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6 ✓ No.Tariff/SolarPV-2015
Government of Pakistan
Ministry of Water & Power

Islamabad, the December 17th 2015

The Manager,
Printing Corporation of Pakistan Press,
Islamabad.

Subject: PRINTING OF NOTIFICATION IN RESPECT OF PV SOLAR POWER PLANTS.

I am directed to enclose the Notification in original for immediate publication in the Official Gazette of Pakistan extra ordinary part -II within 24-48 hours as delay will otherwise result in loss to exchequer to be than explain by PCPP to PAC and other quarters.

2. It is requested that 20 copies of the printed Notification in Official Gazette may please be furnish to this Ministry on-urgent basis.

For information & info a/c

Encl: As above.

- SAC Tech) 20.01.16
- SAT - I cc: chairman
- Dir (Lic) VC/M (Lic)
- Consultant (Gen) M (T)
- LAC (CIP) - D/R - I / SAR M (MRE)
- DD (IT) - M/F M (Lic)

Cc: 2. Registrar NEPRA, for information please.

(Syed Mateen Ahmed)
Section Officer (Tariff)



Registrar 664
By No.....
Dated 20-01-16

Government of Pakistan
Ministry of Water & Power

Islamabad, the December 17, 2015.

NOTIFICATION

S.R.O. 1943(I)/2015.- In pursuance of sub-section (4) of section 31 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (XL of 1997) and in supersession of its Notification No S.R.O. 650(I)/2015, dated the 1st July 2015, the Federal Government is pleased to notify the National Electric Power Regulatory Authority's approved upfront tariff whereby Solar PV Power Plants are allowed to charge tariff, as set out in the Reference Tariff and Annexures, below, namely:-

Specified Reference Tariff
NORTH REGION

Description	≥1≤20MW	>20≤50MW	>50≤100MW	Indexations
	Rs./kWh	Rs./kWh	Rs./kWh	
O&M	1.8714	1.8714	1.8714	CPI, US CPI, PKR/US\$
Insurance	0.7857	0.7705	0.7554	Actual on annual basis
ROE	3.8911	3.8907	3.8880	PKR/US\$
Debt Servicing (1-10 Years only)	8.2154	8.1038	7.9905	PKR/US\$ & LIBOR/KIBOR
Total Tariff 1-10 Years	14.7634	14.6364	14.5053	
Total Tariff 11-25 Years	6.5481	6.5326	6.5148	

SOUTH REGION

Description	≥1≤20MW	>20≤50MW	>50≤100MW	Indexations
	Rs./kWh	Rs./kWh	Rs./kWh	
O&M	1.7674	1.7674	1.7674	CPI, US CPI, PKR/US\$
Insurance	0.7420	0.7277	0.7135	Actual on annual basis
ROE	3.6749	3.6745	3.6720	PKR/US\$
Debt Servicing (1-10 Years only)	7.7590	7.6536	7.5466	PKR/US\$ & LIBOR/KIBOR
Total Tariff 1-10 Years	13.9432	13.8232	13.6994	
Total Tariff 11-25 Years	6.1843	6.1696	6.1528	

- i. The detailed tariff tables and debt service schedules for each project size are attached as Annexures.
- ii. The debt servicing component shall be paid in 1st 10 years only.

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.

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)	=	1.8714/kWh and for South Region Rs. 1.7674/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:

- (xxi) 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.
- (xxii) 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.
- (xxiii) 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.

(xxv) 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%/18% to 18%/19%	80%
Above 18%/19% to 19%/20%	90%
Above 19%/20%	100%

- (xxvi) The risk of lower solar irradiation will be on the power producer.
- (xxvii) 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.
- (xxviii) 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.
- (xxix) The tariff control period will be 25 years from the date of commercial operation.
- (xxx) The dispatch will be at appropriate voltage level from 11kV to 220kV mutually agreed between the power purchaser and the power producer.
- (xxxi) The targeted maximum construction period after financial close is 8 months, 10 months and 12 months for $\geq 1\text{MW} \leq 20\text{MW}$, $> 20\text{MW} \leq 50\text{MW}$ and $> 50\text{MW} \leq 100\text{MW}$ projects respectively. 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.
- (xxxii) The eligibility criteria for opting upfront solar tariff will be as under:
- (e) 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.
- (f) 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.
- (xxxiii) 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.
- (xxxiv) 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.
- (xxxv) 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.
- (xxxvi) The decision to opt for upfront tariff once exercised will be irrevocable.
- (xxxvii) 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.
- (xxxviii) 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.

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.

- (xl) 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.

**Upfront Solar Tariff for $\geq 1\text{MW} \leq 20\text{MW}$
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)	20.000
Minimum Annual Energy (GWh)	29.784
CPI (General) July 2015	201.620
US CPI (All Urban Consumers) July 2015	238.654
Exchange Rate (Rs./US\$)	105.000

Upfront Solar Tariff for $\geq 1\text{MW} \leq 20\text{MW}$
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			
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			
	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			
3	729,978	20,351	8,778	709,627	29,129	5.71	2.51	8.2154
	709,627	20,596	8,533	689,030	29,129			
	689,030	80,928	35,590	689,030	116,517			
	668,187	20,844	8,286	668,187	29,129			
	647,092	21,094	8,035	647,092	29,129			
4	625,744	21,348	7,781	625,744	29,129	5.99	2.23	8.2154
	604,139	21,605	7,525	604,139	29,129			
	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			
5	560,147	22,394	6,736	537,754	29,129	6.28	1.94	8.2154
	537,754	22,663	6,466	515,091	29,129			
	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			
6	468,944	23,490	5,639	445,454	29,129	6.59	1.63	8.2154
	445,454	23,773	5,357	421,681	29,129			
	515,091	93,410	23,108	421,681	116,517			
	421,681	24,059	5,071	397,623	29,129			
7	397,623	24,348	4,781	373,275	29,129	6.91	1.31	8.2154
	373,275	24,641	4,489	348,634	29,129			
	348,634	24,937	4,192	323,697	29,129			
	421,681	97,984	18,533	323,697	116,517			
	323,697	25,237	3,892	298,460	29,129			
8	298,460	25,540	3,589	272,920	29,129	7.25	0.97	8.2154
	272,920	25,847	3,282	247,072	29,129			
	247,072	26,158	2,971	220,914	29,129			
	323,697	102,783	13,734	220,914	116,517			
	220,914	26,473	2,656	194,441	29,129			
9	194,441	26,791	2,338	167,650	29,129	7.60	0.61	8.2154
	167,650	27,113	2,016	140,537	29,129			
	140,537	27,439	1,690	113,097	29,129			
	220,914	107,817	8,701	113,097	116,517			
	113,097	27,769	1,360	85,328	29,129			
10	85,328	28,103	1,026	57,224	29,129	7.97	0.24	8.2154
	57,224	28,441	688	28,783	29,129			
	28,783	28,783	346	(0)	29,129			
	113,097	113,097	3,420		116,517			

ANNEX 11

Upfront Solar Tariff for >20MW≤50MW
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	0.7705	3.8907	8.1038	14.6364	13.9394
2	1.8714	0.7705	3.8907	8.1038	14.6364	13.9394
3	1.8714	0.7705	3.8907	8.1038	14.6364	13.9394
4	1.8714	0.7705	3.8907	8.1038	14.6364	13.9394
5	1.8714	0.7705	3.8907	8.1038	14.6364	13.9394
6	1.8714	0.7705	3.8907	8.1038	14.6364	13.9394
7	1.8714	0.7705	3.8907	8.1038	14.6364	13.9394
8	1.8714	0.7705	3.8907	8.1038	14.6364	13.9394
9	1.8714	0.7705	3.8907	8.1038	14.6364	13.9394
10	1.8714	0.7705	3.8907	8.1038	14.6364	13.9394
11	1.8714	0.7705	3.8907	-	6.5326	6.2215
12	1.8714	0.7705	3.8907	-	6.5326	6.2215
13	1.8714	0.7705	3.8907	-	6.5326	6.2215
14	1.8714	0.7705	3.8907	-	6.5326	6.2215
15	1.8714	0.7705	3.8907	-	6.5326	6.2215
16	1.8714	0.7705	3.8907	-	6.5326	6.2215
17	1.8714	0.7705	3.8907	-	6.5326	6.2215
18	1.8714	0.7705	3.8907	-	6.5326	6.2215
19	1.8714	0.7705	3.8907	-	6.5326	6.2215
20	1.8714	0.7705	3.8907	-	6.5326	6.2215
21	1.8714	0.7705	3.8907	-	6.5326	6.2215
22	1.8714	0.7705	3.8907	-	6.5326	6.2215
23	1.8714	0.7705	3.8907	-	6.5326	6.2215
24	1.8714	0.7705	3.8907	-	6.5326	6.2215
25	1.8714	0.7705	3.8907	-	6.5326	6.2215
Levelized	1.8714	0.7705	3.8907	5.4858	12.0183	11.4460

Installed Capacity (MWp)	50.000
Minimum Annual Energy (GWh)	74.460
CPI (General) July 2015	201.620
US CPI (All Urban Consumers) July 2015	238.654
Exchange Rate (Rs./US\$)	105.000

Upfront Solar Tariff for >20MW≤50MW
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			
1	908,153	17,813	10,921	890,340	28,734	5.12	2.99	8.1038
	890,340	18,027	10,706	872,312	28,734			
	872,312	18,244	10,490	854,068	28,734			
	854,068	18,464	10,270	835,604	28,734			
	835,604	18,686	10,048	816,919	28,734			
2	816,919	18,910	9,823	798,008	28,734	5.37	2.74	8.1038
	798,008	19,138	9,596	778,871	28,734			
	778,871	19,368	9,366	759,503	28,734			
	759,503	19,601	9,133	739,902	28,734			
	739,902	19,836	8,897	720,065	28,734			
3	720,065	20,075	8,659	699,990	28,734	-5.63	2.48	8.1038
	699,990	20,316	8,417	679,674	28,734			
	679,674	20,561	8,173	659,113	28,734			
	659,113	20,808	7,926	638,305	28,734			
	638,305	21,058	7,676	617,247	28,734			
4	617,247	21,311	7,422	595,936	28,734	5.90	2.20	8.1038
	595,936	21,568	7,166	574,368	28,734			
	574,368	21,827	6,907	552,541	28,734			
	552,541	22,089	6,644	530,452	28,734			
	530,452	22,355	6,379	508,096	28,734			
5	508,096	22,624	6,110	485,473	28,734	6.19	1.91	8.1038
	485,473	22,896	5,838	462,577	28,734			
	462,577	23,171	5,562	439,405	28,734			
	439,405	23,450	5,284	415,955	28,734			
	415,955	23,732	5,002	392,223	28,734			
6	392,223	24,017	4,716	368,206	28,734	6.50	1.61	8.1038
	368,206	24,306	4,428	343,900	28,734			
	343,900	24,598	4,135	319,301	28,734			
	319,301	24,894	3,840	294,407	28,734			
	294,407	25,194	3,540	269,214	28,734			
7	269,214	25,497	3,237	243,717	28,734	6.81	1.29	8.1038
	243,717	25,803	2,931	217,914	28,734			
	217,914	26,113	2,620	191,801	28,734			
	191,801	26,427	2,306	165,373	28,734			
	165,373	26,745	1,989	138,628	28,734			
8	138,628	27,067	1,667	111,561	28,734	7.15	0.96	8.1038
	111,561	27,392	1,342	84,169	28,734			
	84,169	27,722	1,012	56,447	28,734			
	56,447	28,055	679	28,392	28,734			
	28,392	28,392	341	(0)	28,734			
9	111,561	27,392	1,342	84,169	28,734	7.50	0.61	8.1038
10	84,169	27,722	1,012	56,447	28,734	7.87	0.24	8.1038
	56,447	28,055	679	28,392	28,734			
10	111,561	111,561	3,374	(0)	114,935	7.87	0.24	8.1038

Upfront Solar Tariff for >50MW<100MW
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	0.7554	3.8880	7.9905	14.5053	13.8145
2	1.8714	0.7554	3.8880	7.9905	14.5053	13.8145
3	1.8714	0.7554	3.8880	7.9905	14.5053	13.8145
4	1.8714	0.7554	3.8880	7.9905	14.5053	13.8145
5	1.8714	0.7554	3.8880	7.9905	14.5053	13.8145
6	1.8714	0.7554	3.8880	7.9905	14.5053	13.8145
7	1.8714	0.7554	3.8880	7.9905	14.5053	13.8145
8	1.8714	0.7554	3.8880	7.9905	14.5053	13.8145
9	1.8714	0.7554	3.8880	7.9905	14.5053	13.8145
10	1.8714	0.7554	3.8880	7.9905	14.5053	13.8145
11	1.8714	0.7554	3.8880	-	6.5148	6.2045
12	1.8714	0.7554	3.8880	-	6.5148	6.2045
13	1.8714	0.7554	3.8880	-	6.5148	6.2045
14	1.8714	0.7554	3.8880	-	6.5148	6.2045
15	1.8714	0.7554	3.8880	-	6.5148	6.2045
16	1.8714	0.7554	3.8880	-	6.5148	6.2045
17	1.8714	0.7554	3.8880	-	6.5148	6.2045
18	1.8714	0.7554	3.8880	-	6.5148	6.2045
19	1.8714	0.7554	3.8880	-	6.5148	6.2045
20	1.8714	0.7554	3.8880	-	6.5148	6.2045
21	1.8714	0.7554	3.8880	-	6.5148	6.2045
22	1.8714	0.7554	3.8880	-	6.5148	6.2045
23	1.8714	0.7554	3.8880	-	6.5148	6.2045
24	1.8714	0.7554	3.8880	-	6.5148	6.2045
25	1.8714	0.7554	3.8880	-	6.5148	6.2045
Levelized	1.8714	0.7554	3.8880	5.4091	11.9238	11.3560

Installed Capacity (MWp) 100.000
 Minimum Annual Energy (GWh) 148.920
 CPI (General) July 2015 201.620
 US CPI (All Urban Consumers) July 2015 238.654
 Exchange Rate (Rs./US\$) 105.000

Upfront Solar Tariff for >50MW≤100MW
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			
1	895,455	17,564	10,768	877,891	28,332	5.04	2.95	7.9905
	877,891	17,775	10,557	860,115	28,332			
	860,115	17,989	10,343	842,126	28,332			
	842,126	18,205	10,127	823,921	28,332			
	895,455	71,534	41,794	823,921	113,328			
2	823,921	18,424	9,908	805,496	28,332	5.29	2.70	7.9905
	805,496	18,646	9,686	786,850	28,332			
	786,850	18,870	9,462	767,980	28,332			
	767,980	19,097	9,235	748,883	28,332			
	823,921	75,038	38,291	748,883	113,328			
3	748,883	19,327	9,005	729,556	28,332	5.55	2.44	7.9905
	729,556	19,559	8,773	709,997	28,332			
	709,997	19,794	8,538	690,203	28,332			
	690,203	20,032	8,300	670,171	28,332			
	748,883	78,712	34,616	670,171	113,328			
4	670,171	20,273	8,059	649,897	28,332	5.82	2.17	7.9905
	649,897	20,517	7,815	629,380	28,332			
	629,380	20,764	7,568	608,617	28,332			
	608,617	21,013	7,319	587,603	28,332			
	670,171	82,567	30,761	587,603	113,328			
5	587,603	21,266	7,066	566,337	28,332	6.11	1.88	7.9905
	566,337	21,522	6,810	544,815	28,332			
	544,815	21,781	6,551	523,035	28,332			
	523,035	22,043	6,289	500,992	28,332			
	587,603	86,611	26,717	500,992	113,328			
6	500,992	22,308	6,024	478,684	28,332	6.41	1.58	7.9905
	478,684	22,576	5,756	456,109	28,332			
	456,109	22,847	5,485	433,261	28,332			
	433,261	23,122	5,210	410,139	28,332			
	500,992	90,853	22,475	410,139	113,328			
7	410,139	23,400	4,932	386,739	28,332	6.72	1.27	7.9905
	386,739	23,681	4,651	363,058	28,332			
	363,058	23,966	4,366	339,091	28,332			
	339,091	24,254	4,078	314,837	28,332			
	410,139	95,302	18,026	314,837	113,328			
8	314,837	24,546	3,786	290,291	28,332	7.05	0.94	7.9905
	290,291	24,841	3,491	265,449	28,332			
	265,449	25,140	3,192	240,309	28,332			
	240,309	25,442	2,890	214,867	28,332			
	314,837	99,970	13,358	214,867	113,328			
9	214,867	25,748	2,584	189,119	28,332	7.39	0.60	7.9905
	189,119	26,058	2,274	163,061	28,332			
	163,061	26,371	1,961	136,690	28,332			
	136,690	26,688	1,644	110,001	28,332			
	214,867	104,866	8,462	110,001	113,328			
10	110,001	27,009	1,323	82,992	28,332	7.76	0.23	7.9905
	82,992	27,334	998	55,658	28,332			
	55,658	27,663	669	27,995	28,332			
	27,995	27,995	337	(0)	28,332			
	110,001	110,001	3,327	(0)	113,328			

Upfront Solar Tariff for $\geq 1\text{ MW} < 20\text{ MW}$
Reference Tariff Table (South)

Year	O&M	Insurance	Return on Equity	Debt Servicing	Total Tariff	
	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	¢ per kWh
1	1.7674	0.7420	3.6749	7.7590	13.9432	13.2793
2	1.7674	0.7420	3.6749	7.7590	13.9432	13.2793
3	1.7674	0.7420	3.6749	7.7590	13.9432	13.2793
4	1.7674	0.7420	3.6749	7.7590	13.9432	13.2793
5	1.7674	0.7420	3.6749	7.7590	13.9432	13.2793
6	1.7674	0.7420	3.6749	7.7590	13.9432	13.2793
7	1.7674	0.7420	3.6749	7.7590	13.9432	13.2793
8	1.7674	0.7420	3.6749	7.7590	13.9432	13.2793
9	1.7674	0.7420	3.6749	7.7590	13.9432	13.2793
10	1.7674	0.7420	3.6749	7.7590	13.9432	13.2793
11	1.7674	0.7420	3.6749	-	6.1843	5.8898
12	1.7674	0.7420	3.6749	-	6.1843	5.8898
13	1.7674	0.7420	3.6749	-	6.1843	5.8898
14	1.7674	0.7420	3.6749	-	6.1843	5.8898
15	1.7674	0.7420	3.6749	-	6.1843	5.8898
16	1.7674	0.7420	3.6749	-	6.1843	5.8898
17	1.7674	0.7420	3.6749	-	6.1843	5.8898
18	1.7674	0.7420	3.6749	-	6.1843	5.8898
19	1.7674	0.7420	3.6749	-	6.1843	5.8898
20	1.7674	0.7420	3.6749	-	6.1843	5.8898
21	1.7674	0.7420	3.6749	-	6.1843	5.8898
22	1.7674	0.7420	3.6749	-	6.1843	5.8898
23	1.7674	0.7420	3.6749	-	6.1843	5.8898
24	1.7674	0.7420	3.6749	-	6.1843	5.8898
25	1.7674	0.7420	3.6749	-	6.1843	5.8898
Levelized	1.7674	0.7420	3.6749	5.2523	11.4366	10.8920

Installed Capacity (MWp)	20.000
Minimum Annual Energy (GWh)	31.536
CPI (General) July 2015	201.620
US CPI (All Urban Consumers) July 2015	238.654
Exchange Rate (Rs./US\$)	105.000

Annex V

**Upfront Solar Tariff for >20MW≤50MW
Reference Tariff Table (South)**

Year	O&M	Insurance	Return on Equity	Debt Servicing	Total Tariff	
	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	¢ per kWh
1	1.7674	0.7277	3.6745	7.6536	13.8232	13.1650
2	1.7674	0.7277	3.6745	7.6536	13.8232	13.1650
3	1.7674	0.7277	3.6745	7.6536	13.8232	13.1650
4	1.7674	0.7277	3.6745	7.6536	13.8232	13.1650
5	1.7674	0.7277	3.6745	7.6536	13.8232	13.1650
6	1.7674	0.7277	3.6745	7.6536	13.8232	13.1650
7	1.7674	0.7277	3.6745	7.6536	13.8232	13.1650
8	1.7674	0.7277	3.6745	7.6536	13.8232	13.1650
9	1.7674	0.7277	3.6745	7.6536	13.8232	13.1650
10	1.7674	0.7277	3.6745	7.6536	13.8232	13.1650
11	1.7674	0.7277	3.6745	-	6.1696	5.8758
12	1.7674	0.7277	3.6745	-	6.1696	5.8758
13	1.7674	0.7277	3.6745	-	6.1696	5.8758
14	1.7674	0.7277	3.6745	-	6.1696	5.8758
15	1.7674	0.7277	3.6745	-	6.1696	5.8758
16	1.7674	0.7277	3.6745	-	6.1696	5.8758
17	1.7674	0.7277	3.6745	-	6.1696	5.8758
18	1.7674	0.7277	3.6745	-	6.1696	5.8758
19	1.7674	0.7277	3.6745	-	6.1696	5.8758
20	1.7674	0.7277	3.6745	-	6.1696	5.8758
21	1.7674	0.7277	3.6745	-	6.1696	5.8758
22	1.7674	0.7277	3.6745	-	6.1696	5.8758
23	1.7674	0.7277	3.6745	-	6.1696	5.8758
24	1.7674	0.7277	3.6745	-	6.1696	5.8758
25	1.7674	0.7277	3.6745	-	6.1696	5.8758
Levelized	1.7674	0.7277	3.6745	5.1810	11.3506	10.8101

Installed Capacity (MW _p)	50.000
Minimum Annual Energy (GWh)	78.840
CPI (General) July 2015	201.620
US CPI (All Urban Consumers) July 2015	238.654
Exchange Rate (Rs./US\$)	105.000

Upfront Solar Tariff for >20MW≤50MW
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			
1	908,153	17,813	10,921	890,340	28,734	4.83	2.82	7.6536
	890,340	18,027	10,706	872,312	28,734			
	872,312	18,244	10,490	854,068	28,734			
	854,068	18,464	10,270	835,604	28,734			
	908,153	72,549	42,387	835,604	114,935			
2	835,604	18,686	10,048	816,919	28,734	5.07	2.59	7.6536
	816,919	18,910	9,823	798,008	28,734			
	798,008	19,138	9,596	778,871	28,734			
	778,871	19,368	9,366	759,503	28,734			
	835,604	76,102	38,834	759,503	114,935			
3	759,503	19,601	9,133	739,902	28,734	5.32	2.34	7.6536
	739,902	19,836	8,897	720,065	28,734			
	720,065	20,075	8,659	699,990	28,734			
	699,990	20,316	8,417	679,674	28,734			
	759,503	79,829	35,107	679,674	114,935			
4	679,674	20,561	8,173	659,113	28,734	5.58	2.08	7.6536
	659,113	20,808	7,926	638,305	28,734			
	638,305	21,058	7,676	617,247	28,734			
	617,247	21,311	7,422	595,936	28,734			
	679,674	83,738	31,197	595,936	114,935			
5	595,936	21,568	7,166	574,368	28,734	5.85	1.80	7.6536
	574,368	21,827	6,907	552,541	28,734			
	552,541	22,089	6,644	530,452	28,734			
	530,452	22,355	6,379	508,096	28,734			
	595,936	87,839	27,096	508,096	114,935			
6	508,096	22,624	6,110	485,473	28,734	6.14	1.52	7.6536
	485,473	22,896	5,838	462,577	28,734			
	462,577	23,171	5,562	439,405	28,734			
	439,405	23,450	5,284	415,955	28,734			
	508,096	92,141	22,794	415,955	114,935			
7	415,955	23,732	5,002	392,223	28,734	6.44	1.22	7.6536
	392,223	24,017	4,716	368,206	28,734			
	368,206	24,306	4,428	343,900	28,734			
	343,900	24,598	4,135	319,301	28,734			
	415,955	96,654	18,281	319,301	114,935			
8	319,301	24,894	3,840	294,407	28,734	6.75	0.90	7.6536
	294,407	25,194	3,540	269,214	28,734			
	269,214	25,497	3,237	243,717	28,734			
	243,717	25,803	2,931	217,914	28,734			
	319,301	101,387	13,548	217,914	114,935			
9	217,914	26,113	2,620	191,801	28,734	7.08	0.57	7.6536
	191,801	26,427	-2,306	165,373	28,734			
	165,373	26,745	1,989	138,628	28,734			
	138,628	27,067	1,667	111,561	28,734			
	217,914	106,353	8,582	111,561	114,935			
10	111,561	27,392	1,342	84,169	28,734	7.43	0.22	7.6536
	84,169	27,722	1,012	56,447	28,734			
	56,447	28,055	679	28,392	28,734			
	28,392	28,392	341	(0)	28,734			
	111,561	111,561	3,374	(0)	114,935			

Upfront Solar Tariff for >50MW≤100MW
Reference Tariff Table (South)

Year	O&M	Insurance	Return on Equity	Debt Servicing	Total Tariff	
	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	Rs./kWh	¢ per kWh
1	1.7674	0.7135	3.6720	7.5466	13.6994	13.0471
2	1.7674	0.7135	3.6720	7.5466	13.6994	13.0471
3	1.7674	0.7135	3.6720	7.5466	13.6994	13.0471
4	1.7674	0.7135	3.6720	7.5466	13.6994	13.0471
5	1.7674	0.7135	3.6720	7.5466	13.6994	13.0471
6	1.7674	0.7135	3.6720	7.5466	13.6994	13.0471
7	1.7674	0.7135	3.6720	7.5466	13.6994	13.0471
8	1.7674	0.7135	3.6720	7.5466	13.6994	13.0471
9	1.7674	0.7135	3.6720	7.5466	13.6994	13.0471
10	1.7674	0.7135	3.6720	7.5466	13.6994	13.0471
11	1.7674	0.7135	3.6720	-	6.1528	5.8598
12	1.7674	0.7135	3.6720	-	6.1528	5.8598
13	1.7674	0.7135	3.6720	-	6.1528	5.8598
14	1.7674	0.7135	3.6720	-	6.1528	5.8598
15	1.7674	0.7135	3.6720	-	6.1528	5.8598
16	1.7674	0.7135	3.6720	-	6.1528	5.8598
17	1.7674	0.7135	3.6720	-	6.1528	5.8598
18	1.7674	0.7135	3.6720	-	6.1528	5.8598
19	1.7674	0.7135	3.6720	-	6.1528	5.8598
20	1.7674	0.7135	3.6720	-	6.1528	5.8598
21	1.7674	0.7135	3.6720	-	6.1528	5.8598
22	1.7674	0.7135	3.6720	-	6.1528	5.8598
23	1.7674	0.7135	3.6720	-	6.1528	5.8598
24	1.7674	0.7135	3.6720	-	6.1528	5.8598
25	1.7674	0.7135	3.6720	-	6.1528	5.8598
Levelized	1.7674	0.7135	3.6720	5.1085	11.2614	10.7251

Installed Capacity (MWp)	100.000
Minimum Annual Energy (GWh)	157.680
CPI (General) July 2015	201.620
US CPI (All Urban Consumers) July 2015	238.654
Exchange Rate (Rs./US\$)	105.000

Upfront Solar Tariff for >50MW≤100MW
Debt Servicing Schedule

Period	Foreign Debt					Annual Principal Repayment Rs./kWh	Annual Interest Rs./kWh	Annual Debt Servicing Rs./kWh
	Principal	Repayment	Mark-up	Balance	Debt Service			
	US\$/MW	US\$/MW	US\$/MW	US\$/MW	US\$/MW			
1	895,455	17,564	10,768	877,891	28,332	4.76	2.78	7.5466
	877,891	17,775	10,557	860,115	28,332			
	860,115	17,989	10,343	842,126	28,332			
	842,126	18,205	10,127	823,921	28,332			
	895,455	71,534	41,794	823,921	113,328			
	823,921	18,424	9,908	805,496	28,332			
	805,496	18,646	9,686	786,850	28,332			
2	786,850	18,870	9,462	767,980	28,332	5.00	2.55	7.5466
	767,980	19,097	9,235	748,883	28,332			
	823,921	75,038	38,291	748,883	113,328			
	748,883	19,327	9,005	729,556	28,332			
	729,556	19,559	8,773	709,997	28,332			
3	709,997	19,794	8,538	690,203	28,332	5.24	2.31	7.5466
	690,203	20,032	8,300	670,171	28,332			
	748,883	78,712	34,616	670,171	113,328			
	670,171	20,273	8,059	649,897	28,332			
	649,897	20,517	7,815	629,380	28,332			
4	629,380	20,764	7,568	608,617	28,332	5.50	2.05	7.5466
	608,617	21,013	7,319	587,603	28,332			
	670,171	82,567	30,761	587,603	113,328			
	587,603	21,266	7,066	566,337	28,332			
	566,337	21,522	6,810	544,815	28,332			
5	544,815	21,781	6,551	523,035	28,332	5.77	1.78	7.5466
	523,035	22,043	6,289	500,992	28,332			
	587,603	86,611	26,717	500,992	113,328			
	500,992	22,308	6,024	478,684	28,332			
	478,684	22,576	5,756	456,109	28,332			
6	456,109	22,847	5,485	433,261	28,332	6.05	1.50	7.5466
	433,261	23,122	5,210	410,139	28,332			
	500,992	90,853	22,475	410,139	113,328			
	410,139	23,400	4,932	386,739	28,332			
	386,739	23,681	4,651	363,058	28,332			
7	363,058	23,966	4,366	339,091	28,332	6.35	1.20	7.5466
	339,091	24,254	4,078	314,837	28,332			
	410,139	95,302	18,026	314,837	113,328			
	314,837	24,546	3,786	290,291	28,332			
	290,291	24,841	3,491	265,449	28,332			
8	265,449	25,140	3,192	240,309	28,332	6.66	0.89	7.5466
	240,309	25,442	2,890	214,867	28,332			
	314,837	99,970	13,358	214,867	113,328			
	214,867	25,748	2,584	189,119	28,332			
	189,119	26,058	2,274	163,061	28,332			
9	163,061	26,371	1,961	136,690	28,332	6.98	0.56	7.5466
	136,690	26,688	1,644	110,001	28,332			
	214,867	104,866	8,462	110,001	113,328			
	110,001	27,009	1,323	82,992	28,332			
	82,992	27,334	998	55,658	28,332			
10	55,658	27,663	669	27,995	28,332	7.33	0.22	7.5466
	27,995	27,995	337	(0)	28,332			
	110,001	110,001	3,327	(0)	113,328			

[No.Tariff/PV/Solar-2015]

(Syed Mubeen Ahmed
Section Officer (Tariff))