_{(REF)}$	=	Reference return on equity component of tariff expressed in Rs/kWh.
$ER_{(REV)}$	=	The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan
$ER_{(REF)}$	=	The reference TT & OD selling rate of US dollar

iv) Return on equity during construction

The return on equity during construction component of tariff will be adjusted on the basis of revised TT & OD selling rate of US Dollar as notified by the National Bank of Pakistan according to the following formula:

$$ROEDC_{(REV)} = ROEDC_{(REF)} \times ER_{(REV)} / ER_{(REF)}$$

Where:

$ROEDC_{(REV)}$	=	Revised return on equity during construction component of tariff expressed in Rs/kWh.
$ROEDC_{(REF)}$	=	Reference return on equity during construction component of tariff expressed in Rs/kWh.
$ER_{(REV)}$	=	The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan
$ER_{(REF)}$	=	The reference TT & OD selling rate of US dollar

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v) Adjustment for KIBOR variation

The interest part of debt service component will remain unchanged throughout the term except for the adjustment due to variation in 3 months KIBOR, while spread of 3% on 3 months KIBOR remaining the same, according to the following formula:

$$\Delta I = P_{(REV)} * (KIBOR_{(REV)} - 12\%) / 4$$

Where:

ΔI = the variation in interest charges applicable corresponding to variation in 3 months KIBOR. ΔI can be positive or negative depending upon whether 3 months $KIBOR_{(Rev)}$ per annum > or < 12%. The interest payment obligation will be enhanced or reduced to the extent of ΔI for each quarter under adjustment.

$P_{(REV)}$ = is the outstanding principal (as indicated in the attached debt service schedule to this order at Annex-II) on a quarterly basis at the relevant calculations date.

Note:

Adjustments on account of inflation, foreign exchange rate variation, KIBOR variation and actual insurance will be approved and announced by the Authority within fifteen working days after receipt of the petitioner's request for adjustment in tariff in accordance with the requisite indexation mechanism stipulated herein.

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V. Terms and Conditions of Tariff:

Design & Manufacturing Standards:

Hydro power generation system shall be designed, manufactured and tested in accordance with the latest IEC standards or other equivalent standards. All plant and equipment shall be new.

Emissions Trading/ Carbon Credits:

The petitioner shall process and obtain emissions/carbon credits expeditiously and credit the proceeds to the power purchaser as per the applicable government policy and the terms and conditions agreed between the petitioner and the power purchaser.

Others:

i. The Authority has allowed/approved only those cost(s), term(s), condition(s), provision(s), etc. which have been specifically approved in this tariff decision. Any cost(s), term(s), condition(s), provision(s), etc. contained in the tariff petition or any other document which are not specifically allowed/approved in this tariff decision, should not be implied to be approved, if not adjudicated upon in this tariff decision.

ii. The above tariff and terms and conditions shall be incorporated as the specified tariff approved by the Authority pursuant to Rule 6 of the National Electric Power Regulatory Authority Licensing (Generation) Rules, 2000 in the power purchase agreement between the petitioner and the power purchaser.

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iii. The order along with reference tariff table and debt service schedule as attached thereto are recommended for notification by the Federal Government in the official gazette in accordance with Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997.

AUTHORITY

28/2/2014

(Habibullah Khilji)
Member

4/3/14

(Maj. (R) Haroon Rashid)
Member

27.2.14

(Khawaja Muhammad Naeem)
Vice Chairman

NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
NEPRA AUTHORITY

05.03.14

SAR Energy (Pvt.) Limited

REFERENCE TARIFF TABLE

Annex-I

Year	Variable O & M	Fixed O&M	Insurance	Return on Equity	Return on Equity During Construction	Withholding Tax @7.5%	Annual Principal Repayment	Annual Interest	Tariff
		Rs. / kWh	Rs. / kWh	Rs. / kWh	Rs. / kWh	Rs. / kWh	Rs. / kWh	Rs. / kWh	Rs. / kWh
1	0.1649	0.4948	0.3918	1.3740	0.2010	0.1181	1.5264	4.7663	9.0373
2	0.1649	0.4948	0.3918	1.3740	0.2010	0.1181	1.7685	4.5241	9.0373
3	0.1649	0.4948	0.3918	1.3740	0.2010	0.1181	2.0491	4.2435	9.0373
4	0.1649	0.4948	0.3918	1.3740	0.2010	0.1181	2.3742	3.9184	9.0373
5	0.1649	0.4948	0.3918	1.3740	0.2010	0.1181	2.7509	3.5418	9.0373
6	0.1649	0.4948	0.3918	1.3740	0.2010	0.1181	3.1873	3.1054	9.0373
7	0.1649	0.4948	0.3918	1.3740	0.2010	0.1181	3.6929	2.5997	9.0373
8	0.1649	0.4948	0.3918	1.3740	0.2010	0.1181	4.2788	2.0138	9.0373
9	0.1649	0.4948	0.3918	1.3740	0.2010	0.1181	4.9577	1.3350	9.0373
10	0.1649	0.4948	0.3918	1.3740	0.2010	0.1181	5.7442	0.5484	9.0373
11	0.1649	0.4948	0.3918	1.4362	0.2010	0.1228	-		2.8115
12	0.1649	0.4948	0.3918	1.4362	0.2010	0.1228	-		2.8115
13	0.1649	0.4948	0.3918	1.4362	0.2010	0.1228	-		2.8115
14	0.1649	0.4948	0.3918	1.4362	0.2010	0.1228	-		2.8115
15	0.1649	0.4948	0.3918	1.4362	0.2010	0.1228	-		2.8115
16	0.1649	0.4948	0.3918	1.4362	0.2010	0.1228	-		2.8115
17	0.1649	0.4948	0.3918	1.4362	0.2010	0.1228	-		2.8115
18	0.1649	0.4948	0.3918	1.4362	0.2010	0.1228	-		2.8115
19	0.1649	0.4948	0.3918	1.4362	0.2010	0.1228	-		2.8115
20	0.1649	0.4948	0.3918	1.4362	0.2010	0.1228	-		2.8115
21	0.1649	0.4948	0.3918	1.4362	0.2010	0.1228			2.8115
22	0.1649	0.4948	0.3918	1.4362	0.2010	0.1228			2.8115
23	0.1649	0.4948	0.3918	1.4362	0.2010	0.1228			2.8115
24	0.1649	0.4948	0.3918	1.4362	0.2010	0.1228			2.8115
25	0.1649	0.4948	0.3918	1.4362	0.2010	0.1228			2.8115
26	0.1649	0.4948	0.3918	1.4362	0.2010	0.1228			2.8115
27	0.1649	0.4948	0.3918	1.4362	0.2010	0.1228			2.8115
28	0.1649	0.4948	0.3918	1.4362	0.2010	0.1228			2.8115
29	0.1649	0.4948	0.3918	1.4362	0.2010	0.1228			2.8115
30	0.1649	0.4948	0.3918	1.4362	0.2010	0.1228			2.8115
Levelized T	**0.1649**	**0.4948**	**0.3918**	**1.3957**	**0.2010**	**0.1197**	**1.8803**	**2.2213**	**6.8695**

Note:

* The above charges will be limited to the extent of net annual energy generation of 7.328 GWh. Net annual energy generation supplied to the power purchaser in a year, in excess of benchmark energy of 7.328 GWh will be charged at 10% of the prevalent approved tariff.

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SAR Energy (Pvt) Ltd.
Debt Servicing Schedule

(Annex-II)

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Period	Local Debt: Principal Million Rupees	Repayment Million Rupees	Mark-Up Million Rs.	Balance Million Rs.	Total Debt Service Million Rs.	Annual Principal Repayment Rs./kWh	Annual Interest Rs./kWh	Annual Debt Servicing Rs./kWh
	236,919,822	2,643,896	8,884,493	234,275,926	11,528,390			
	234,275,926	2,743,043	8,785,347	231,532,883	11,528,390			
	231,532,883	2,845,907	8,682,483	228,686,976	11,528,390			
	228,686,976	2,952,628	8,575,762	225,734,348	11,528,390			
1	236,919,822	11,185,474	34,928,085	225,734,348	46,113,559	1.5264	4.7663	6.2926
	225,734,348	3,063,352	8,465,038	222,670,997	11,528,390			
	222,670,997	3,178,227	8,350,162	219,492,769	11,528,390			
	219,492,769	3,297,411	8,230,979	216,195,358	11,528,390			
	216,195,358	3,421,064	8,107,326	212,774,295	11,528,390			
2	225,734,348	12,960,054	33,153,505	212,774,295	46,113,559	1.7685	4.5241	6.2926
	212,774,295	3,549,354	7,979,036	209,224,941	11,528,390			
	209,224,941	3,682,454	7,845,935	205,542,486	11,528,390			
	205,542,486	3,820,546	7,707,843	201,721,940	11,528,390			
	201,721,940	3,963,817	7,564,573	197,758,123	11,528,390			
3	212,774,295	15,016,172	31,097,387	197,758,123	46,113,559	2.0491	4.2435	6.2926
	197,758,123	4,112,460	7,415,930	193,645,663	11,528,390			
	193,645,663	4,266,677	7,261,712	189,378,986	11,528,390			
	189,378,986	4,426,678	7,101,712	184,952,308	11,528,390			
	184,952,308	4,592,678	6,935,712	180,359,630	11,528,390			
4	197,758,123	17,398,493	28,715,065	180,359,630	46,113,559	2.3742	3.9184	6.2926
	180,359,630	4,764,904	6,763,486	175,594,726	11,528,390			
	175,594,726	4,943,588	6,584,802	170,651,138	11,528,390			
	170,651,138	5,128,972	6,399,418	165,522,166	11,528,390			
	165,522,166	5,321,308	6,207,081	160,200,858	11,528,390			
5	180,359,630	20,158,772	25,954,787	160,200,858	46,113,559	2.7509	3.5418	6.2926
	160,200,858	5,520,858	6,007,532	154,680,000	11,528,390			
	154,680,000	5,727,890	5,800,500	148,952,111	11,528,390			
	148,952,111	5,942,686	5,585,704	143,009,425	11,528,390			
	143,009,425	6,165,536	5,362,853	136,843,889	11,528,390			
6	160,200,858	23,356,969	22,756,590	136,843,889	46,113,559	3.1873	3.1054	6.2926
	136,843,889	6,396,744	5,131,646	130,447,145	11,528,390			
	130,447,145	6,636,622	4,891,768	123,810,523	11,528,390			
	123,810,523	6,885,495	4,642,895	116,925,028	11,528,390			
	116,925,028	7,143,701	4,384,689	109,781,327	11,528,390			
7	136,843,889	27,062,562	19,050,997	109,781,327	46,113,559	3.6929	2.5997	6.2926
	109,781,327	7,411,590	4,116,800	102,369,737	11,528,390			
	102,369,737	7,689,525	3,838,865	94,680,212	11,528,390			
	94,680,212	7,977,882	3,550,508	86,702,330	11,528,390			
	86,702,330	8,277,052	3,251,337	78,425,278	11,528,390			
8	109,781,327	31,356,049	14,757,510	78,425,278	46,113,559	4.2788	2.0138	6.2926
	78,425,278	8,587,442	2,940,948	69,837,836	11,528,390			
	69,837,836	8,909,471	2,618,919	60,928,365	11,528,390			
	60,928,365	9,243,576	2,284,814	51,684,789	11,528,390			
	51,684,789	9,590,210	1,938,180	42,094,579	11,528,390			
9	78,425,278	36,330,699	9,782,860	42,094,579	46,113,559	4.9577	1.3350	6.2926
	42,094,579	9,949,843	1,578,547	32,144,736	11,528,390			
	32,144,736	10,322,962	1,205,428	21,821,774	11,528,390			
	21,821,774	10,710,073	818,317	11,111,701	11,528,390			
	11,111,701	11,111,701	416,689	0	11,528,390			
10	42,094,579	42,094,579	4,018,980	0	46,113,559	5.7442	0.5484	6.2926