



National Electric Power Regulatory Authority Islamic Republic of Pakistan

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No. NEPRA/TRF-316/ASDPL-2015/18869-18871
November 16, 2017

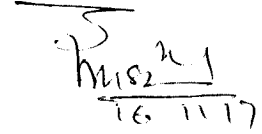
Subject: **Decision of the Authority in the matter of Tariff Adjustment at Commercial Operation Date (COD) of Appolo Solar Development Pakistan Limited (ASDPL)**
[Case No. NEPRA/TRF-316/ASDPL-2015]

Dear Sir,

Please find enclosed herewith the subject Decision of the Authority along with Annexure-I, II & III (19 pages) in Case No. NEPRA/TRF-316/ASDPL-2015.

2. The Decision 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 (XL of 1997).
3. Order of the Authority along with Annexure-I, II & III are to be notified in the official Gazette.

Enclosure: As above


16.11.17

(Syed Safeer Hussain)

Secretary
Ministry of Energy
'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 Tariff Adjustment At Commercial Operations Date
(COD) Of Appolo Solar Development Pakistan Limited (ASDPL)**

1. Introduction

- 1.1 Appolo Solar Development Pakistan Limited (hereinafter referred to as "ASDPL") is a 100 MW Solar PV power plant located at Lal Sohanra in Cholistan, District Bahawalpur in the Province of Punjab established by the "Zonergy Company Limited". The letter of interest (LOI) was issued by the Punjab Power Development Board (PPDB) to Zonergy Company Limited on May 27, 2015 for the development of 9x100 MW solar PV power Projects in Quaid e Azam Solar Park Cholistan Pakistan. As per the LOI, Zonergy Company Limited has to maintain the shares in the special purpose vehicle established for the purpose in accordance with Punjab Power Generation Policy, 2006.
- 1.2 The SPV established as ASDPL, requested to grant an upfront tariff for solar PV power plants that was announced by the Authority on Jan 22, 2015. Accordingly, ASDPL was granted upfront tariff vide Authority's decision dated May 26, 2015. Meanwhile, the Authority in the matter of motion for leave for review filed by different stakeholders, revised upfront solar tariff vide its decision dated May 25, 2015. ASDPL subsequently requested for the grant of this revised upfront solar tariff, which was granted vide Authority's decision dated Oct 26, 2015. As per the revised decision of the Authority, the determined levellized tariff of ASDPL was Rs.14.8591/kWh (US Cents 14.1516/kWh).
- 1.3 ASDPL later signed Engineering, Procurement, Construction ("EPC") contracts with M/S China First Metallurgical Group Co. Ltd. On June 27, 2015 and with M/S MCC Ruba International Construction Company (Pvt) Ltd. on June 27, 2015 to build, own and operate a 100 MW AC Solar powered electric generation facility to be located at Bahawalpur, Punjab, Pakistan. The company signed Term Facility Agreement ("TFA") with the Export-Import bank of China ("EXIM bank") and China Development Bank ("CDB") on October 16, 2015. The Company achieved Financial Closing on 6th November 2015, which is confirmed by AEDB through its letter no. B/3/2/SPV/ASDPL/15 dated November 6, 2015.
- 1.4 ASDPL completed the construction, commissioning and testing of the Project and achieved Commercial Operations Date ("COD") on May 31, 2016 as was certified by the independent technical consultants M/S Tuv Nord and later confirmed by the CPPA through its letter no. CPPA/GM/CE-II/MTIV/ASDPL/3307-29, dated July 12, 2016



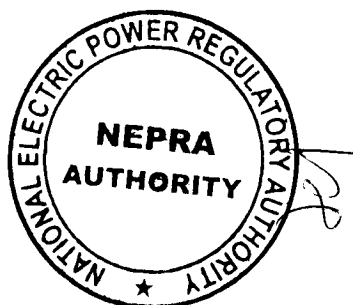
- 1.5 ASDPL after commencing COD submitted its request for adjustment of relevant components of its tariff at commercial operations date (hereinafter referred to as "COD") through letter no. Ref: App/F/F-01 dated Dec 06, 2016.
- 1.6 The information submitted by ASDPL along with its request for adjustment of tariff at COD was incomplete. Accordingly, ASDPL was directed through different communications to submit the required documents & information
2. The summary of Project cost allowed to ASDPL as per the upfront tariff determination dated January 22, 2015 is as under:

Description	US\$ million
EPC Cost	131.150
Duties and Taxes	4.737
Non EPC Cost	4.350
Project Development Cost	3.666
Insurance during construction	1.019
CAPEX	144.922
Financing Fees and Charges (3.5% of CAPEX Loan)	3.804
Interest during construction	2.705
Total Project Cost	151.431
Reference Values:	
Rupee-Dollar Parity	= Rs. 105/USD
US CPI (All Urban Consumers)	= 237.852
CPI (General)	= 198.7
Debt: Equity Ratio	= 75:25

- 2.1 Summary of the reference tariff as per the revised upfront tariff determination of the Authority dated Oct 26, 2015 is as follows:

REFERENCE TARIFF

Tariff Components	Year 1 to 10	Year 11 to 25	Levelized Tariff 1 to 25	Indexation
	Rs. /kWh			
O&M	2.4736	2.4736	2.4736	CPI General or US\$/PKR & US CPI
Insurance	0.9307	0.9307	0.9307	US\$ /PKR
Return on Equity	4.7903	4.7903	4.7903	US\$ /PKR
Debt Service	9.8451	0	6.6645	LIBOR, US \$/ PKR, KIBOR
Total	18.0397	8.1947	14.8591	
US Cents/kWh	17.1807	7.8044	14.1516	



- 2.2 Certain one-time adjustments were provided by the Authority in its revised upfront tariff determination of ASDPL dated Oct 26, 2015, which are abstracted and referred below;
- i. *“ Since the exact timing of payment to EPC contractor is not known at this point of time, therefore, an adjustment for relevant foreign currency fluctuation for the portion of payment in the relevant foreign currency will be made against the reference exchange rate of Rs.105/US\$. In this regard the sponsor will be required to provide all the necessary relevant details along with documentary evidence. The adjustment shall be made only for the currency fluctuation against the reference parity values.*
 - ii. *The approved taxes and duties of US\$ 47,365/MW in the EPC cost will be adjusted as per actual at the time of COD stage adjustment of tariff on the basis of verifiable documentary evidence.*
 - iii. *Interest during construction will be reestablished at the time of COD on the basis of actual Project financing and actual average LIBOR/KIBOR and applicable premiums.*
 - iv. *In case sinosure fee or export credit agency fee on foreign financing is payable, the benchmark established in the coal upfront tariff will be applicable subject to maximum of 7% and appropriate adjustment in the Project cost shall be made.”*

3. Detail of costs on account of one-time adjustments:

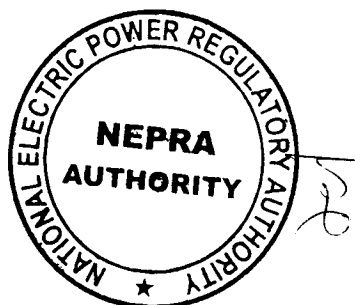
Based on the source documents verification, below is the component wise detail of Project costs on account of one-time adjustments;

3.1 EPC Cost:

- 3.1.1 ASDPL was allowed an EPC cost of US \$ 131.150 million as per the upfront tariff determination dated January 22, 2015, which was required to be adjusted for relevant foreign currency fluctuation for the portion of payment in the relevant foreign currency at the time of COD.
- 3.1.2 ASDPL entered into an offshore supply contract and onshore construction contract on June 27, 2016 with M/S China First Metallurgical Group Co. Ltd & M/S MCC Ruba International Construction Company (Pvt) Ltd for an amount of RMB 863.316 million and RMB 135.683 million respectively. Hence, the cumulative EPC contract value of RMB 999 million.
- 3.1.3 ASDPL vide its COD adjustment request dated Dec 06, 2016 has claimed an EPC cost of RMB 999 million i.e equivalent US \$ 157.281 million (Rs. 16,471.828 million) at



- Rs. 104.73/US \$ which includes paid EPC cost of US\$ 148.710 million (Rs. 15,572.932 million) at Rs. 104.72/US \$ whereas accrued against EPC contract is claimed as US\$ 8.560 million (Rs. 898.896 million) at reference exchange rate of Rs. 105/US \$. The accrued claim is further split into payable of US\$ 2.603 million (Rs. 276.173 million), retention of US\$ 1.06 million (Rs. 111.124 million) and unbilled amount of US\$ 4.87 million (Rs. 511.598 million). ASDPL in support of its claim has submitted the copy of EPC contract, commercial invoices raised by the EPC contractors, debit advices, and bank statements, exchange rate sheets etc.
- 3.1.4 The submitted documentary evidences reflected that the invoices were raised by the EPC contractor in RMB with equivalent US dollar amount (@RMB 6.3443/US\$). Further, majority of the payment to the EPC contractors has been made in equivalent US \$ or PKR based on the rates prevailing on payment date.
- 3.1.5 As per the adjustment mechanism referred in the upfront tariff determination the exchange rate variation on the already allowed EPC cost of US \$ 131.150 million has to be allowed at COD, therefore the payments upto US \$ 131.150 million paid during the construction period have been considered for allowing exchange rate variation.
- 3.1.6 Accordingly, the Authority has decided to allow EPC cost of US\$ 131.150 million (Rs. 13,736.341 million) based on the actual weighted average exchange rate variation of Rs. 104.74/US \$ adjusting the reference exchange rate of Rs. 105/US \$.
- 3.2 **Taxes and Duties:**
- 3.2.1 Duties and taxes allowed in upfront tariff were estimated at US \$ 47,365/MW (i.e. US \$ 4.736 million) which were required to be adjusted as per actual at the time of COD tariff adjustment on the basis of verifiable documentary evidence of incidence of tax.
- 3.2.2 ASDPL in its request dated Dec 06, 2016 for the adjustment of tariff at COD has submitted that the Project benefited from tax exemptions relating to custom duty, sales tax and income tax due to Government policy relating to promoting renewable energy power generation Projects.
- 3.2.3 ASDPL further submitted that the custom duty on imports of plant and equipment with dedicated use in solar power plants is exempted according to fifth schedule to the Custom Act 1969 (IV of 1969) and the Sales Tax on imports of plant and equipment with dedicated use in solar power plants is exempted according to sixth schedule to the Sales Tax Act 1990 (vii of 1990). Furthermore, for obtaining income tax exemption on imports of plant and equipment for establishment of solar power plant, M/S ASDPL applied to the FBR under section 148 of

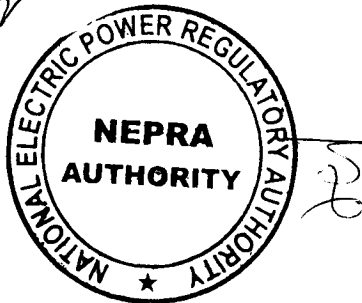


Income Tax Ordinance 2001, for issuance of income tax exemption certificates, which were duly issued by FBR for each shipment separately.

- 3.2.4 ASDPL has submitted that the applicable taxes on the Project company comprises of Sindh Cess and withholding tax on EPC onshore cost. ASDPL claimed duties and taxes of US \$ 2.944 million (Rs. 305.999 million) which included estimated taxes of Rs. 46.822 million on payable EPC cost.
- 3.2.5 ASDPL in support of WHT claim has submitted the copies of WHT certificates and deposit challans along with bank statement. Further, in support of Sindh Cess claim, ASDPL has submitted the copies of commercial invoices, Goods Declaration, Bill of Lading, Cess payment challan and bank statements.
- 3.2.6 Based on documentary evidence submitted the paid duties and taxes are US\$ 2.495 million (Rs. 259.368 million) on EPC payments of US\$ 142.383 million (Rs. 15,872.124 million). Since in the upfront tariff the assessment of duties and taxes was made on the basis of US\$ 131.150 million EPC cost; therefore the paid duties and taxes of US\$ 2.495 million are required to be adjusted accordingly. In view thereof on the basis of allowed EPC cost of US\$ 131.150 million (Rs. 13,736.341 million), the adjusted duties and taxes of US\$ 2.160 million (Rs. 224.467 million) is hereby allowed.

3.3 Interest During Construction (IDC):

- 3.3.1 ASDPL was allowed US \$ 2.705 million (Rs. 284.025 million) for interest during construction which was to be re-established at the time of COD on the basis of actual Project financing and actual average LIBOR/KIBOR and applicable interest premiums.
- 3.3.2 ASDPL has claimed an IDC of US \$ 4.729 million (Rs. 483.184 million) based on 100% foreign financing at 3 months LIBOR plus 420 bps as against the allowed maximum limit of LIBOR plus 450 bps and has requested that the sharing in the interest saving to be allowed in the ratio of 60:40 with the power purchaser and the sponsor respectively in accordance with Authority's upfront tariff determination dated January 22, 2015.
- 3.3.3 In support of its claim ASDPL has submitted the copies of financing agreement, bank advices, and bank statements.
- 3.3.4 Based on the verification of source documents, the Authority has noted that ASDPL acquired loan in two currencies i.e. US\$ and RMB, as per details given below:



Lender	Currency	Amount of Loan	Actual Interest Rate	Actual Spread	Claimed Base interest Rate	Claimed Spread (along with benefit of saving)
China Development Bank Corporation & the Export Import Bank of China (Syndicated Loan)	RMB	400,000,000	2.65%	0	LIBOR	4.2%
	US \$	62,600,000	LIBOR	4.2 %	LIBOR	4.2 %

3.3.5 Authority also considered that ASDPL earlier vide its letter dated February 08, 2016, February 22, 2016, March 03, 2016 and March 17, 2016 submitted loan agreement and had sought clarification on the treatment of RMB denominated loan specifically with regard to the benchmark interest rate and the applicable spread as the upfront tariff determination has not specified on the treatment of loan in currencies other than US\$ and PKR.

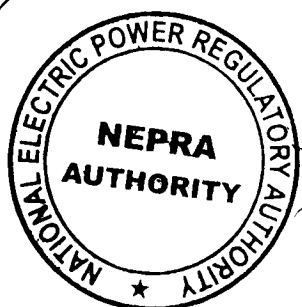
3.3.6 The Authority vide its letter No NEPRA/SAT-I/TRF-316/5463 dated April 22, 2016 in response to the query of the Petitioner clarified as follows:

"...Since there is no provision of RMB denominated loan in Upfront Solar determination, therefore, it cannot be considered. However, RMB loan can be converted into equivalent USD loan and can be treated accordingly"

3.3.7 In view of the above clarification the RMB loan has to be converted into equivalent US\$ loan for the purpose of calculating IDC. Accordingly, the IDC paid on the US\$ loan and US\$ loan converted from RMB loan during the construction period verified through the documentary evidences is tabulated below;

Lender	Ccy	Amount of Loan in M	Loan US \$ in M	Actual Interest Rate	Actual Spread	IDC actually Paid and verified			Benefit of interest saving (40%)		Total IDC	
						RMB in M	US \$ in M	Rs in M	US \$ in M	Rs in M	US \$ in M	Rs in M
China Development Bank Corporation & the Export Import Bank of China	RMB	400.00	62.93	2.65%	-	5.977	0.940	91.543	-	-	0.940	91.543
	US \$	62.60	62.60	LIBOR	4.20%	-	1.442	151.443	0.035	3.657	1.476	155.100
Total			125.53				2.382	242.985	0.035	3.657	2.417	246.643

3.3.8 As indicated in the above table, the IDC, after converting the RMB loan to equivalent dollars, for the construction period on the actual debt drawdown of US \$ 125.53 million works out to be US\$ 2.382 million (Rs. 242.985 million). In line with the sharing policy the benefit of interest saving (40%) on US\$ loan i.e. US\$ 62.60 million has been worked out as US \$ 0.035 million (Rs. 3.675 million). It is to be noted that the IDC has to be adjusted in accordance with the share of loan worked out on prorata basis against the EPC cost assessed in the upfront tariff. As a result thereof the loan amount of US\$ 118.425 million has been assessed



for IDC calculation. Accordingly, US\$ 2.280 million (Rs. 232.676 million) is being assessed against the claim of US\$ 4.729 million (Rs. 483.184 million).

3.3.9 Further, the detailed adjustment mechanism for the debt service component on a quarterly basis is given in the order part of this decision.

3.4 Sinosure Fee:

3.4.1 The Authority in the review motion decision dated May 25, 2015 against upfront solar tariff determination decided as under;

“...the Authority has decided to allow the Sinosure fee for the solar power Projects under the upfront tariff. In case Sinosure fee or export credit agency fee on foreign financing is payable, the benchmark established in the coal upfront tariff will be applicable subject to maximum of 7% and appropriate adjustment in the Project cost shall be made at the time of COD.”

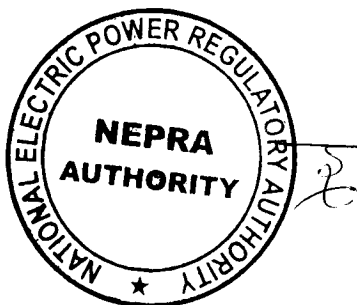
3.4.2 The benchmark given by the Authority in its decision regarding Reconsideration Request filed by Government of Pakistan in the matter of Upfront Tariff for Coal Power Projects dated June 26, 2014 is as under:

“Under the foreign financing originating from Chinese banks, upfront Sinosure fee @7% on the total debt servicing has been included in the Project cost. Project cost will be adjusted at the time of COD on the basis of actual Sino sure fee subject to maximum of 7%. In case the sponsor managed better alternative Sino sure fee arrangement, the same will be considered at the time of COD.”

3.4.3 It has been note that as per the LOI issued by PPDB dated May 27, 2015, the main sponsor of the Project is liable for all obligation and liabilities. The Petitioner in support of its claim for sinosure has submitted Term Facility Agreement, schedule of payment for the overseas investment insurance policy, performa invoice for premium payment for the first year, bank receipt for premium paid by Zonergy Company Limited.

3.4.4 The Petitioner at the time of COD tariff adjustment has submitted that it has to pay sinosure fee on foreign financing on annual basis, whereas the Authority has established the benchmark rate to a maximum of 7%. Considering the fact that it is not possible to estimate the exact amount of sinosure fee to be paid in future at the beginning of the Project, therefore the estimated amount of Rs. 1,392.321 million in accordance with NEPRA benchmark rate i.e. 7% may be allowed.

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- 3.4.5 Based on the documentary evidence submitted, the Authority noted that the schedule of payment submitted for the overseas investment insurance policy and other documents submitted reveals that the Petitioner has to pay the sinoure fee (@ 0.60% of the outstanding loan principle plus interest) on annual basis; therefore the same is being adopted.
- 3.4.6 The documentary evidence submitted reveals that the sinosure fee paid during the construction period is US\$ 0.793 million. However, the sinosure fee @ 0.6% of the debt allowed (i.e. US\$ 118.420 million) plus interest during construction i.e. US\$ 2.382 million, works out to be US\$ 0.724 million (Rs. 75.601 million). Hence the Authority has decided to allow sinosure fee of US\$ 0.724 million (Rs. 75.601 million) for the construction period. The sinosure fee during operation period is being indicated as separate component in the tariff to be adjusted on quarterly basis due to interest rates fluctuations (i.e. LIBOR, interest rate notified by Export Import Bank of China). The detailed mechanism is given in the order part of the decision.

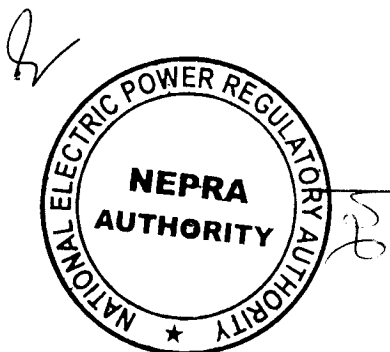
3.5 Summary of Allowed Project Cost

- 3.5.1 The Authority had originally determined Project cost of US\$ 151.431 million (equivalent Rs. 15,900.305 million). ASDPL has claimed Project cost of US \$ 191.059 million (equivalent Rs. 20,009.687 million) at the COD stage. Based on decisions in the preceding paragraphs, the overall Project cost assessed at COD stage, works out as US \$ 149.154 million (equivalent Rs. 15,617.19 million). The summary of the approved costs is given below;

Project Cost Heads	Allowed		
	US \$ in M	PKR. in M	Ex Rate
EPC Cost	131.150	13,736.341	104.74
Taxes and Duties Related to EPC	2.160	224.467	103.91
Non EPC Cost	4.350	456.750	105.00
Project Development Cost	3.665	384.909	105.00
Insurance During Construction	1.019	107.010	105.00
Capex	142.345	14,909.479	104.74
Sinosure Fee	0.724	75.601	104.30
Interest During Construction	2.280	232.676	102.05
Financing Fees and Charges	3.804	399.439	105.00
Total Project Cost	149.154	15,617.196	104.71

3.6 Financing of the Project

- 3.6.1 As per the upfront tariff determination dated January 22, 2015;



“9.17 The Projects will be financed through debt and equity. Minimum equity requirement is 20%. There will be no limit on the maximum amount of equity; however, equity exceeding 30% of the total Project cost will be treated as debt. Debt may be raised in local as well as foreign currency and mix of local/foreign debt financing may also be allowed. The approved upfront tariff has been worked out on the basis of debt-equity ratio of 75:25 and 100% on foreign loans.”

3.6.2 The Petitioner has claimed adjustment of tariff at reference debt to equity ratio of 75: 25. The Petitioner was accordingly directed to submit the documentary evidences for the actual debt drawdown and actual equity injection such as loan agreement, bank statements, information filed with SECP (including Form -3) and Audited Financial Statements for the year FY 2015-16. As per the submitted details the verified debt: equity ratio is 79:21, hence the same is adopted for COD tariff adjustments.

3.7 Insurance during operations:

3.7.1 The reference insurance component was Rs 0.9307/kWh. The Petitioner has claimed insurance component of Rs. 1.0946/kWh at the time of COD based on 1% of its claimed EPC cost. However, the upfront tariff determination states that:

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

AIC	=	Insurance / P _{ref} * P _{act}
Where		
AIC	=	Adjusted Insurance Component of Tariff
Insurance	=	Reference Insurance Component of Tariff
P _{ref}	=	Reference Premium 1% of the EPC cost at Rs. 105/US\$.
P _{act}	=	Actual Premium or 1% of the EPC cost in Pak Rupees on exchange rate prevailing on the 1st day of the insurance coverage period which ever is lower

3.7.2 The Petitioner was directed to submit the documentary evidences for the adjustment of insurance component allowed for the operation phase. The Petitioner in response submitted copies of insurance policy (five years), premium payment invoice, cheque, bank statement against the insurance coverage from Jubilee General Insurance Company Limited.

3.7.3 The insurance coverage is as per the schedule VIII of PPA. The net premium for the five years is Rs. 333.53 million. The net insurance premium for the first year of operation has been paid for Rs. 66.707 million (US\$ 0.637 million), as per the breakup below:



S.#	Description	Premium Paid Rs. in M.	%age of EPC
i.	Gross premium	66.046	
ii.	Administrative Surcharges	0.001	
iii.	Federal Insurance Fee	0.660	
	Total	66.707	0.49%
	Equivalent US\$	0.637	

3.7.4 Accordingly, the revised insurance component as per the given formula works out to be Rs. 0.4351/kWh and is duly allowed by the Authority.

3.8 Indexations of O&M:

Following is the detail of indexations of O&M component of tariff:

O&M component	Year 1-25		
	O & M		
	Local O & M	Foreign O & M	Total O & M
Reference (Rs. /kWh)	0.3425	2.1311	2.4736
Revised (Rs. /kWh)	0.3504	2.1316	2.4820

Particulars	Reference		Revised	
	Index Number	Month	Index Number	Month
CPI (General)	198.7	August 2014	203.28	Mar 2016
US CPI	237.852	August 2014	238.132	Mar 2016
Exchange rate (PKR/US\$)	105	Reference Ex Rate	104.9	May 31, 2016

4. Order:

- I. The Authority hereby approves the following upfront tariff for Appolo Solar Development Pakistan Limited (ASDPL) for delivery of electricity to the power purchaser based on Solar PV power plant of 100 MW established at Lal Sohanra in Cholistan, District Bahawalpur, Southern Punjab:



Reference Tariff			
Description	Year 1-10	Year 11-25	Indexations
	Rs./kWh	Rs./kWh	
O&M	2.4820	2.4820	CPI , US CPI, PKR/US\$
Insurance	0.4351	0.4351	Actual on annual basis upto 1% of EPC Cost
ROE	3.8846	3.8846	PKR/US\$
Debt Servicing	9.9810	-	LIBOR/ interest rate as notified by the Export Import Bank of China
Sinosure fee			As indicated in Annex-II & III

The Tariff Table and Debt Service Schedule are attached as Annex-I, Annex-II and Annex-III.

II. Adjustment in Insurance as per actual

The actual insurance cost for the minimum cover required under contractual obligations with the Power Purchaser not exceeding 1% of the EPC cost will be treated as pass-through. Insurance component of reference tariff shall be adjusted annually as per actual expenditure upon production of authentic documentary evidence to the satisfaction of Authority, according to the following formula:

AIC	=	$Ins_{(Ref)} / P_{(Ref)} * P_{(Act)}$
Where		
AIC	=	Adjusted Insurance Component of Tariff
$Ins_{(Ref)}$	=	Reference Insurance Component of Tariff
$P_{(Ref)}$	=	Reference Premium Rs. 66.707 million
$P_{(Act)}$	=	Actual Premium or 1% of the EPC cost in Pak Rupees on exchange rate prevailing on the 1st day of the insurance coverage period whichever is lower

III. Indexations:

The following indexations shall be applicable to the reference tariff:

i) Indexation of Return on Equity (ROE)

After COD, ROE component of tariff will be quarterly indexed on account of variation in PKR/US\$ parity according to the following formula:



$ROE_{(Rev)}$	=	$ROE_{(Ref)} * ER_{(Rev)} / ER_{(Ref)}$
Where;		
$ROE_{(Rev)}$	=	Revised ROE Component of Tariff
$ROE_{(Ref)}$	=	the reference ROE Component of Rs. 3.8846/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 at COD of Rs. 104.9/US dollar

ii) **Indexation applicable to O&M**

The O&M component of tariff will be adjusted on account of local Inflation (CPI) and foreign inflation (US CPI) and exchange rate quarterly on 1st July, 1st October, 1st January and 1st April based on the latest available information with respect to CPI notified by the Pakistan Bureau of Statistics (PBS), US CPI issued by US Bureau of Labor Statistics and revised TT & OD selling rate of US Dollar notified by the National Bank of Pakistan as per the following mechanism:

$L O\&M_{(REV)}$	=	$L O\&M_{(REF)} * CPI_{(REV)} / CPI_{(REF)}$
$F O\&M_{(REV)}$	=	$F O\&M_{(REF)} * US CPI_{(REV)} / US CPI_{(REF)} * ER_{(REV)} / ER_{(REF)}$
Where:		
$L O\&M_{(REV)}$	=	the revised applicable O&M Local Component of tariff
$F O\&M_{(REV)}$	=	the revised applicable O&M Foreign Component of tariff
$L O\&M_{(REF)}$	=	the reference local O&M component of Rs. 0.3504/kWh
$F O\&M_{(REF)}$	=	the reference foreign O&M component of Rs. 2.1316/kWh
$CPI_{(REV)}$	=	the revised Consumer Price Index (General) published by Pakistan Bureau of Statistics.
$CPI_{(REF)}$	=	the reference Consumer Price Index (General) of 203.28 for the month of March 2016
$US CPI_{(REV)}$	=	the revised US CPI (All Urban Consumers) published by US Bureau of Labor Statistics
$US CPI_{(REF)}$	=	the reference US CPI (All Urban Consumers) of 238.132 for the month of March 2016
$ER_{(REV)}$	=	the revised TT & OD selling rate of US dollar published by National Bank of Pakistan
$ER_{(REF)}$	=	the reference TT & OD selling rate at COD of Rs. 104.9/US dollar



iii) **Indexation for interest rate Variation:**

The interest part of fixed charge component will remain unchanged throughout the term except for the adjustment due to variation in interest rate as a result of variation in 3 months LIBOR or interest rate as notified by Export Import bank of China (whichever is applicable) according to the following formula;

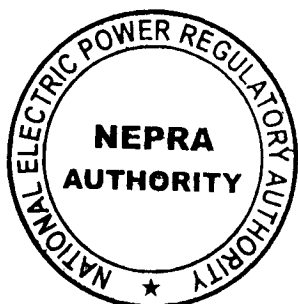
ΔI	=	<u>US\$ Loan :</u> $P_{(REV)} * (LIBOR_{(REV)} - 0.6366\%) / 4$ <u>US\$ Loan (converted from RMB):</u> $P_{(REV)} * (I_{(REV)} - 2.65\%) / 4$
Where:		
ΔI	=	the variation in interest charges applicable corresponding to variation in 3 months LIBOR or interest rate as notified by Export Import bank of China. ΔI can be positive or negative depending upon whether $LIBOR_{(REV)}$ is > or < 0.6366% or $I_{(REV)}$ is > or < 2.65%. The interest payment obligation will be enhanced or reduced to the extent of ΔI for each quarter under adjustment applicable on quarterly basis.
$P_{(REV)}$	=	The outstanding principal (as indicated in the attached debt service schedule to this order) on a quarterly basis on the relevant quarterly calculation date. Period 1 shall commence on the date on which the 1 st installment is due after availing the grace period.
$I_{(REV)}$	=	The revised interest rate as notified by Export Import bank of China

Note: Foreign debt and its interest shall be adjusted on account of actual variation in PKR/US\$ over the applicable reference PKR/US\$ exchange rate on quarterly basis.

iv) **Indexation of Sinasure Fee component:**

The sinasure fee component will be adjusted quarterly due to variations in interest rate as a result of variation in 3 months LIBOR in case of US\$ currency loan and US\$ loan converted from RMB as per the following mechanism:

Sinasure Fee $_{(REV)}$	=	<u>US\$ Loan</u> $[P_{(REV)} * 0.6\% + (I * 0.6\% * LIBOR_{(REV)} / LIBOR_{(REF)})] / \text{Annual Benchmark Energy (153.3 GWh)}$ <u>US\$ Loan (converted from RMB loan)</u> $[P_{(REV)} * 0.6\% + (I * 0.6\% * I_{(REV)} / I_{(REF)})] / \text{Annual Benchmark Energy (153.3 GWh)}$
Where;		
Sinasure Fee $_{(REV)}$	=	The revised sinasure fee component



$P_{(REV)}$	=	The outstanding principal (as indicated in the attached debt service schedule to this order) on a quarterly basis on the relevant quarterly calculation date. Period 1 shall commence on the date on which the 1 st installment is due after availing the grace period.
I	=	The reference interest (as indicated in the attached debt service schedule to this order at Annex-II) for the relevant quarter
$LIBOR_{(REV)}$	=	The revised 3 month LIBOR rate
$LIBOR_{(REF)}$	=	The reference 3 months LIBOR rate
$I_{(REV)}$	=	The revised interest rate for the relevant quarter as notified by Export Import Bank of China
$I_{(REF)}$		The reference interest rate for the relevant quarter as notified by Export Import Bank of China

Note:

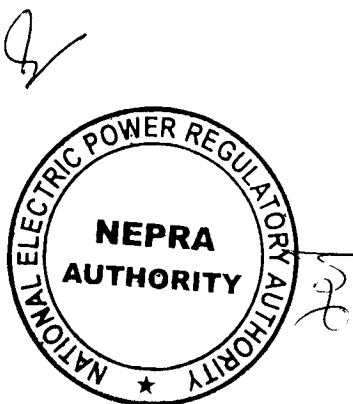
Foreign debt and its interest shall be adjusted on account of actual variation in PKR/US\$ over the applicable reference PKR/US\$ exchange rate on quarterly basis basis.

IV. Terms and Conditions of Tariff:

- Plant Capacity factor for this generation facility established in Bahawalpur (south region) will be 17.5%.
- In case the actual output exceeds the minimum output, the excess energy shall be charged in accordance with the following mechanism:

Net Annual Plant Capacity Factors	% of the prevalent tariff
Above 17.50% to 18.50%	75%
Above 18.50% to 19.50%	80%
Above 19.50%	100%

- The risk of lower solar irradiation will be on the Power Producer.
- The tariff control period will be 25 years from the date of commercial operation.
- The dispatch will be at appropriate voltage level from 11kV to 220kV mutually agreed between the Power Purchaser and the Power Producer.
- Actual degradation subject to maximum of 0.7%/annum of initial power shall be allowed

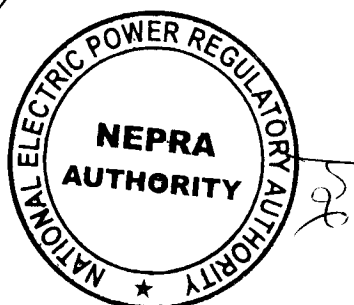


with the condition that degradation shall not be applicable if the generation remains in excess of the benchmark plant capacity factors i.e. 17.5% for South region. The following table is provided for illustrative purpose.

X₀= Energy as determined by NEPRA in GWh

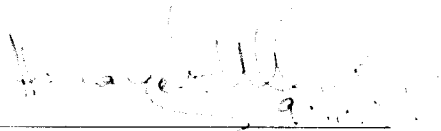
End of Year	Energy (GWh) at the busbar
1	$X_1 = X_0$
2	$X_2 = X_1 \times 0.993$
3	$X_3 = X_2 \times 0.993$
4	$X_4 = X_3 \times 0.993$
.....	

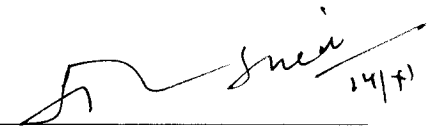
- (a) 0.993 corresponds to a degradation factor of 0.7% which will be changed according to the actual degradation in the respective year.
 - (b) X₁, X₂, X₃, ... are energy values at the end of year 1, year 2, year 3 and so on if degradation is allowed subject to conditions to be satisfied as noted above.
 - (c) Reference tariff will be correspondingly adjusted in respective years.
- vii. In the Upfront Tariff no adjustment for certified emission reductions has been accounted for. However, upon actual realization of carbon credits, the same shall be distributed between the Power Purchaser and the Power Producer in accordance with the Policy for Development of Renewable Energy for Power Generation 2006, as amended from time to time.
 - viii. The adjustment/indexation of upfront tariff will be made on the basis of the benchmarks assumed by the Authority for the Upfront Tariff in accordance with the indexation mechanism stipulated herein above and respective Upfront Tariff will be applicable to the Solar PV Power Projects coming under the applicable Upfront Tariff regime. No Project specific adjustments shall be taken into account.
 - ix. No provision for income tax, workers profit participation fund and workers welfare fund, any other tax, custom/excise duty or other duty, levy, charge, surcharge or other Governmental impositions, payable on the generation, sales, exploration has been accounted for in the tariff. If the company is obligated to pay any taxes the amount will be reimbursed by CPPA/DISCO

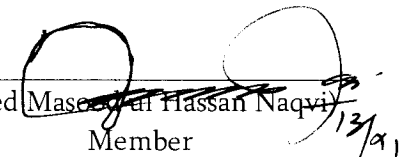



- on production of the original receipts of incidence of tax. However, any withholding tax on dividend will not be passed through under this tariff.
- x. General assumptions, which are not covered in this determination and National Electric Power Regulatory Authority Upfront Tariff (Approval & Procedure) Regulations, 2011, may be dealt with as per the standard terms of the Energy Purchase Agreement.
- V. The above Order of the Authority along with Annexes-I, Annex-II and Annex-III will be notified in the Official Gazette in terms of Section 31(4) of the Regulations of Generation, Transmission and Distribution of Electric Power Act, 1997.


AUTHORITY

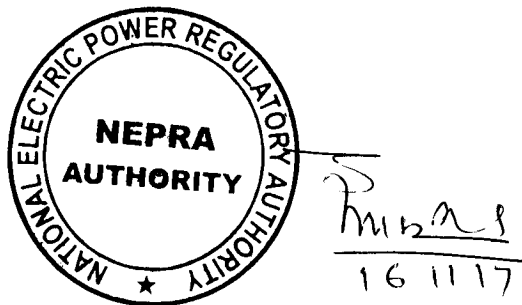

(Himayat Ullah Khan)
Member


(Maj. (R) Haroon Rashid)
Member


(Syed Masood ul Hassan Naqvi)
Member


(Saif Ullah Chattha)
Vice Chairman 14.11.2017


(Brig. (R) Tariq Saddozai)
Chairman



Appolo Solar Development Pakistan Limited Reference Tariff Table

Year	O&M	Insurance	Return on Equity	Debt Servicing	Sinosure	Total Tariff	
	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs. per kWh	¢ per kWh
1	2.4820	0.4351	3.8846	9.8109	0.5044	17.1170	16.3174
2	2.4820	0.4351	3.8846	9.8109	0.4621	17.0747	16.2771
3	2.4820	0.4351	3.8846	9.8109	0.4182	17.0308	16.2353
4	2.4820	0.4351	3.8846	9.8109	0.3726	16.9852	16.1918
5	2.4820	0.4351	3.8846	9.8109	0.3252	16.9378	16.1466
6	2.4820	0.4351	3.8846	9.8109	0.2759	16.8886	16.0997
7	2.4820	0.4351	3.8846	9.8109	0.2248	16.8374	16.0509
8	2.4820	0.4351	3.8846	9.8109	0.1716	16.7842	16.0002
9	2.4820	0.4351	3.8846	9.8109	0.1163	16.7290	15.9475
10	2.4820	0.4351	3.8846	9.8109	0.0589	16.6715	15.8928
11	2.4820	0.4351	3.8846	-	-	6.8017	6.4840
12	2.4820	0.4351	3.8846	-	-	6.8017	6.4840
13	2.4820	0.4351	3.8846	-	-	6.8017	6.4840
14	2.4820	0.4351	3.8846	-	-	6.8017	6.4840
15	2.4820	0.4351	3.8846	-	-	6.8017	6.4840
16	2.4820	0.4351	3.8846	-	-	6.8017	6.4840
17	2.4820	0.4351	3.8846	-	-	6.8017	6.4840
18	2.4820	0.4351	3.8846	-	-	6.8017	6.4840
19	2.4820	0.4351	3.8846	-	-	6.8017	6.4840
20	2.4820	0.4351	3.8846	-	-	6.8017	6.4840
21	2.4820	0.4351	3.8846	-	-	6.8017	6.4840
22	2.4820	0.4351	3.8846	-	-	6.8017	6.4840
23	2.4820	0.4351	3.8846	-	-	6.8017	6.4840
24	2.4820	0.4351	3.8846	-	-	6.8017	6.4840
25	2.4820	0.4351	3.8846	-	-	6.8017	6.4840
Levelized	2.4820	0.4351	3.8846	6.6414	0.2241	13.6672	13.0288

Installed Capacity (MW) 100.000
 Minimum Annual Energy (GWh) 153.300
 CPI (General) Mar 2016 203.280
 US CPI (All Urban Consumers) Mar 2016 238.132
 Exchange Rate (Rs./US\$) 104.900

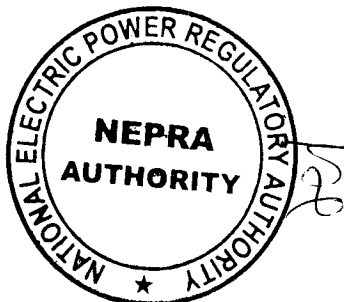


Appolo Solar Development Pakistan Limited Debt Servicing Schedule

LIBOR 0.6366%
 Spread (inclusive of benefit of interest saving @40%) 4.32%
 Interest Rate 4.96%

Debt Servicing Schedule

Period	US\$ Loan					Annual Principal	Annual Interest	Annual Debt Servicing	Sinasure Fee	
	Principal	Repayment	Mark-up	Balance	Debt Service				Rs./MW	Rs./kWh
	Rs./MW	Rs./MW	Rs./MW	Rs./MW	Rs./MW					
1	64,674,872	1,258,927	801,419	63,415,946	2,060,345	3.3464	2.0295	5.3760	406,717	0.2653
	63,415,946	1,274,527	785,819	62,141,419	2,060,345					
	62,141,419	1,290,320	770,025	60,851,099	2,060,345					
	60,851,099	1,306,309	754,036	59,544,791	2,060,345					
	59,544,791	1,322,496	737,849	58,222,295	2,060,345					
	58,222,295	1,338,884	721,462	56,883,411	2,060,345					
2	56,883,411	1,355,474	704,871	55,527,937	2,060,345	3.5154	1.8606	5.3760	374,382	0.2442
	55,527,937	1,372,271	688,074	54,155,666	2,060,345					
	54,155,666	1,389,125	671,070	52,766,391	2,060,345					
	52,766,391	1,406,490	653,855	51,359,900	2,060,345					
	51,359,900	1,423,919	636,426	49,935,981	2,060,345					
	49,935,981	1,441,563	618,782	48,494,418	2,060,345					
3	48,494,418	1,459,427	600,919	47,034,991	2,060,345	3.6929	1.6831	5.3760	340,415	0.2221
	47,034,991	1,477,511	582,834	45,557,480	2,060,345					
	45,557,480	1,495,820	564,526	44,061,660	2,060,345					
	44,061,660	1,514,355	545,990	42,547,305	2,060,345					
	42,547,305	1,533,120	527,225	41,014,185	2,060,345					
	41,014,185	1,552,118	508,227	39,462,067	2,060,345					
4	39,462,067	1,571,351	488,994	37,890,716	2,060,345	3.8794	1.4966	5.3760	304,732	0.1988
	37,890,716	1,590,822	469,523	36,299,893	2,060,345					
	36,299,893	1,610,535	449,810	34,689,358	2,060,345					
	34,689,358	1,630,492	429,853	33,058,866	2,060,345					
	33,058,866	1,650,696	409,649	31,408,170	2,060,345					
	31,408,170	1,671,151	389,194	29,737,019	2,060,345					
5	29,737,019	1,691,859	368,486	28,045,160	2,060,345	4.0753	1.3007	5.3760	267,248	0.1743
	28,045,160	1,712,824	347,522	26,332,337	2,060,345					
	26,332,337	1,734,048	326,297	24,598,289	2,060,345					
	24,598,289	1,755,536	304,810	22,842,753	2,060,345					
	22,842,753	1,777,289	283,056	21,065,464	2,060,345					
	21,065,464	1,799,313	261,033	19,266,151	2,060,345					
6	19,266,151	1,821,609	238,737	17,444,543	2,060,345	4.2811	1.0949	5.3760	227,870	0.1486
	17,444,543	1,844,181	216,164	15,600,362	2,060,345					
	15,600,362	1,867,033	193,312	13,733,328	2,060,345					
	13,733,328	1,890,169	170,177	11,843,160	2,060,345					
	11,843,160	1,913,591	146,755	9,929,569	2,060,345					
	9,929,569	1,937,303	123,042	7,992,266	2,060,345					
7	7,992,266	1,961,309	99,036	6,030,957	2,060,345	4.4972	0.8787	5.3760	186,505	0.1217
	6,030,957	1,985,613	74,733	4,045,344	2,060,345					
	4,045,344	2,010,217	50,128	2,035,127	2,060,345					
	2,035,127	2,035,127	25,218	(0)	2,060,345					
	7,992,266	7,992,266	249,115	(0)	8,241,381					
8						4.7243	0.6517	5.3760	143,050	0.0933
9						4.9629	0.4131	5.3760	97,402	0.0635
10						5.2135	0.1625	5.3760	49,448	0.0323



Appolo Solar Development Pakistan Limited Debt Servicing Schedule

Interest Rate 2.65%

Period	US\$ Loan (Converted from RMB)					Annual Principal Repayment	Annual Interest	Annual Debt Servicing	Sinasure Fee	
	Principal	Repayment	Mark-up	Balance	Debt Service					
	Rs./MW	Rs./MW	Rs./MW	Rs./MW	Rs./MW	Rs./kWh	Rs./kWh	Rs./kWh	Rs./MW	Rs./kWh
1	59,553,145	1,305,159	394,540	58,247,986	1,699,699	3.4395	0.9955	4.4350	366,475	0.2391
	58,247,986	1,313,806	385,893	56,934,180	1,699,699					
	56,934,180	1,322,510	377,189	55,611,670	1,699,699					
	55,611,670	1,331,271	368,427	54,280,399	1,699,699					
	59,553,145	5,272,746	1,526,049	54,280,399	6,798,795					
	54,280,399	1,340,091	359,608	52,940,308	1,699,699					
	52,940,308	1,348,969	350,730	51,591,339	1,699,699					
2	51,591,339	1,357,906	341,793	50,233,433	1,699,699	3.5316	0.9034	4.4350	333,992	0.2179
	50,233,433	1,366,902	332,796	48,866,530	1,699,699					
	54,280,399	5,413,868	1,384,926	48,866,530	6,798,795					
	48,866,530	1,375,958	323,741	47,490,573	1,699,699					
	47,490,573	1,385,074	314,625	46,105,499	1,699,699					
	46,105,499	1,394,250	305,449	44,711,249	1,699,699					
	44,711,249	1,403,487	296,212	43,307,763	1,699,699					
3	48,866,530	5,558,768	1,240,027	43,307,763	6,798,795	3.6261	0.8089	4.4350	300,639	0.1961
	43,307,763	1,412,785	286,914	41,894,978	1,699,699					
	41,894,978	1,422,144	277,554	40,472,833	1,699,699					
	40,472,833	1,431,566	268,133	39,041,267	1,699,699					
	39,041,267	1,441,050	258,648	37,600,217	1,699,699					
	43,307,763	5,707,546	1,091,249	37,600,217	6,798,795					
	37,600,217	1,450,597	249,101	36,149,620	1,699,699					
4	36,149,620	1,460,207	239,491	34,689,412	1,699,699	3.7231	0.7118	4.4350	266,394	0.1738
	34,689,412	1,469,881	229,817	33,219,531	1,699,699					
	33,219,531	1,479,619	220,079	31,739,912	1,699,699					
	37,600,217	5,860,305	938,489	31,739,912	6,798,795					
	31,739,912	1,489,422	210,277	30,250,490	1,699,699					
	30,250,490	1,499,289	200,409	28,751,201	1,699,699					
	28,751,201	1,509,222	190,477	27,241,979	1,699,699					
5	27,241,979	1,519,221	180,478	25,722,758	1,699,699	3.9251	0.5099	4.4350	195,129	0.1273
	31,739,912	6,017,153	781,641	25,722,758	6,798,795					
	25,722,758	1,529,285	170,413	24,193,473	1,699,699					
	24,193,473	1,539,417	160,282	22,654,056	1,699,699					
	22,654,056	1,549,616	150,083	21,104,441	1,699,699					
	21,104,441	1,559,882	139,817	19,544,559	1,699,699					
	25,722,758	6,178,200	620,595	19,544,559	6,798,795					
6	19,544,559	1,570,216	129,483	17,974,343	1,699,699	4.0301	0.4048	4.4350	158,060	0.1031
	17,974,343	1,580,619	119,080	16,393,724	1,699,699					
	16,393,724	1,591,090	108,608	14,802,634	1,699,699					
	14,802,634	1,601,631	98,067	13,201,003	1,699,699					
	19,544,559	6,343,556	455,239	13,201,003	6,798,795					
	13,201,003	1,612,242	87,457	11,588,761	1,699,699					
	11,588,761	1,622,923	76,776	9,965,838	1,699,699					
7	9,965,838	1,633,675	66,024	8,332,163	1,699,699	4.1380	0.2970	4.4350	119,999	0.0783
	8,332,163	1,644,498	55,201	6,687,665	1,699,699					
	13,201,003	6,513,338	285,456	6,687,665	6,798,795					
	6,687,665	1,655,393	44,306	5,032,272	1,699,699					
	5,032,272	1,666,360	33,339	3,365,912	1,699,699					
	3,365,912	1,677,399	22,299	1,688,512	1,699,699					
	1,688,512	1,688,512	11,186	(0)	1,699,699					
10	6,687,665	6,687,665	111,130	-	6,798,795	4.3625	0.0725	4.4350	40,793	0.0266

