



National Electric Power Regulatory Authority Islamic Republic of Pakistan

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No. NEPRA/TRF-350/HSPL-2016/2624-2626
February 26, 2016

Subject: Revised Decision of National Electric Power Regulatory Authority in the matter of Application of Harappa Solar (Private) Limited (HSPL) for Unconditional Acceptance of Upfront Tariff for 18 MW Solar PV Power Plant [Case No. NEPRA/TRF-350/HSPL-2016]

Dear Sir,

Please refer to this office letters No. NEPRA/TRF-324/HSPL-2015/9991-9993 dated 02.07.2015 and No. NEPRA/TRF-324/HSPL-2015/13065-13067 dated 04.09.2015 whereby Approval of NEPRA in the matter of Application of Harappa Solar (Pvt.) Ltd. for Unconditional Acceptance of Upfront Tariff for 18 MW Solar PV Power Plant and Revised Order of NEPRA respectively were communicated for Notification in the official Gazette.

2. Please find enclosed herewith the subject Revised Decision of the Authority along with Annexure-I & II (08 pages) in Case No. NEPRA/TRF-350/HSPL-2016.

2. The enclosed Revised 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, 1997.

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

Enclosure: As above


26/2/16
(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.



**REVISED DECISION OF NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
IN THE MATTER OF APPLICATION OF HARAPPA SOLAR (PRIVATE) LIMITED (HSPL)
FOR UNCONDITIONAL ACCEPTANCE OF UPFRONT TARIFF FOR 18 MW SOLAR PV
POWER PLANT**

1. Harappa Solar (Pvt) Limited (HSPL) having generation license No. SPG/15/2015 dated 19-08-2015 had previously been awarded the Upfront Solar Tariff against determination of the Authority dated 22-01-2015 vide its decision No. NEPRA/TRF-324/HSPL-2015/9991-9993 dated 2nd July 2015 for its proposed 18 MW solar PV power plant at Harappa, Sahiwal. Subsequently the Authority revised the decision awarded to HSPL vide its decision No. NEPRA/TRF-324/HSPL-2015/13065-13067 dated 4th September 2015 with the revision of the Authority's decision dated 22-01-2015 against decision in the matter of motion for leave for review dated 25-5-2015.
2. HSPL vide its letter dated 12th January 2016 filed an application for unconditional acceptance of the new Upfront Tariff announced by the Authority dated 16th December 2015 with assumptions and conditions as approved by the Authority in lieu of the earlier granted/approved Upfront Solar Tariff dated 4th September 2015. The new Upfront Tariff was notified in the official Gazette vide SRO No. 1243(I)/2015 dated 17th December 2015.
3. HSPL has separately filed a Motion for Leave for Review dated 23-12-2015 against the decision of the Authority dated 16-12-2015 and requested that its application for unconditional acceptance of Upfront Tariff be processed and approved independently from the Motion for Leave for Review and any subsequent modification made by NEPRA in the determination be allowed through a revised order to the company as well as per established precedent.
4. Considering the unconditional application of HSPL for new upfront tariff, being lower as compare to the earlier upfront tariff, and tariff approvals in similar cases, the Authority has decided to accept the unconditional application for revised tariff and accordingly to approve the Upfront Solar Tariff dated 16th December 2015 in lieu of Upfront Tariff granted vide No. NEPRA/TRF-324/HSPL-2015/13065-13067 dated 4th September 2015.to HSPL
5. **Revised 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	0.7857	0.7857	Actual on annual basis
ROE	3.8911	3.8911	PKR/US\$
Debt Servicing	8.2154	-	PKR/US\$ & LIBOR/KIBOR
Total Tariff	14.7634	6.5481	

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

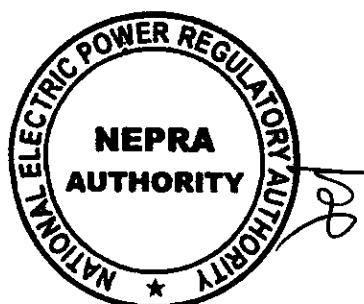
II. ONE TIME ADJUSTMENT AT COD

- i) Since the exact timing of payment to EPC contractor is not known at this point of time, therefore, an adjustment for the relevant foreign currency fluctuation for the 90% of the EPC portion of payment in the foreign currency will be made against the 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. The adjustment shall be made only for the currency fluctuation against the reference parity values.
- ii) 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.
- iii) In case Sinasure 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.

III. 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





IV. 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 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:

$L O\&M_{(REV)}$	=	$70\% \text{ of } O\&M_{(REF)} * CPI_{(REV)} / CPI_{(REF)}$
$F O\&M_{(REV)}$	=	$30\% \text{ of } O\&M_{(REF)} * US CPI_{(REV)} / US CPI_{(REF)} * ER_{(REV)} / ER_{(REF)}$
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;

ΔI	=	$P_{(REV)} * (LIBOR_{(REV)} - 0.31\%) / 4$
Where:		
ΔI	=	the variation in interest charges applicable corresponding to variation in 3 months LIBOR. ΔI 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 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.

V. **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:

- 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.
- 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.
- The companies interested in availing upfront tariff will submit unconditional formal application to NEPRA for approval by the Authority in accordance with the NEPRA Upfront Tariff (Approval and Procedure) Regulations 2011.
- Capacity Utilization Factors for North region will be 17%.
- 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% to 18%	80%
Above 18% to 19%	90%
Above 19%	100%

- vi. The risk of lower solar irradiation will be on the power producer.
- vii. This upfront tariff will be applicable w.e.f. 1st January 2016 and will remain valid for a period of 6 months i.e. 30th June 2016.
- viii. The applicant will have to achieve financial close within one year from the date of approval of the upfront tariff in favor of the applicant. The upfront tariff granted to the applicant will no longer remain applicable/valid, if financial close is not achieved by the applicant within the stipulated time or generation license is declined to the applicant.
- ix. The tariff control period will be 25 years from the date of commercial operation.
- x. The dispatch will be at appropriate voltage level from 11kV to 220kV mutually agreed between the power purchaser and the power producer.
- xi. The targeted maximum construction period after financial close is 8 months. No adjustment will be allowed in this tariff to account for financial impact of any delay in project construction. However, the failure of the applicant to complete construction within the stipulated time will not invalidate the tariff granted to it.
- xii. 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.
- xiii. 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.
- xiv. Pre COD sale of electricity to the power purchaser, if any, shall be allowed subject to the terms and conditions of EPA, at the applicable tariff excluding principal repayment of debt component and interest component.
- xv. 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.
- xvi. The decision to opt for upfront tariff once exercised will be irrevocable.





- xvii. Debt part of the project financing has been assumed on foreign financing. However, the debt part of the project can also be financed through local financing or mix of local and foreign financing and the debt servicing component will be adjusted accordingly.
- xviii. The adjustment/indexation of upfront tariff will be made on the basis of benchmarks assumed by the Authority for Upfront Tariff in accordance with the indexation mechanism stipulated herein above and respective Upfront Tariff will be applicable to the solar PV projects coming under the Upfront Tariff regime. No project specific adjustments shall be taken into account.
- xix. 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.
- xx. 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.
- VI. 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(4) of the Regulations of Generation, Transmission and Distribution of Electric Power Act, 1997.

AUTHORITY

(Khawaja Muhammad Naeem)

Member

(Humayat Ullah Khan)

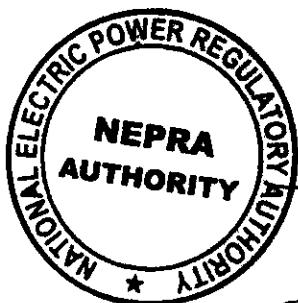
Member

(Masood-ul-Hassan Naqvi)

Member

(Maj (R) Haroon Rashid)

Vice Chairman



(Brig (R) Tariq Saddozai)

Chairman

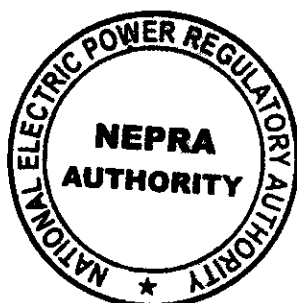
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Harappa Solar (Pvt) Limited Reference Tariff Table (North)

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	0.7857	3.8911	8.2154	14.7634	14.0604
2	1.8714	0.7857	3.8911	8.2154	14.7634	14.0604
3	1.8714	0.7857	3.8911	8.2154	14.7634	14.0604
4	1.8714	0.7857	3.8911	8.2154	14.7634	14.0604
5	1.8714	0.7857	3.8911	8.2154	14.7634	14.0604
6	1.8714	0.7857	3.8911	8.2154	14.7634	14.0604
7	1.8714	0.7857	3.8911	8.2154	14.7634	14.0604
8	1.8714	0.7857	3.8911	8.2154	14.7634	14.0604
9	1.8714	0.7857	3.8911	8.2154	14.7634	14.0604
10	1.8714	0.7857	3.8911	8.2154	14.7634	14.0604
11	1.8714	0.7857	3.8911	-	6.5481	6.2363
12	1.8714	0.7857	3.8911	-	6.5481	6.2363
13	1.8714	0.7857	3.8911	-	6.5481	6.2363
14	1.8714	0.7857	3.8911	-	6.5481	6.2363
15	1.8714	0.7857	3.8911	-	6.5481	6.2363
16	1.8714	0.7857	3.8911	-	6.5481	6.2363
17	1.8714	0.7857	3.8911	-	6.5481	6.2363
18	1.8714	0.7857	3.8911	-	6.5481	6.2363
19	1.8714	0.7857	3.8911	-	6.5481	6.2363
20	1.8714	0.7857	3.8911	-	6.5481	6.2363
21	1.8714	0.7857	3.8911	-	6.5481	6.2363
22	1.8714	0.7857	3.8911	-	6.5481	6.2363
23	1.8714	0.7857	3.8911	-	6.5481	6.2363
24	1.8714	0.7857	3.8911	-	6.5481	6.2363
25	1.8714	0.7857	3.8911	-	6.5481	6.2363
Levelized	1.8714	0.7857	3.8911	5.5613	12.1093	11.5327

Installed Capacity (MWp)
 Minimum Annual Energy (GWh)
 CPI (General) July 2015
 US CPI (All Urban Consumers) July 2015
 Exchange Rate (Rs./US\$)

18.000
 26.806
 201.620
 238.654
 105.000



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

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	920,655	18,058	11,071	902,596	29,129	5.19	3.03	8.2154
	902,596	18,276	10,854	884,321	29,129			
	884,321	18,495	10,634	865,825	29,129			
	865,825	18,718	10,412	847,107	29,129			
	920,655	73,547	42,970	847,107	116,517			
	847,107	18,943	10,186	828,164	29,129			
	828,164	19,171	9,959	808,994	29,129			
	808,994	19,401	9,728	789,593	29,129			
2	789,593	19,635	9,495	769,958	29,129	5.44	2.78	8.2154
	847,107	77,149	39,368	769,958	116,517			
	769,958	19,871	9,259	750,087	29,129			
	750,087	20,110	9,020	729,978	29,129			
	729,978	20,351	8,778	709,627	29,129			
3	709,627	20,596	8,533	689,030	29,129	5.71	2.51	8.2154
	769,958	80,928	35,590	689,030	116,517			
	689,030	20,844	8,286	668,187	29,129			
	668,187	21,094	8,035	647,092	29,129			
	647,092	21,348	7,781	625,744	29,129			
4	625,744	21,605	7,525	604,139	29,129	5.99	2.23	8.2154
	689,030	84,891	31,626	604,139	116,517			
	604,139	21,865	7,265	582,275	29,129			
	582,275	22,127	7,002	560,147	29,129			
	560,147	22,394	6,736	537,754	29,129			
5	537,754	22,663	6,466	515,091	29,129	6.28	1.94	8.2154
	604,139	89,049	27,469	515,091	116,517			
	515,091	22,935	6,194	492,156	29,129			
	492,156	23,211	5,918	468,944	29,129			
	468,944	23,490	5,639	445,454	29,129			
6	445,454	23,773	5,357	421,681	29,129	6.59	1.63	8.2154
	515,091	93,410	23,108	421,681	116,517			
	421,681	24,059	5,071	397,623	29,129			
	397,623	24,348	4,781	373,275	29,129			
	373,275	24,641	4,489	348,634	29,129			
7	348,634	24,937	4,192	323,697	29,129	6.91	1.31	8.2154
	421,681	97,984	18,533	323,697	116,517			
	323,697	25,237	3,892	298,460	29,129			
	298,460	25,540	3,589	272,920	29,129			
	272,920	25,847	3,282	247,072	29,129			
8	247,072	26,158	2,971	220,914	29,129	7.25	0.97	8.2154
	323,697	102,783	13,734	220,914	116,517			
	220,914	26,473	2,656	194,441	29,129			
	194,441	26,791	2,338	167,650	29,129			
	167,650	27,113	2,016	140,537	29,129			
9	140,537	27,439	1,690	113,097	29,129	7.60	0.61	8.2154
	220,914	107,817	8,701	113,097	116,517			
	113,097	27,769	1,360	85,328	29,129			
	85,328	28,103	1,026	57,224	29,129			
	57,224	28,441	688	28,783	29,129			
10	28,783	28,783	346	(0)	29,129	7.97	0.24	8.2154
	113,097	113,097	3,420	(0)	116,517			

