



# **National Electric Power Regulatory Authority**

## **Islamic Republic of Pakistan**

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No. NEPRA/TRF-262/BEPL-2014/2674-2676  
February 29, 2016

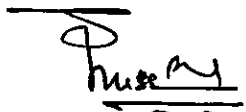
**Subject: Revised Order of National Electric Power Regulatory Authority in the matter of Application of Buksh Solar (Private) Limited (BSPL) for Unconditional Acceptance of Upfront Solar Tariff for 10 MW Solar Power Plant [Case No. NEPRA/TRF-262/BEPL-2014]**

Dear Sir,

Please refer to this office letters No. NEPRA/TRF-262/BEPL-2014/5301-5303 dated 23.05.2015 and No. NEPRA/TRF-262/BEPL-2014/15281-15283 dated 24.11.2014 whereby Approval of National Electric Power Regulatory Authority in the matter of Application of Bukhsh Energy (Private) Limited for Unconditional Acceptance of Upfront Solar Tariff for 10 MW Solar Power Plant and Decision of the Authority in the matter of Request of Bukhsh Energy (Private) Ltd. for transfer of granted Upfront Tariff to Buksh Solar (Private) Ltd. respectively were communicated to the Federal Government for Notification in the official Gazette.

2. Please find enclosed herewith the subject Revised Order of the Authority along with Annexure-I & II (08 pages) in Case No. NEPRA/TRF-262/BEPL-2014.
2. The enclosed Revised Order 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

  
29.02.16  
( 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 ORDER OF NATIONAL ELECTRIC POWER REGULATORY AUTHORITY IN THE  
MATTER OF APPLICATION OF BUKSH SOLAR (PVT) LIMITED FOR UNCONDITIONAL  
ACCEPTANCE OF UPFRONT SOLAR TARIFF FOR 10 MW SOLAR POWER PLANT**

1. The Authority vide its decision No. NEPRA/TRF-262/BEIT-2014/5301-5303 dated 23<sup>rd</sup> May 2014 approved upfront solar PV tariff in favour of Buksh Energy (Pvt) Limited having generation license No. SPGL/06/2014. The Authority in the matter of request of Buksh Energy transferred the granted upfront tariff to Buksh Solar (Private) Limited (hereinafter "BSPL") vide its decision No. NEPRA/TRF-262/BEPL-2014/15281-15283 dated 24<sup>th</sup> November 2014. As per terms and conditions of the approved tariff the deadline for achieving financial close was 31<sup>st</sup> March 2015 which was extended to 31<sup>st</sup> December 2015 vide decision of the Authority dated 4<sup>th</sup> December 2014 for reasons mentioned therein.
2. BSPL vide its letter dated 28<sup>th</sup> December 2015 filed an application for unconditional acceptance of the new Upfront Tariff announced by the Authority dated 22<sup>nd</sup> January 2015 (reviewed dated 25<sup>th</sup> May 2015) with assumptions and conditions as approved by the Authority in lieu of the earlier granted/approved Upfront Solar Tariff dated 23<sup>rd</sup> May 2014.
3. CPPA-G vide letter No. CPPA(G)L/CEO/CE-II/MT-IV/AEPL/4828-31 dated 06-11-2015 expressly consented to give Upfront Tariff 2015 to the Companies who have opted Upfront Tariff 2014 and have not yet achieved financial close. The Authority in similar cases of Access Solar (Pvt) Limited and Access Electric (Pvt) Limited vide its decision dated 30-12-2015 granted approval of Upfront Solar Tariff dated 25<sup>th</sup> May 2015 in lieu of the earlier granted/approved Upfront Solar Tariff dated 21<sup>st</sup> January 2014.
4. Considering the unconditional application of BSPL for revised tariff, tariff approvals in similar cases and CPPA-G consent, the Authority has decided to accept the unconditional application for revised tariff and decided to approve the Upfront Solar Tariff dated 22-05-2015 in lieu of Upfront Tariff granted vide No. NEPRA/TRF-262/BEIT-2014/5301-5303 dated 23<sup>rd</sup> May 2014 to Buksh Solar (Pvt) Limited.
5. **Revised Order**
- I. The Authority hereby determines and approves the following upfront tariff for Buksh 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 10 MW located at Cholistan, Punjab.

**Specified Reference Tariff**

**SOUTH REGION**

Description	Year 1-10	Year 11-25	Indexations
	Rs./kWh	Rs./kWh	
O&M	2.4736	2.4736	CPI, US CPI, PKR/US\$
Insurance	0.9667	0.9667	Actual on annual basis
ROE	4.8121	4.8121	PKR/US\$
Debt Servicing	10.1601	-	PKR/US\$ & LIBOR/KIBOR
<b>Total Tariff</b>	<b>18.4125</b>	<b>8.2524</b>	





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 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 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.

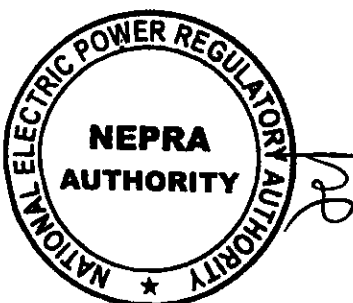
## III. Adjustment in Insurance as per actual

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 which ever 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 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:

$L O\&M_{(Rev)}$	=	$L O\&M_{(Ref)} * CPI_{(Rev)} / CPI_{(Ref)}$
$F O\&M_{(Rev)}$	=	$FO\&M_{(Ref)} * US CPI_{(Rev)} / US CPI_{(Ref)} * ER_{(Rev)} / ER_{(Ref)}$
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 tariff for North Region Rs. 0.3572/kWh and for South Region Rs. 0.3425/kWh
$F O\&M_{(Ref)}$	=	the reference foreign O&M component of tariff for North Region Rs. 2.2226/kWh and for South Region Rs. 2.1311/kWh
$CPI_{(Rev)}$	=	the revised Consumer Price Index (General) published by Pakistan Bureau of Statistics.
$CPI_{(Ref)}$	=	the reference Consumer Price Index (General) of 198.700 for the month of August 2014
$US CPI_{(Rev)}$	=	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 237.852 for the month of August 2014
$ER_{(Rev)}$	=	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.

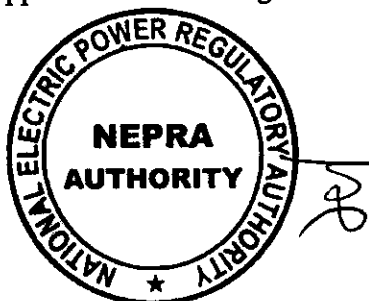
V. Terms and Conditions of Tariff:

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 and tested in accordance with the latest IEC standards or other equivalent 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.
- Plant Capacity factor for South Region is 17.50%.
- 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 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.

- vii. The tariff control period will be 25 years from the date of commercial operation.
- viii. The dispatch will be at appropriate voltage level from 11kV to 220kV mutually agreed between the power purchaser and the power producer.
- ix. The targeted maximum construction period after the financial close is 8 months. No adjustment will be allowed in this tariff to account for financial impact of any delay in the project construction. However, the failure of the applicant to complete construction within the stipulated time will not invalidate the tariff granted to it.
- x. 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 of 17.5%. The following table is provided for illustrative purpose.

Xo= 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)  $X_1, X_2, X_3, \dots$  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.
- xi. 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.
  - xii. 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.
  - xiii. The decision to opt for upfront tariff once exercised will be irrevocable.





- xiv. 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.
- xv. 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 Upfront Tariff regime. No project specific adjustments shall be taken into account.
- xvi. 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 except as provided under Para 5(II)(ii). If the company is obligated to pay any tax the exact amount will be reimbursed by CPPA/DISCO on production of the original receipts. However, withholding tax on dividend will not be passed through under this tariff.
- xvii. 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 Revised Order of the Authority along with Annexes-I and Annex-II 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**

- On tour -

(Khawaja Muhammad Naeem)

Member

(Masood-ul-Hassan Naqvi)

Member

(Himayatullah Khan)

Member

(Maj (R) Haroon Rashid)

Vice Chairman

(Brig (R) Tariq Sadozai)

Chairman



**Bukhsh Solar (Private) Limited**  
**Reference Tariff Table (South Region)**

Year	O&M	Insurance	Return on Equity	Debt Servicing	Total Tariff	
	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs. per kWh	¢ per kWh
1	2.4736	0.9667	4.8121	10.1601	18.4125	17.5357
2	2.4736	0.9667	4.8121	10.1601	18.4125	17.5357
3	2.4736	0.9667	4.8121	10.1601	18.4125	17.5357
4	2.4736	0.9667	4.8121	10.1601	18.4125	17.5357
5	2.4736	0.9667	4.8121	10.1601	18.4125	17.5357
6	2.4736	0.9667	4.8121	10.1601	18.4125	17.5357
7	2.4736	0.9667	4.8121	10.1601	18.4125	17.5357
8	2.4736	0.9667	4.8121	10.1601	18.4125	17.5357
9	2.4736	0.9667	4.8121	10.1601	18.4125	17.5357
10	2.4736	0.9667	4.8121	10.1601	18.4125	17.5357
11	2.4736	0.9667	4.8121	-	8.2524	7.8594
12	2.4736	0.9667	4.8121	-	8.2524	7.8594
13	2.4736	0.9667	4.8121	-	8.2524	7.8594
14	2.4736	0.9667	4.8121	-	8.2524	7.8594
15	2.4736	0.9667	4.8121	-	8.2524	7.8594
16	2.4736	0.9667	4.8121	-	8.2524	7.8594
17	2.4736	0.9667	4.8121	-	8.2524	7.8594
18	2.4736	0.9667	4.8121	-	8.2524	7.8594
19	2.4736	0.9667	4.8121	-	8.2524	7.8594
20	2.4736	0.9667	4.8121	-	8.2524	7.8594
21	2.4736	0.9667	4.8121	-	8.2524	7.8594
22	2.4736	0.9667	4.8121	-	8.2524	7.8594
23	2.4736	0.9667	4.8121	-	8.2524	7.8594
24	2.4736	0.9667	4.8121	-	8.2524	7.8594
25	2.4736	0.9667	4.8121	-	8.2524	7.8594
<b>Levelized</b>	<b>2.4736</b>	<b>0.9667</b>	<b>4.8121</b>	<b>6.8777</b>	<b>15.1301</b>	<b>14.4096</b>

Installed Capacity (MWp) 10.000  
 Minimum Annual Energy (GWh) 15.330  
 CPI (General) August 2014 198.700  
 US CPI (All Urban Consumers) August 2014 237.852  
 Exchange Rate (Rs./US\$) 105.000





**Bukhsh Solar (Private) Limited**  
**Debt Servicing Schedule (South Region)**

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	1,172,077	22,990	14,094	1,149,087	37,084	6.41	3.75	10.1601
	1,149,087	23,267	13,818	1,125,821	37,084			
	1,125,821	23,546	13,538	1,102,274	37,084			
	1,102,274	23,829	13,255	1,078,445	37,084			
	1,172,077	93,632	54,705	1,078,445	148,337			
	1,078,445	24,116	12,968	1,054,329	37,084			
	1,054,329	24,406	12,678	1,029,923	37,084			
	1,029,923	24,699	12,385	1,005,223	37,084			
2	1,005,223	24,997	12,088	980,227	37,084	6.73	3.43	10.1601
	1,078,445	98,218	50,119	980,227	148,337			
	980,227	25,297	11,787	954,930	37,084			
	954,930	25,601	11,483	929,328	37,084			
	929,328	25,909	11,175	903,419	37,084			
3	903,419	26,221	10,864	877,199	37,084	7.06	3.10	10.1601
	980,227	103,028	45,309	877,199	148,337			
	877,199	26,536	10,548	850,663	37,084			
	850,663	26,855	10,229	823,807	37,084			
	823,807	27,178	9,906	796,629	37,084			
4	796,629	27,505	9,579	769,125	37,084	7.40	2.76	10.1601
	877,199	108,074	40,263	769,125	148,337			
	769,125	27,836	9,249	741,289	37,084			
	741,289	28,170	8,914	713,119	37,084			
	713,119	28,509	8,575	684,610	37,084			
5	684,610	28,852	8,232	655,758	37,084	7.76	2.40	10.1601
	769,125	113,367	34,970	655,758	148,337			
	655,758	29,199	7,885	626,559	37,084			
	626,559	29,550	7,534	597,009	37,084			
	597,009	29,905	7,179	567,104	37,084			
6	567,104	30,265	6,819	536,839	37,084	8.15	2.01	10.1601
	655,758	118,919	29,418	536,839	148,337			
	536,839	30,629	6,455	506,210	37,084			
	506,210	30,997	6,087	475,213	37,084			
	475,213	31,370	5,714	443,843	37,084			
7	443,843	31,747	5,337	412,096	37,084	8.54	1.62	10.1601
	536,839	124,743	23,594	412,096	148,337			
	412,096	32,129	4,955	379,967	37,084			
	379,967	32,515	4,569	347,452	37,084			
	347,452	32,906	4,178	314,545	37,084			
8	314,545	33,302	3,782	281,244	37,084	8.96	1.20	10.1601
	412,096	130,852	17,485	281,244	148,337			
	281,244	33,702	3,382	247,541	37,084			
	247,541	34,108	2,977	213,434	37,084			
	213,434	34,518	2,567	178,916	37,084			
9	178,916	34,933	2,151	143,983	37,084	9.40	0.76	10.1601
	281,244	137,261	11,077	143,983	148,337			
	143,983	35,353	1,731	108,630	37,084			
	108,630	35,778	1,306	72,852	37,084			
	72,852	36,208	876	36,644	37,084			
10	36,644	36,644	441	0	37,084	9.86	0.30	10.1601
	143,983	143,983	4,354	0	148,337			

