

TAMIL NADU ELECTRICITY REGULATORY COMMISSION

(Comprehensive Tariff Order on Solar Power)

Order No. 4 of 2014 Dated 12-09-2014

Sl. No.	Description	Summary																																																			
1.	Project Specific or Generalized Order	Generalized tariff order for Solar Photovoltaic and Solar Thermal Projects																																																			
2.	Applicability	<ul style="list-style-type: none"> - From date of issue of the order - Tariff fixed shall be applicable to all Solar Power Plants commissioned during the control period of the order - The open access charges & other terms and conditions specified in the order shall be applicable to all Solar Energy Generators. 																																																			
3.	Cost-Plus Tariff Determination	Cost Plus tariff																																																			
4.	Single Part or two part tariff	Single Part tariff																																																			
5.	Average or levelised tariff	Cost Plus single part levelised tariff taking into account the AD benefits for Solar Power																																																			
6.	Tariff Determinants	<p>The financial and operational parameters are tabulated below:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Tariff Components</th> <th style="text-align: center;">Solar Photovoltaic</th> <th style="text-align: center;">Solar Thermal</th> </tr> </thead> <tbody> <tr> <td>Capital cost</td> <td style="text-align: center;">Rs. 7 Crores per MW</td> <td style="text-align: center;">Rs. 12 crores per MW</td> </tr> <tr> <td>Auxiliary Consumption</td> <td style="text-align: center;">-</td> <td style="text-align: center;">10%</td> </tr> <tr> <td>CUF</td> <td style="text-align: center;">19%</td> <td style="text-align: center;">23%</td> </tr> <tr> <td>Operation and Maintenance Expenses</td> <td style="text-align: center;">1.4% of the capital cost with 5.72% escalation after 1st year</td> <td style="text-align: center;">1.4% of the capital cost with 5.72% escalation after 1st year</td> </tr> <tr> <td>Insurance Cost</td> <td style="text-align: center;">0.35% of net asset value</td> <td style="text-align: center;">0.35% of net asset value</td> </tr> <tr> <td>Life of plant and machinery</td> <td style="text-align: center;">25 years</td> <td style="text-align: center;">25 years</td> </tr> <tr> <td>Term of Loan</td> <td style="text-align: center;">10 years + 1 year Moratorium</td> <td style="text-align: center;">10 years + 1 year Moratorium</td> </tr> <tr> <td>Interest on Loan</td> <td style="text-align: center;">12.7%</td> <td style="text-align: center;">12.7%</td> </tr> <tr> <td>Working Capital Components</td> <td style="text-align: center;">One month O&M cost and two months receivables</td> <td style="text-align: center;">One month O&M cost and two months receivables</td> </tr> <tr> <td>Interest on Working Capital</td> <td style="text-align: center;">13.2%</td> <td style="text-align: center;">13.2%</td> </tr> <tr> <td>Return on equity</td> <td style="text-align: center;">20% pre tax</td> <td style="text-align: center;">20% pre tax</td> </tr> <tr> <td>Debt-equity ratio</td> <td style="text-align: center;">70:30</td> <td style="text-align: center;">70:30</td> </tr> <tr> <td>Depreciation rate</td> <td style="text-align: center;">3.6% on 95% of the Capital Investment</td> <td style="text-align: center;">3.6% on 95% of the Capital Investment</td> </tr> <tr> <td>Discount factor</td> <td style="text-align: center;">10.07%</td> <td style="text-align: center;">10.07%</td> </tr> <tr> <td>Tariff</td> <td style="text-align: center;">Rs. 7.01/unit</td> <td style="text-align: center;">Rs. 11.03/unit</td> </tr> <tr> <td>Accelerated Depreciation</td> <td style="text-align: center;">Rs. 0.73/unit</td> <td style="text-align: center;">Rs. 1.15/unit</td> </tr> </tbody> </table>	Tariff Components	Solar Photovoltaic	Solar Thermal	Capital cost	Rs. 7 Crores per MW	Rs. 12 crores per MW	Auxiliary Consumption	-	10%	CUF	19%	23%	Operation and Maintenance Expenses	1.4% of the capital cost with 5.72% escalation after 1st year	1.4% of the capital cost with 5.72% escalation after 1st year	Insurance Cost	0.35% of net asset value	0.35% of net asset value	Life of plant and machinery	25 years	25 years	Term of Loan	10 years + 1 year Moratorium	10 years + 1 year Moratorium	Interest on Loan	12.7%	12.7%	Working Capital Components	One month O&M cost and two months receivables	One month O&M cost and two months receivables	Interest on Working Capital	13.2%	13.2%	Return on equity	20% pre tax	20% pre tax	Debt-equity ratio	70:30	70:30	Depreciation rate	3.6% on 95% of the Capital Investment	3.6% on 95% of the Capital Investment	Discount factor	10.07%	10.07%	Tariff	Rs. 7.01/unit	Rs. 11.03/unit	Accelerated Depreciation	Rs. 0.73/unit	Rs. 1.15/unit
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7.	Solar Power Tariff – Accelerated Depreciation (AD)	<ul style="list-style-type: none"> • Tariff to be Rs. 7.01/unit for Solar PV Projects and Rs. 11.03/unit for Solar Thermal Projects without AD benefit • AD Component of tariff is Rs. 0.73 per unit for Solar PV and Rs. 1.15 per unit for Solar Thermal. • Tariff for generators/ developers availing AD benefits shall be tariff after deduction of AD benefits from tariff as determined above. 																																																			

8.	Other Issues related to Power Purchase by distribution licensee from SPG s	
(i)	Quantum of Solar Power purchase by the distribution licensee	Distribution licensee can purchase Solar Power at the rate determined by the Commission from SPGs for their Renewable Purchase Obligations (RPO) requirement on 'first come first serve basis'
(ii)	Plant Capacity Limitations	Distribution licensee to purchase Solar Power from 1 MW Capacity Plants and above.
(iii)	CDM Benefits	100% to developers in first/year on gross basis and thereafter reducing by 10% every year till sharing becomes equal (50:50) between developer and consumer in sixth year.
(iv)	Billing and Payment	1% interest per month for any delayed payment by distribution licensee beyond 60 days.
(v)	Energy Purchase Agreement (EPA)	Format for EPA shall be evolved as specified by the Commission. Agreement shall be valid for 25 years.
(vi)	Control Period	One year
9.	Issues Related to Open Access	
(i)	Open Access Charges and Line Losses	30% in each of the transmission, wheeling, scheduling and system operation charges to solar Power on the respective charges specified by the Commission. In respect of plants availing REC, 100% respective charges as specified in relevant orders shall apply.
(ii)	Cross Subsidy Charge	50% of the Cross subsidy surcharge for third party open access consumers.
(iii)	Reactive Power Charges	As specified by Commission in its order on Open Access Charges
(iv)	Grid Availability Charges:	
	(a) Charges for Start up Power Supplied by the Distribution Licensee	Start up Power drawn by SPGs shall be adjusted against the generated energy for every billing period
	(b) Stand by Charges	If Drawl exceeds energy generated, energy and demand charges shall be as per commission's Open Access regulation and order on ABT & other relevant orders.
(v)	Energy Accounting and Billing Procedure	- Banking of Solar Power for one billing cycle - Energy accounting shall be regulated as: Regulations on open access, Order on open access charges and Order on ABT Excess Consumption will be charged at the tariff applicable to consumer. The balance energy after billing period may be sold at 75% of respective solar tariff.
(vi)	Energy Wheeling Agreement and fee	As per TNERC Grid Connectivity and Intra State Open Access Regulation 2014 and Power Procurement from New and Renewable Sources of Energy Regulations 2008.
(vii)	Security Deposit	Two times the maximum net energy supplied by distribution licensee in any month in the preceding financial year
(viii)	Power Factor Disincentive	Power factor recorded at meter at user end as specified in relevant regulations/orders.
(ix)	Metering	As per CEA (Installation and operation of meters) regulations 2006 amended from time to time, Tamil Nadu Electricity Distribution & Supply Code and Grid Code, TNERC Grid Connectivity and intrastate Open access Regulations 2014.

(x)	Connectivity and Evacuation of Power	As per CEA (Technical Standards for connectivity to the Grid) Regulations 2007 and CEA (Technical Standards for Connectivity of the Distributed Generation Resources) Regulations 2012. The Connectivity and Power Evacuation system shall be as per the Acts/Codes/Regulations/Orders in force.
(xi)	Harmonics	Injection of Harmonics by SPGs beyond stipulated limits, a compensation of 5% of applicable generation tariff shall be paid by SPG to the distribution licensee.
(xii)	Parallel Operation Charges	SPGs Consuming Power Captively in the same location but wish to avail REC benefits may opt for paralleling their generators with the grid without actually wheeling their power and shall pay 30% applicable parallel operation charges to the respective distribution licensee.