



Registrar

# National Electric Power Regulatory Authority Islamic Republic of Pakistan

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No. NEPRA/TRF-350/HSPL-2016/18248-18250

November 20, 2018

Subject: **Decision of National Electric Power Regulatory Authority in the matter of Tariff Adjustments at Commercial Operations Date (COD) Harappa Solar (Private) Limited (HSPL) [Case No. NEPRA/TRF-350/HSPL-2016]**

Dear Sir,

Please find enclosed herewith the subject Decision of the Authority along with Annexure-I & II (15 pages) in Case No. NEPRA/TRF-350/HSPL-2016.

2. The Decision is being intimated to the Federal Government for the purpose of notification in the official Gazette pursuant to Section 31(7) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997.

3. The Order of the Authority along with Annexure-I & II will be notified in the official Gazette.

Enclosure: As above

( Syed Safer Hussain )

Secretary  
Ministry of Energy (Power Division)  
'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 NATIONAL ELECTRIC POWER REGULATORY AUTHORITY**  
**IN THE MATTER OF TARIFF ADJUSTMENTS AT COMMERCIAL OPERATIONS DATE**  
**(COD) HARAPPA SOLAR (PRIVATE) LIMITED (HSPL)**

1. Harappa Solar (Pvt) Limited (HSPL) was awarded the Upfront Tariff of January 22, 2015 vide Authority's decision dated July 02, 2015 for its proposed 18 MW solar PV power plant at Harappa, Sahiwal. Later HSPL could not meet the conditions set out for the referred tariff.
2. The Authority issued the new Upfront Tariff on December 16, 2015. Accordingly HSPL vide its letter dated January 12, 2016 filed an application for unconditional acceptance of the new Upfront Tariff announced by the Authority dated December 16, 2015 with assumptions and conditions as approved by the Authority. The new Upfront Tariff was notified in the official Gazette vide SRO No. 1243(I)/2015 dated December 17, 2015.
3. The awarded levelized tariff to HSPL on February 26, 2016 as per the revised upfront tariff determination was Rs. 12.1093/kWh (US Cents 11.5327/kWh).
4. HSPL attained commercial operations on October 14, 2017. Accordingly it submitted its request for adjustment of relevant components of its tariff at commercial operations date (hereinafter referred to as "COD") through letter no. Ref: HSPL/NEPRA/OTA/17-01 dated November 17, 2017 and also submitted documents in support thereof as required time to time during the verification process.
5. The summary of assessed project cost allowed to 1 to 20 MW solar power plants, as per the upfront tariff determination dated December 16, 2015 is as under:

Description		US\$ /MW
EPC Cost		1,114,288
Land Cost		23,810
Project Development Cost		40,320
Insurance during construction		7,429
<b>CAPEX</b>		<b>1,185,846</b>
Financing Fees and Charges		31,128
Interest during construction		10,565
<b>Total Project Cost</b>		<b>1,227,540</b>
<b>Reference Values:</b>		
Rupee-Dollar Parity	=	Rs. 105/USD
US CPI (All Urban Consumers)	=	238.654
CPI (General)	=	201.620
Debt: Equity Ratio	=	75:25

6. Summary of the reference tariff as per the approved upfront tariff determination of the Authority dated February 26, 2016 is as follows:

**Specified Reference Tariff**  
**NORTH REGION**

Description	Year 1-10	Year 11-25	Indexations
	Rs./kWh	Rs./kWh	
O&M	1.8714	1.8714	CPI , US CPI, PKR/US\$
Insurance	0.7857	0.7857	Actual on annual basis
ROE	3.8911	3.8911	PKR/US\$
Debt Servicing	8.2154	-	PKR/US\$ & LIBOR/KIBOR
<b>Total Tariff</b>	<b>14.7634</b>	<b>6.5481</b>	

7. **One Time Adjustments (Allowed):**

- 7.1 Following one-time adjustments were provided by the Authority in the aforementioned upfront tariff determination dated February 26, 2016;

- i. As the exact timing of payment to EPC contractor was not known at the time of upfront tariff award, therefore, an adjustment for the relevant foreign currency fluctuation for the 90% of the EPC portion of payment in the foreign currency was allowed to be made against the reference exchange rate of Rs. 105/US\$ on the basis of monthly average exchange rates prevailing on 1<sup>st</sup> day of each month during the construction period. The adjustment has to be made only for the currency fluctuation against the reference parity values.
- ii. Interest during construction was allowed be reestablished on the basis of actual project financing and weighted average quarterly LIBOR/KIBOR and applicable premiums 4.5% and 3% respectively. Saving in premium was allowed to be shared in the ratio of 60:40 between power purchaser and power producer.
- iii. In case Sinasure fee or export credit agency fee on foreign financing, it was referred that 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.

8. **Head wise discussion on the admissible one-time adjustments claimed:**

Below is the component wise detail on the admissible claim of one-time adjustments allowed:

## 8.1 EPC Cost:

8.1.1 HSPL was allowed an EPC cost of US \$ 1,114,288 / MW (US\$ 20.057 million) as per the upfront tariff determination dated Dec 16, 2015. It was referred in the upfront tariff that *"90% of the EPC cost is to be adjusted at COD for currency fluctuation against reference exchange rate of Rs. 105 US\$ on the basis of monthly average exchange rates prevailing on 1st day of each month during the construction period."*

8.1.2 HSPL submitted that it had achieved financial close on Feb 23, 2017 as per the letter No B/3/2/SPV/HSPL/14 issued by Alternate Energy Development Board (AEDB) and the project achieved commercial operations on Oct 14, 2017 as per the notification by Central Power Purchasing Agency (Guarantee) Limited vide letter No TECH/DGMT-II/MT-V/HSPL/369009-28 dated October 26, 2017.

8.1.3 The average exchange rate based on the exchange rates prevailing on 1<sup>st</sup> day of each month during the construction period as claimed by HSPL is tabulated below:

Date	Mar 2017	April 2017	May 2017	June 2017	July 2017	Aug 2017	Sep 2017	Oct 2017	Avg Ex Rate
Ex. Rate	104.60	104.85	104.70	104.70	105.00	105.50	105.40	105.45	105.03

8.1.4 The Authority while considering the above noted that the reference EPC cost is US\$ 1,114,288/MW (Rs. 117,000,240/MW @Rs. 105 US\$). After adjusting 90% of this EPC cost for exchange rate variation allowed, the per MW EPC cost works out to be Rs. 117,025,311 @ Rs. 105.025 US\$. Thus the Authority decided to allow the adjusted EPC cost of Rs. 2,106.455 million (USD 20.057 million) for 18 MW power plant as summarized below:

%	Reference Tariff			Claimed at COD			Allowed at COD		
	EPC Cost in US\$ /MW	Exc. Rate	EPC Cost in Rs. /MW	EPC Cost in US\$ /MW	Exc. Rate	EPC Cost in Rs. /MW	EPC Cost in US\$ /MW	Exc. Rate	EPC Cost in Rs. /MW
90	1,002,859	105	105,300,216	1,002,859	105.30	105,330,302	1,002,859	105.25	105,325,287
10	111,429	105	11,700,024	111,429	105	11,700,024	111,429	105	11,700,024
100	1,114,288		117,000,240	1,114,288		117,030,326	1,114,288		117,025,311

## 8.2 Taxes and Duties:

8.2.1 The solar upfront tariff dated December 16, 2015 awarded to HSPL by the Authority on February 26, 2016 did not explicitly mention adjustment of taxes and duties on import of plant and machinery, the tax adjustment clause (para xix Terms and Conditions of tariff) stated as under:

*"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 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. However, withholding tax on dividend will not be passed through.”*

- 8.2.2 However a Review Motion was filed against the solar upfront tariff determination dated December 16, 2015 and the revised decision issued by the Authority on April 19, 2016 incorporated:

*“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 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 except for the taxes and duties on the import of plant & machinery during the construction period, which shall be included in the project cost at the time of COD adjustment. However, withholding tax on dividend will not be passed through.”*

- 8.2.3 Subsequently, HSPL vide letter dated April 10, 2018 requested the Authority to consider the above modified para 5 V (xix) of the upfront tariff determination as issued by the Authority on April 19, 2016, for its COD stage tariff.
- 8.2.4 HSPL claimed duties and taxes amounting to USD 300,185 (Rs. 31. 543 million) at the rate of Rs. 105.08 US\$ on import of plant and machinery during the project construction period against the Offshore EPC cost of USD 16.442 million. HSPL in support has submitted copies of Goods Declaration, Cess and Custom duty payment challans etc. HSPL claimed Punjab and Sindh Infrastructure Cess on EPC offshore and an un-adjustable sales tax (5%) on EPC onshore cost.
- 8.2.5 HSPL submitted that it has paid a non-adjustable sales tax (5%) amounting to Rs. 4.888 million imposed by Punjab Government through notification No PAP/Legis-2(163)/2017/1621 dated June 16, 2017 on construction services in the Province. This tax was of non-adjustable nature, therefore HSPL requested the Authority to allow non-adjustable sales tax incurred against the payments made to M/s Banu Mukhtar Contracting (Pvt) Limited as pass through pursuant to para 5 (V) xix of the determination. HSPL in support of its claim submitted relevant source documents including Punjab Government above referred notification.
- 8.2.6 The Authority considering the above claim of HSPL concluded to allow a total of Rs. 36.432 million (USD 346,539 at the rate of Rs. 105.14 US\$) as duties and un-adjustable taxes paid against the Offshore and Onshore EPC Contracts detailed as under:

Description	EPC Cost in USD millions	Type of Duties and Taxes	Allowed in Rs. millions	Exchange Rate
Offshore EPC cost (Paid)	16.442	Sindh Cess (1.10% - 1.15%)	31.543	105.08
Onshore EPC Cost (Paid)	3.526	Sales Tax (5%) unadjustable	4.888	105.50
<b>Total</b>	<b>19.969</b>		<b>36.432</b>	<b>105.14</b>

### 8.3 Interest During Construction:

8.3.1 The Authority allowed US\$ 10,565/MW i.e. US\$ 0.190 million to HSPL for interest during construction in the upfront tariff awarded vide decision dated December 16, 2015. The Authority provided following mechanism for the adjustment of IDC at the time of COD;

*“Interest during construction will be reestablished on the basis of actual project financing and weighted average quarterly LIBOR/KIBOR and applicable premiums 4.5% and 3% respectively. Saving in premium shall be shared in the ratio of 60:40 between power purchaser and power producer.”*

8.3.2 HSPL claimed that it raised the debt part of the project through a mix of foreign and local financing. HSPL acquired two loan facilities as below:

Loan	Lender Bank	Loan Amount	Share	Interest rate	Location
Foreign Loan USD 8,221,320	ECO Trade and Development Bank	USD 8,221,320	100%	LIBOR + 3.5%	Turkey
Local Loan PKR 1,096,530,000	Bank of Punjab	PKR 603,091,500	55%	KIBOR + 3% & SBP 6% (Re-finance)	Pakistan
	Askari Bank	PKR 493,438,500	45%	KIBOR + 3% & SBP 6% (Re-finance)	Pakistan

8.3.3 HSPL in its COD tariff adjustment request has claimed an IDC of Rs. 35.925 million on the above mentioned two financing facilities. HSPL submitted that it applied for State Bank of Pakistan refinance scheme for renewable energy. The company qualified for the concessionary refinance of local currency debt at fixed rate of 6% as approved by SBP vide letter No. IH&SMEFD/REPP/2017-7606 dated March, 2017.

8.3.4 HSPL in support of its claim submitted the confirmation letter dated February 26, 2018 from the intercreditor agent i.e Bank of Punjab regarding interest during construction amounting to Rs. 35.925 million as summarized hereunder:

Bank	Amount paid for the Quarter Ended			Amount paid	Total
	Mar-17	June-17	Sep-17	Up to Oct 13, 2017	
BOP	90,184	3,761,667	6,878,785	1,003,685	11,734,321
Askari	73,787	3,260,132	5,762,284	846,766	9,942,969
ETDB	68,109	3,189,808	7,150,538	901,303	11,309,758
Comm. On FCY SBLC paid to BOP and AKBL	21,809	1,609,221	1,307,092	0	2,938,122
<b>Grand Total</b>					<b>35,925,122</b>

- 8.3.5 In view of above claim of HSPL, the IDC paid on the foreign facility loan of USD 5.592 M cumulates to Rs. 11.309 million and the IDC paid on the local facility loan of PKR 674.123 M cumulates to Rs. 21.677 million. In addition to IDC paid an amount of Rs. 2.938 million has also been claimed by HSPL as SBLC Fee of 1.2% on the Stand by Letter of Credit (SBLC) of foreign loan facility paid to the local lenders (Bank of Punjab and Askari Bank) for arranging the foreign loan.
- 8.3.6 HSPL submitted the financing agreements, interest payment invoices issued by the lender, evidence of interest payment and its calculation of the IDC.
- 8.3.7 HSPL submitted that foreign financing of USD 8.2 million has been negotiated on 3.5% spread for which an additional bank guarantee was obtained. HSPL therefore claimed the 1.2% SBLC fee paid to Bank of Punjab and Askari Bank Limited for arranging this foreign loan. HSPL vide its letter dated July 30, 2018 further submitted that as a result of this, foreign loan was managed and also at spread of 3.5% over LIBOR. A total of 4.7% markup on foreign facility (LIBOR + 3.5% spread plus 1.2% SBLC fee) was claimed under foreign IDC.
- 8.3.8 HSPL in its claim has also stated that local financing of PKR 1.096 billion has been negotiated under the SBP refinancing scheme where the applicable interest rate of 6% is applicable on the local loan facility, however the base interest rate KIBOR + 3% would be charged during the period wherein refinance was not available to commercial banks from SBP against loan obtained by HSPL. HSPL submitted relevant evidence which reflected this gap in between the refinance available.
- 8.3.9 HSPL submitted the refinance claim of 6% along with Rs. 5.562 million for the period wherein commercial banks charged KIBOR + 3% on local financing due to the delays involved in refinancing from SBP.
- 8.3.11 After deliberation, the Authority decided to allow foreign IDC of USD 108,947 (Rs. 11.390 million at the rate of Rs. 105.52 US\$) including the 1.2% incurred on SBLC for arranging the foreign financing however restricted it to the spread ceiling of 4.5% allowed in the upfront tariff.

8.3.12 The Authority also decided to allow local IDC of Rs. 14.649 million against the local loan of Rs. 674.123 million on the applicable spread refinance rate of SBP fixed 6% along with Rs. 5.562 million (KIBOR + 3%) paid by the HSPL to commercial banks during period where SBP refinance was not available.

8.3.13 The Authority therefore allowed a cumulative IDC of Rs. 31.603 million.

Loan	Loan Amount (M)	Allowed (Rs. in M)
Foreign	USD 5.592	11.390
Local	PKR 674	14.650
Claim of K+3%	PKR 674	5.563
<b>Total</b>		<b>31.603</b>

#### 8.4 Insurance during construction:

8.4.1 The upfront tariff had allowed insurance during construction of USD 7,429/MW. Since this was not an opener item at COD Stage tariff adjustment. Accordingly the Authority did not consider the amount claimed by HSPL over and above already allowed in upfront tariff.

#### 8.5 Insurance during operation:

8.5.1 The Authority allowed insurance during operation component of Rs. 0.7857/kWh in the awarded upfront tariff determination dated Feb 26, 2016 and provided following mechanism for the adjustment of insurance component;

*“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	=	$Ins(Ref) / P(Ref) * P(Act)$
Where		
AIC	=	Adjusted Insurance Component of Tariff
Ins(Ref)	=	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

8.5.2 The Authority therefore decided to allow the claimed insurance during operation cost as 0.61% of EPC Cost being within allowed threshold and allowed revision in revision in insurance component of tariff at Rs. 0.4808/kWh.



## 8.6 Debt Servicing component:

- 8.6.1 In the upfront tariff allowed, debt servicing component has been worked out on the basis of debt equity ratio of 75:25. The debt repayment period of 10 years has been applied with equal quarterly installments and cost of debt of LIBOR + 4.5% premium. In case of local financing SBP 6% fixed debt servicing cost has been allowed.
- 8.6.2 HSPL claimed total debt service component of 9.6700 Rs./kWh.
- 8.6.3 The Authority consistent to the upfront tariff adjusted the debt servicing component in ratio of 75:25 debt:equity. The Authority also adjusted the debt component as per the foreign and local financing mix and decided to allow the debt component of Rs. 8.7715/kWh.

## 8.7 Indexations:

In view of the post COD indexation claimed by HSPL for O&M and RoE, the Authority decided that this tariff decision is the COD Stage Tariff determination. Any subsequent adjustment can be claimed through separate request as allowed in tariff mechanism approved.

## 9. Order

- I. The Authority hereby determines and approves the following upfront tariff for Harappa Solar (Pvt) Limited and adjustments/indexations for solar power generation for delivery of electricity to the power purchaser based on solar PV power plant of 18 MW located near Harappa bypass, Tehsil & District Sahiwal, in the Province of Punjab.

### Specified Reference Tariff

#### NORTH REGION

Description	Year 1-10	Year 11-25	Indexations
	Rs./kWh	Rs./kWh	
O&M	1.8714	1.8714	CPI, US CPI, PKR/US\$
Insurance	0.4808	0.4808	Actual on annual basis
ROE	3.9921	3.9921	PKR/US\$
Debt Servicing	8.7715	-	PKR/US\$ & LIBOR/KIBOR
<b>Total Tariff</b>	<b>15.1159</b>	<b>6.3443</b>	

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

## 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 upon production of authentic documentary evidence 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 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 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
$ROE_{(Ref)}$	=	ROE Component of Tariff established at the time of COD
$ER_{(Rev)}$	=	The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan
$ER_{(Ref)}$	=	Reference Exchange Rate at the time of COD

#### 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 1<sup>st</sup> July, 1<sup>st</sup> October, 1<sup>st</sup> January and 1<sup>st</sup> 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:

$L O\&M_{(REV)}$	=	$70\% \text{ of } O\&M_{(REF)} * CPI_{(REV)} / CPI_{(REF)}$
$F O\&M_{(REV)}$	=	$30\% \text{ of } O\&M_{(REF)} * US CPI_{(REV)} / US CPI_{(REF)} * ER_{(REV)} / ER_{(REF)}$
Where:		
$L O\&M_{(REV)}$	=	the revised applicable Local O&M Component of tariff
$F O\&M_{(REV)}$	=	the revised applicable Foreign O&M Component of tariff
$O\&M_{(REF)}$	=	the reference O&M component of tariff for North Region Rs. 1.8714/kWh.

$CPI_{(REV)}$	=	the revised Consumer Price Index (General) published by Pakistan Bureau of Statistics.
$CPI_{(REF)}$	=	the reference Consumer Price Index (General) of 201.620 for the month of July 2015
$US\ CPI_{(REV)}$	=	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 238.654 for the month of July 2015
$ER_{(REV)}$	=	the revised TT & OD selling rate of US dollar published by National Bank of Pakistan
$ER_{(REF)}$	=	the reference TT & OD selling rate of RS. 105/US dollar

iii) **INDEXATION FOR LIBOR 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 according to the following formula;

$\Delta I$	=	$P_{(REV)} * (LIBOR_{(REV)} - 0.31\%) / 4$
Where:		
$\Delta I$	=	the variation in interest charges applicable corresponding to variation in 3 months LIBOR. $\Delta I$ can be positive or negative depending upon whether $LIBOR_{(REV)}$ is > or < 0.31%. The interest payment obligation will be enhanced or reduced to the extent of $\Delta I$ 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 <sup>st</sup> installment is due after availing the grace period.

IV. **TERMS AND CONDITIONS OF TARIFF**

The above tariff and terms and conditions, stipulated hereunder, shall be incorporated in the Energy Purchase Agreement between the Power Purchaser and the Power Producer:

- i. All plant and equipment shall be new and shall be designed, manufactured tested and certified against quality and safety in accordance with the applicable IEC or other relevant standards.
- ii. 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
- iii. Being located in Northern Region, Capacity Utilization Factors for project will be 17%.
- iv. In case the actual output exceeds the required 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% to 18%	80%
Above 18% to 19%	90%
Above 19%	100%

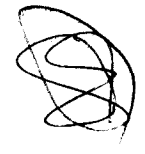
- v. The risk of lower solar irradiation will be on the HSPL.
- vi. The tariff control period will be 25 years from the date of commercial operation.
- vii. The dispatch will be at appropriate voltage level from 11kV to 220kV mutually agreed between the power purchaser and the HSPL.
- viii. The eligibility criteria for opting upfront solar tariff will be as under:
  - a. The projects whose proposed plant & machinery is confirmed to be new as per undertaking/affidavit to be provided by the project sponsors along with their applications to the Authority for acceptance of upfront tariff.
  - b. The projects having obtained the approval of NTDC/DISCO for Grid connectivity and simulation studies to the effect that solar based power will be evacuated in accordance with the project timeline and further that the power injected through the project will not have any adverse effect on the national grid as required under the Grid Code.
- ix. The impact of degradation has been accounted for in the tariff and there shall be no separate payment on account of degradation during the entire term of the tariff control period.
- x. Pre COD sale of electricity to the power purchaser, if any, is allowed subject to the terms and conditions of EPA, at the applicable tariff excluding principal repayment of debt component and interest component.
- xi. 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.
- xii. The debt part of the project has been financed through mix of local and foreign financing and the debt servicing component will be adjusted accordingly


- xiii. The adjustment/indexation of this tariff will be made on the basis of benchmarks allowed by the Authority for this Upfront Tariff in accordance with the indexation mechanism stipulated therein. No project specific adjustments shall be taken into account.
- xiv. In case the HSPL is obligated to pay any tax on its income from generation of electricity, or any duties and/or taxes, not being of adjustable nature, are imposed on HSPL, the exact amount paid 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. However, withholding tax on dividend will not be passed through.
- xv. 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 Annex-I and Annex-II shall be notified in the Official Gazette in terms of Section 31(7) of the Regulations of Generation, Transmission and Distribution of Electric Power Act, 1997.

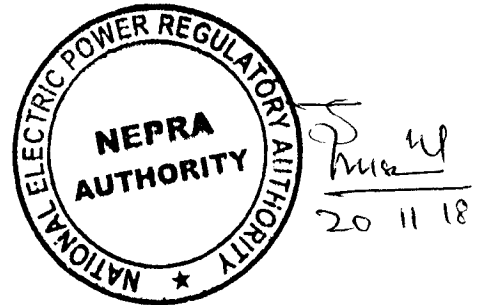
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**AUTHORITY**

  
(Saif Ullah Chattha)  
Member  
20/11/2018

  
20/11/2018  
(Rehmatullah)  
Member/ Vice Chairman

  
(Brig (R) Tariq Saddozai)  
Chairman



### Harappa Solar (Pvt.) Limited Reference Tariff Table (North)

Year	O&M	Insurance	Return on Equity	Debt Servicing	Total Tariff	
	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	¢ per kWh
1	1.8714	0.4808	3.9921	8.7715	15.1159	14.3961
2	1.8714	0.4808	3.9921	8.7715	15.1159	14.3961
3	1.8714	0.4808	3.9921	8.7715	15.1159	14.3961
4	1.8714	0.4808	3.9921	8.7715	15.1159	14.3961
5	1.8714	0.4808	3.9921	8.7715	15.1159	14.3961
6	1.8714	0.4808	3.9921	8.7715	15.1159	14.3961
7	1.8714	0.4808	3.9921	8.7715	15.1159	14.3961
8	1.8714	0.4808	3.9921	8.7715	15.1159	14.3961
9	1.8714	0.4808	3.9921	8.7715	15.1159	14.3961
10	1.8714	0.4808	3.9921	8.7715	15.1159	14.3961
11	1.8714	0.4808	3.9921	-	6.3443	6.0422
12	1.8714	0.4808	3.9921	-	6.3443	6.0422
13	1.8714	0.4808	3.9921	-	6.3443	6.0422
14	1.8714	0.4808	3.9921	-	6.3443	6.0422
15	1.8714	0.4808	3.9921	-	6.3443	6.0422
16	1.8714	0.4808	3.9921	-	6.3443	6.0422
17	1.8714	0.4808	3.9921	-	6.3443	6.0422
18	1.8714	0.4808	3.9921	-	6.3443	6.0422
19	1.8714	0.4808	3.9921	-	6.3443	6.0422
20	1.8714	0.4808	3.9921	-	6.3443	6.0422
21	1.8714	0.4808	3.9921	-	6.3443	6.0422
22	1.8714	0.4808	3.9921	-	6.3443	6.0422
23	1.8714	0.4808	3.9921	-	6.3443	6.0422
24	1.8714	0.4808	3.9921	-	6.3443	6.0422
25	1.8714	0.4808	3.9921	-	6.3443	6.0422
Levelized	1.8714	0.4808	3.9921	5.9378	12.2821	11.6972



**Harappa Solar (Pvt.) Limited**  
**Debt Servicing Schedule (Foreign)**

Period	Foreign Debt					Annual Principal Repayment	Annual Interest	Annual Debt Servicing
	Principal	Repayment	Mark-up	Balance	Debt Service			
	US\$/MW	US\$/MW	US\$/MW	US\$/MW	US\$/MW	Rs./kWh	Rs./kWh	Rs./kWh
1	437,404	8,260	6,053	429,144	14,313	2.38	1.66	4.0367
	429,144	8,374	5,939	420,770	14,313			
	420,770	8,490	5,823	412,279	14,313			
	412,279	8,608	5,705	403,672	14,313			
	437,404	33,732	23,520	403,672	57,252			
	403,672	8,727	5,586	394,945	14,313			
	394,945	8,848	5,465	386,097	14,313			
	386,097	8,970	5,343	377,127	14,313			
2	377,127	9,094	5,219	368,033	14,313	2.51	1.52	4.0367
	403,672	35,638	21,614	368,033	57,252			
	368,033	9,220	5,093	358,813	14,313			
	358,813	9,348	4,965	349,466	14,313			
	349,466	9,477	4,836	339,989	14,313			
3	339,989	9,608	4,705	330,381	14,313	2.65	1.38	4.0367
	368,033	37,653	19,600	330,381	57,252			
	330,381	9,741	4,572	320,640	14,313			
	320,640	9,876	4,437	310,764	14,313			
	310,764	10,012	4,301	300,751	14,313			
4	300,751	10,151	4,162	290,600	14,313	2.80	1.23	4.0367
	330,381	39,780	17,472	290,600	57,252			
	290,600	10,292	4,022	280,309	14,313			
	280,309	10,434	3,879	269,875	14,313			
	269,875	10,578	3,735	259,297	14,313			
5	259,297	10,725	3,588	248,572	14,313	2.96	1.07	4.0367
	290,600	42,029	15,224	248,572	57,252			
	248,572	10,873	3,440	237,699	14,313			
	237,699	11,024	3,289	226,675	14,313			
	226,675	11,176	3,137	215,499	14,313			
6	215,499	11,331	2,982	204,168	14,313	3.13	0.91	4.0367
	248,572	44,404	12,848	204,168	57,252			
	204,168	11,488	2,825	192,680	14,313			
	192,680	11,647	2,666	181,034	14,313			
	181,034	11,808	2,505	169,226	14,313			
7	169,226	11,971	2,342	157,255	14,313	3.31	0.73	4.0367
	204,168	46,913	10,339	157,255	57,252			
	157,255	12,137	2,176	145,118	14,313			
	145,118	12,305	2,008	132,813	14,313			
	132,813	12,475	1,838	120,338	14,313			
8	120,338	12,648	1,665	107,690	14,313	3.49	0.54	4.0367
	157,255	49,564	7,688	107,690	57,252			
	107,690	12,823	1,490	94,868	14,313			
	94,868	13,000	1,313	81,868	14,313			
	81,868	13,180	1,133	68,687	14,313			
9	68,687	13,362	951	55,325	14,313	3.69	0.34	4.0367
	107,690	52,366	4,887	55,325	57,252			
	55,325	13,547	766	41,778	14,313			
	41,778	13,735	578	28,043	14,313			
	28,043	13,925	388	14,118	14,313			
10	14,118	14,118	195	0	14,313	3.90	0.14	4.0367
	55,325	55,325	1,927	0	57,252			



**Harappa Solar (Pvt.) Limited**  
**Debt Servicing Schedule (Local)**

Period	Local Debt					Annual Principal Repayment	Annual Interest	Annual Debt Servicing
	Principal	Repayment	Mark-up	Balance	Debt Service			
	Rs./MW	Rs./MW	Rs./MW	Rs./MW	Rs./MW			
1	52,734,988	971,753	791,025	51,763,235	1,762,778	2.6695	2.0654	4.7348
	51,763,235	986,329	776,449	50,776,905	1,762,778			
	50,776,905	1,001,124	761,654	49,775,781	1,762,778			
	49,775,781	1,016,141	746,637	48,759,640	1,762,778			
	52,734,988	3,975,348	3,075,764	48,759,640	7,051,111			
	48,759,640	1,031,383	731,395	47,728,257	1,762,778			
	47,728,257	1,046,854	715,924	46,681,403	1,762,778			
2	46,681,403	1,062,557	700,221	45,618,846	1,762,778	2.8333	1.9016	4.7348
	45,618,846	1,078,495	684,283	44,540,351	1,762,778			
	48,759,640	4,219,289	2,831,822	44,540,351	7,051,111			
	44,540,351	1,094,673	668,105	43,445,679	1,762,778			
	43,445,679	1,111,093	651,685	42,334,586	1,762,778			
	42,334,586	1,127,759	635,019	41,206,827	1,762,778			
	41,206,827	1,144,675	618,102	40,062,152	1,762,778			
3	44,540,351	4,478,200	2,572,912	40,062,152	7,051,111	3.0071	1.7277	4.7348
	40,062,152	1,161,846	600,932	38,900,306	1,762,778			
	38,900,306	1,179,273	583,505	37,721,033	1,762,778			
	37,721,033	1,196,962	565,815	36,524,071	1,762,778			
	36,524,071	1,214,917	547,861	35,309,154	1,762,778			
	40,062,152	4,752,998	2,298,113	35,309,154	7,051,111			
	35,309,154	1,233,140	529,637	34,076,013	1,762,778			
4	34,076,013	1,251,638	511,140	32,824,376	1,762,778	3.1916	1.5432	4.7348
	32,824,376	1,270,412	492,366	31,553,964	1,762,778			
	31,553,964	1,289,468	473,309	30,264,495	1,762,778			
	35,309,154	5,044,659	2,006,453	30,264,495	7,051,111			
	30,264,495	1,308,810	453,967	28,955,685	1,762,778			
	28,955,685	1,328,443	434,335	27,627,242	1,762,778			
	27,627,242	1,348,369	414,409	26,278,873	1,762,778			
5	26,278,873	1,368,595	394,183	24,910,278	1,762,778	3.3875	1.3473	4.7348
	30,264,495	5,354,217	1,696,894	24,910,278	7,051,111			
	24,910,278	1,389,124	373,654	23,521,155	1,762,778			
	23,521,155	1,409,960	352,817	22,111,194	1,762,778			
	22,111,194	1,431,110	331,668	20,680,085	1,762,778			
	20,680,085	1,452,577	310,201	19,227,508	1,762,778			
	24,910,278	5,682,770	1,368,341	19,227,508	7,051,111			
6	19,227,508	1,474,365	288,413	17,753,143	1,762,778	3.8160	0.9188	4.7348
	17,753,143	1,496,481	266,297	16,256,662	1,762,778			
	16,256,662	1,518,928	243,850	14,737,734	1,762,778			
	14,737,734	1,541,712	221,066	13,196,023	1,762,778			
	19,227,508	6,031,485	1,019,626	13,196,023	7,051,111			
	13,196,023	1,564,837	197,940	11,631,185	1,762,778			
	11,631,185	1,588,310	174,468	10,042,875	1,762,778			
7	10,042,875	1,612,135	150,643	8,430,740	1,762,778	4.0502	0.6847	4.7348
	8,430,740	1,636,317	126,461	6,794,424	1,762,778			
	13,196,023	6,401,599	649,512	6,794,424	7,051,111			
	6,794,424	1,660,861	101,916	5,133,562	1,762,778			
	5,133,562	1,685,774	77,003	3,447,788	1,762,778			
	3,447,788	1,711,061	51,717	1,736,727	1,762,778			
	1,736,727	1,736,727	26,051	(0)	1,762,778			
8	794,424	6,794,424	256,688	(0)	7,051,111	4.2987	0.4361	4.7348
9						4.5625	0.1724	4.7348

