



TELANGANA STATE ELECTRICITY REGULATORY COMMISSION
5th Floor, Singareni Bhavan, Red Hills, Lakdi-ka-pul, Hyderabad 500004

O.P.No.24 of 2020

Dated 02.01.2021

Present

Sri T.Sriranga Rao, Chairman
Sri M.D.Manohar Raju, Member (Technical)
Sri Bandaru Krishnaiah, Member (Finance)

In the matter of *Suo-Moto* determination of pre-fixed levelised tariff under Component-A of Pradhan Mantri Kisan Urja Suraksha Evam Utthan Mahabhiyan (PM-KUSUM) Scheme

ORDER

1. The Government of India (GoI) had launched the PM-KUSUM Scheme comprising the following components:
 - (a) Component-A: Setting up of 10,000 MW of Decentralized Ground Mounted Grid Connected Solar Power plants of individual plant size upto 2 MW;
 - (b) Component-B: Installation of 17.50 Lakh Standalone Solar Powered Agriculture Pumps of individual capacity upto 7.5 HP; and
 - (c) Component-C: Solarisation of 10 Lakh Grid-Connected Agriculture Pumps of individual pump capacity upto 7.5 HP.
2. Under Component-A, solar or other Renewable Energy based Power Plants (REPPs) of capacity 500 kW (0.5 MW) to 2 MW will be setup by individual farmers/ group of farmers/ cooperatives/ panchayats/ Farmer Producer Organisations/ Water User Associations (hereinafter called as Renewable Power Generator (RPG)), preferably within five kilo metre (5 km) radius of the rural 33/11 kV sub-stations to be notified by the distribution companies viz., Southern Power Distribution Company of Telangana Limited and Northern Power Distribution Company of Telangana Limited (hereinafter referred to as

“TSDiscoms”). In specific cases, the power plants of capacity less than 500 kW may also be allowed. In case the farmers/ group of farmers/ cooperatives/ panchayats/ Farmer Producer Organisations/ Water User Associations etc., are not able to arrange equity for setting up of the project, they can opt for developing the project through developer(s) or through local distribution licensee which will be considered as Renewable Power Generator (RPG) in this case.

3. The REPPs are to be commissioned within twelve (12) months from the date of issuance of Letter of Award (LoA) from the respective distribution licensee and the power generated from the same will be purchased at a pre-fixed levelised tariff for a period of twenty-five (25) years from Commercial Operation Date (COD) of the project. The guidelines dated 22.07.2019 and clarifications thereon issued by Gol spell out the modalities of the Scheme in detail. The guidelines also include the model Power Purchase Agreement (PPA) to be executed between RPG and the distribution licensee.
4. In exercise of powers vested in it under Sections 62(1) read with 86(1)(a), (b), & (e) of the Electricity Act, 2003, the Commission, through this Order, determines the pre-fixed levelized tariff under Component-A.
5. The Commission has initiated a *Suo-Moto* proceeding for determination of pre-fixed levelized tariff under Component-A and accordingly issued the Public Notice dated 09.10.2020 in two (2) Telugu, two (2) English and one (1) Urdu newspapers, inviting the suggestions and comments from all the stakeholders on or before 07.11.2020 by 5.00 pm. The newspaper clippings of the Public Notice has been enclosed at Annexure-1. The norms for determination of pre-fixed levelised tariff along with computation of levelised tariff have been placed on the Commission’s website www.tserc.gov.in. The guidelines notified by Gol have also been placed on the Commission’s website.
6. The Commission has received written suggestions and comments from thirteen (13) nos. stakeholders within the stipulated time and from two (2) nos. stakeholders after the stipulated time. The list of stakeholders who have

submitted the written suggestions and comments is enclosed at Annexure-2. In consideration of requests made by various stakeholders, the Commission has held the virtual Public Hearing on 18.12.2020. The Press Release issued regarding the schedule of virtual Public Hearing is enclosed at Annexure-1. The list of persons who attended the virtual Public Hearing on 18.12.2020 is enclosed at Annexure-3. The Commission has considered all the suggestions and comments received from all the stakeholders in writing as well as during the virtual Public Hearing.

7. Though the Scheme is for setting up of solar or other REPPs, the Commission initially proposed the following norms as mentioned in the Notice dated 09.10.2020 for pre-fixed levelised tariff determination of solar plants of capacity 500 kW to 2 MW under Component-A:

Table-1: Proposed norms for pre-fixed levelised tariff determination under Component-A

Parameter	Unit	Proposed Norm
Useful life	Years	25
Capital Cost per MW* (including dedicated line)	Rs. Crore	3.60
Salvage value	%	10%
Debt	%	70%
Equity	%	30%
O&M expenses per MW for 1 st year	Rs. Crore	0.045
Annual escalation for O&M expenses	%	4.04%
Depreciation rate		
1-12 years	%	5.83%
13 th year onwards	%	1.54%
Loan tenure	Years	12
Interest on long-term loan	%	10.00%
Working capital components	-	<ul style="list-style-type: none"> ▪ O&M expenses for 1 month; ▪ Maintenance spares @ 15% of O&M expenses; ▪ Receivables for 2 months.
Interest on working capital	%	11.00%
Rate of Return on Equity	%	14.00%
Income Tax	-	Income tax paid by the Generator on the income derived from the power project shall be reimbursed by the Distribution Licensee(s) on submission of challans of payment of Tax to the Income Tax Department.
Discount Factor	%	11.20%
Capacity Utilisation Factor	%	19%

Parameter	Unit	Proposed Norm
Auxiliary consumption	%	0.75%

**Land value is not part of capital cost*

8. Based on the above norms, the Commission has proposed the pre-fixed levelised tariff of Rs.3.13/kWh for solar plants of capacity 500 kW to 2 MW under Component-A.
9. The suggestions and comments submitted by the stakeholders and Commission's views thereon have been summarised issue wise as detailed below.

Issue No.1: Capital cost

Stakeholders' submission

10. The capital cost of Rs.3.60 Crore/MW considered by the Commission is on higher side in comparison to the capital cost considered by other State Electricity Regulatory Commissions (SERCs) in generic tariff determination and pre-fixed levelised tariff determination under Component-A of PM-KUSUM Scheme.
11. The capital cost of Rs.3.60 Crore/MW considered by the Commission does not include land cost. The Commission may consider the capital cost of Rs.3.84 Crore/MW including land cost.

Commission's view

12. Ministry of New and Renewable Energy (MNRE) vide its office memorandum dated 21.07.2020 determined benchmark cost for grid connected rooftop solar PV systems (>100 to 500 kW) for FY 2020-21 as Rs.36 per Watt which worksout to Rs.3.60 Crore/MW. The Commission has taken note of capital cost considered by other ERCs and finds the benchmark cost of MNRE more appropriate to refer to. Therefore, the Commission finds it prudent to consider the capital cost of Rs.3.60 Crore/MW.
13. The Component-A of PM-KUSUM scheme targets the farmers for primarily setting up of REPPs on barren / uncultivable lands. Cultivable land may also be used provided that solar plants are set up on stilts (i.e., raised structure for installation of solar panels) and with adequate spacing between panel rows

for ensuring that farming activity is not affected. In case of REPPs developed through developer(s) or even through local distribution licensee, the land owner will get lease rent as mutually agreed between the parties. As the Scheme is intended to facilitate farmers to earn additional income by sale of power to the TSDiscoms, the Commission does not find it prudent to consider land cost in the capital cost for tariff purposes, as requested by the stakeholder.

Issue No.2: Tariff structure

Stakeholders' submission

14. Based on the debt equity ratio of 70:30, the equity component of the capital cost of Rs.3.60 Crore/MW works out to Rs.1.08 Crore/MW. The farmers have to depend on partners for equity investment and either such investment has to be repaid with interest or the profits have to be shared for the plant life. Under the scenario of repaying the equity with interest, during the term of first 12 years, there would be net loss during the first 9 years. Therefore, the Commission may consider the repayment of equity as a tariff component.
15. Further, the Commission may recommend the State and Central Governments to make available interest free term loans for the farmers under the PM-KUSUM Scheme. The Government may ask National Bank for Rural Development (NABARD)/ Indian Renewable Energy Development Agency Limited (IREDA)/ MNRE/ Power Finance Corporation (PFC)/ banks to extend interest free term loans to the farmers. This would result in net profit during all the years.
16. If recommendation for interest free term loans is not feasible, the Commission may recommend the State and Central Governments to provide 30% capital subsidy similar to Component-B and Component-C of the Scheme. The subsidy may be reimbursed stage-wise on certification of the progress of the plant construction by the competent authority of State or Central Government.
17. The Commission may consider determining pre-fixing levelised tariff separately for two time periods viz., for first 12 years and for the remaining 13 years. Considering the capital subsidy as 30% in place of equity, the

Commission may determine the pre-fixed levelised tariff of Rs.3.51/kWh for first 12 years and Rs.2.75/kWh for the remaining 13 years. In the absence of interest free term loan and 30% capital subsidy, the Commission may determine the pre-fixed levelised tariff of Rs.4.25/kWh for first 12 years and Rs.2.75/kWh for the remaining 13 years.

Commission's view

18. The present proceeding is for determination of pre-fixed levelized tariff under Component-A of PM-KUSUM Scheme. This is akin to determination of generic tariff wherein the prudent parameters for tariff determination have been considered while balancing the interest of all the stakeholders. The submissions of the stakeholders are related to different business models which is not within the ambit of the present determination of pre-fixed levelised tariff.
19. As regards the interest free term loan and capital subsidy, the stakeholders may represent to the appropriate authorities in the State or Central Government for consideration of their requests. The TSDiscoms may also represent before appropriate authorities in the State or Central Government in this matter as they can also be engaged for developing the REPPs under the Scheme.

Issue No.3: Annual escalation for O&M expenses

Stakeholders' submission

20. The Commission has proposed the annual escalation for O&M expenses of 4.04%. The escalation may be considered as 3.84% in line with the norm specified for Solar PV projects in Central Electricity Regulatory Commission (CERC) (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2020.

Commission's view

21. The annual escalation of 4.04% has been computed by considering the CPI and WPI indices for the period from FY 2014-15 to FY 2019-20 to factor in the inflation for the preceding 5 years and by considering the weightage of CPI and WPI in the ratio of 70:30. The Commission does not find it prudent to

consider the escalation rate of 3.84% as proposed by the stakeholders.

Issue No.4: Depreciation rate

Issue No.5: Loan tenure

Issue No.6: Working capital components

Stakeholders' submission

22. The loan tenure may be changed to 15 years. Accordingly, the depreciation rate for 1-15 years may be changed to 4.67% and balance depreciable value may be uniformly spread over the remaining useful life.
23. The receivables in working capital may be reduced to 1.5 months (45 days).
24. The changes proposed in depreciation rate, loan tenure and working capital components are based on the provisions of the CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2020.

Commission's view

25. In terms of section 61(a) of the Electricity Act, 2003, the principles and methodologies specified by CERC shall be guiding and are not mandatory. Therefore, the Commission does not accept the stakeholders' submissions regarding depreciation rate, loan tenure and working capital components.

Issue No.7: Interest on long-term loan

Issue No.8: Interest on working capital

Stakeholders' submission

26. The Commission has proposed the rates of interest on long-term loan and interest on working capital as 10% and 11% respectively. CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2020 specify the rate of interest on loan and interest on working capital as State Bank of India (SBI) Marginal Cost Lending Rate (MCLR) prevalent during the last available six months plus 200 basis points and 350 basis points which works out to 9% and 10.5% respectively. In light of the reduction of lending rates by banks and financial institutions, the Commission may consider lower interest rates. The Commission in its Order dated 28.08.2020 on determination of tariff for Singareni Thermal Power Project

(STPP) considered the rates of interest on long-term loan and interest on working capital of 9.14% and 10.05% respectively. The rate of interest may be limited to below 9% as the tariff will be applicable for 25 years.

Commission's view

27. The rate of interest on loan of 9.14% approved for STPP does not apply in this case as such rate was approved based on the actual loan portfolio of STPP.
28. The SBI 1-year MCLR as on the date of issue of notice was 7%. The Commission has proposed the rates of interest on long-term loan and interest on working capital as 10% and 11% which means a margin of 3% and 4% over SBI 1-year MCLR of 7%. Taking into consideration that the Component-A of the Scheme is targeted for farmers, the Commission does not find it prudent to reduce the interest rates any further from that proposed in the notice.

Issue No.9: Rate of Return on Equity

Stakeholders' submission

29. The Commission has proposed the rate of Return on Equity (RoE) of 14%. This rate of RoE was considered when interest rates were in the range of 12%. As the rate of RoE is pegged at 2% higher than interest rate and the interest rate has reduced to 9%, rate of RoE may be considered as 11%. With interest rates reducing below 9%, the rate of RoE of 11% is also on higher side.

Commission's view

30. The Commission does not find merit in the stakeholders' submission. The Commission finds it prudent to consider the rate of RoE of 14%.

Issue No.10: Income Tax

Stakeholders' submission

31. The Commission has proposed that the income tax paid by the generator on the income derived from the power project shall be reimbursed by the distribution licensee(s) on submission of challans of payment of tax to the

income tax department. Income tax has to be borne by the generator from its income and should not be reimbursed by the distribution licensee(s). The tax burden on the consumers is in addition to RoE and therefore, Commission may not allow the same.

32. The Commission may explicitly specify that the income tax paid by the generators and reimbursed by the TSDiscs shall be passed through to the end consumers via retail tariffs.

Commission's view

33. The Commission does not find merit in the stakeholders' submission as the RPG has to be allowed the recovery of all the legitimate expenses. The Commission finds it prudent to allow recovery of income tax on actual basis.
34. Recovery of income tax paid by TSDiscs from the end consumers does not fall under the ambit of the present *Suo-Moto* determination of pre-fixed levelised tariff under Component-A of PM-KUSUM Scheme. Recovery of legitimate expenses of TSDiscs from the end consumers is governed by a separate Regulation altogether and therefore, the Commission does not require to comment on the stakeholders' submissions.

Issue No.11: Capacity Utilisation Factor

Stakeholders' submission

35. The Commission has proposed the Capacity Utilisation Factor (CUF) of 19%. The CUF may be considered as 21% in line with the norm specified for Solar PV projects in CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2020.

Commission's view

36. In terms of section 61(a) of the Electricity Act, 2003, the principles and methodologies specified by CERC shall be guiding and are not mandatory. As per the Scheme guidelines, the TSDiscs would be eligible to get performance-based incentive (PBI) of Rs.0.40/kWh or Rs.6.6 lakh per MW of capacity installed, whichever is less for a period of five years from COD. The saleable energy computed considering the amount of Rs.6.6 lakh for 1 MW capacity at the per unit value of Rs.0.40/kWh works out to CUF of 19%.

Further, the Guidelines dated 04.12.2020 issued for Component-C specifies the average CUF of 19%. Therefore, the Commission does not find merit in the stakeholders' submission regarding CUF.

Issue No.12: Auxiliary consumption

Stakeholders' submission

37. CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2020 specify the auxiliary consumption of 0.75% which is the maximum value. The auxiliary consumption of 0.75% is higher than that specified by other SERCs in generic tariff determination and pre-fixed levelised tariff determination under Component-A of PM-KUSUM Scheme. Therefore, the auxiliary consumption may be specified as 0.25%.

Commission's view

38. In terms of section 61(a) of the Electricity Act, 2003, the principles and methodologies specified by CERC shall be guiding and are not mandatory. The same applies in the case of other SERCs also. Some SERCs have specified the auxiliary consumption of 0.25% while other SERCs have not specified any auxiliary consumption.
39. The Commission observes that some solar PV developers had submitted the auxiliary consumption details to CERC based on which CERC has revised the auxiliary consumption of 0.25% specified in its (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2017 to 0.75% in its (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2020. The operational experience of solar PV developers cannot be ignored in specifying the norms of operation. Therefore, the Commission finds it prudent to consider the auxiliary consumption of 0.75%.

Issue No.13: Pre-fixed levelised tariff

Stakeholders' submission

40. The Commission in its Order dated 02.03.2020 in OP No.7 of 2020 approved the pooled cost of power purchase of Rs.4.28/kWh for FY 2018-19, to be adopted for FY 2019-20. The equipment cost has increased from FY 2019-20

due to COVID-19 pandemic and the limitations of domestic manufacturing. The PM-KUSUM Scheme is being proposed for development of farmers. The farmers: (i) have to repay the debt along with interest; (ii) do not have any source of livelihood other than their lands and the equity has to be invested by a partner to whom returns at higher rate have to be paid; (iii) have to hire experts such as design experts, procurement experts, construction experts and maintenance experts. The tariff of Rs.3.13/kWh yields the project internal rate of return (IRR) of 11% and equity IRR of 12%, which is very low. Therefore, the tariff of Rs.4.28/kWh viz., pooled cost of power purchase for FY 2018-19 may be considered. This tariff of Rs.4.28/kWh yields the project IRR of 17% and equity IRR of 24%, and aids in upliftment of financial position of farmers.

41. The proposed levelised tariff of Rs.3.13/kWh is higher than the tariff discovered under competitive bidding which is about Rs.2.50/kWh. The higher tariff will lead to burden on TSDiscoms and in turn on the electricity consumers in the State. In light of changing techno-economic developments with regards to solar power, the Commission may consider a lower levelised tariff. The incentives and facilities provided under the competitive bidding have to be considered and the most beneficial tariff to the TSDiscoms has to be determined. The parameters considered by the Commission for determination of pre-fixed levelised tariff may also become redundant by the time the TSDiscoms actually require solar power.
42. The RPGs have to be selected through competitive reverse tendering with the levelised tariff determined by the Commission as the base.
43. The tariff of Rs.3.31/kWh arrived based on the capital cost of Rs.3.84 Crore/MW is a more appropriate tariff considering the experience of competitive bidding carried out by Maharashtra State Electricity Distribution Company Limited (MSEDCL) for similar scale projects in Maharashtra. The tariff of Rs.3.31/kWh for solar projects connected at 33 kV level would translate to Rs.2.87/kWh at the state transmission level after factoring in the transmission charges and losses of Rs.0.29/kWh and 4.5% respectively. The tariff for projects connected at inter-state transmission level would be further

lower. The tariff for Telangana has to be calculated using appropriate assumptions.

44. The pre-fixed levelised tariff may be determined as equivalent to $\pm 5\%$ of the lowest tariff discovered under competitive bidding in order to ensure objective and competitive tariff. The levelised tariff of Rs.2 per unit discovered in competitive bidding indicates that the parameters of tariff determination specified by CERC are not aligned with the latest market trends. The distribution companies are delaying the execution of Power Sale Agreements (PSAs) with the central agencies such as Solar Energy Corporation of India (SECI) in anticipation of further reduction in tariffs. Such a cautious approach by the distribution companies is justified and prudent.

Commission's view

45. The Commission does not find merit in the stakeholders' submission that the equipment cost is increasing. The cost of solar plants has been reducing year-on-year which is corroborated by the fact that the MNRE benchmark cost of grid connected rooftop solar PV systems has been reducing year-on-year. The tariff design takes care of all the cost components such as interest on loan, RoE, interest on working capital etc. Therefore, the Commission does not find it prudent to approve the tariff of Rs.4.28/kWh as requested by the stakeholders.
46. The Commission does not find merit in the stakeholders' comparison of solar tariff for Component-A of PM-KUSUM Scheme and the solar tariff discovered in competitive bidding. The solar projects that would be set up under Component-A are of smaller size and hence, both are not comparable.
47. The selection of RPG shall be in accordance with the guidelines of the Scheme.
48. The Commission has determined the pre-fixed levelised tariff considering the prudent parameters and balancing the interest of the stakeholders.

Issue No.14: Applicability

Stakeholders' submission

49. The project size should not be limited to 2 MW but has to be appropriately sized based on the demand and land availability.

Commission's view

50. The ceiling limit of 2 MW has been specified in the Scheme and the same cannot be altered by the Commission. The TSDiscoms may examine the issue and take appropriate course of action, if they deem fit, for enhancement of ceiling limit.

Issue No.15: Others

Stakeholders' submission

51. The gross generation and net generation have been considered the same for all the years although the degradation factor of 0.75% has been considered in the computations.
52. The Commission has taken up this *Suo-Moto* proceeding without any proposal from the TSDiscoms. The Gol scheme is not binding on the TSDiscoms and the Commission. The Commission has taken up only the pre-fixed levelised tariff determination for solar under Component-A. The pre-fixed levelised tariff determination by the Commission will allow the TSDiscoms to approach Gol expressing their readiness for implementation of the Scheme for specific capacity, without establishing the need for purchase of such additional capacity. Further, the renewable energy purchased under the Scheme will be accounted for fulfilment of Renewable Power Purchase Obligation (RPPO) however, the details of RPPO compliance status of the TSDiscoms are not available. Therefore, the requirement of solar power purchase under this Scheme has to be established. As per the Commission's Order dated 02.03.2020 in O.P.No.2 of 2019, the capacity of non-conventional energy sources approved for FY 2020-21 is 4915.67 MW and for FY 2023-24 is 4865.09 MW. Therefore, there is no need to add new capacity of non-conventional energy till the end of the control period.
53. The Scheme provides for PBI of Rs.0.40/kWh per unit purchased or Rs.6.6 lakh per MW of capacity installed, whichever is less, to the TSDiscoms, for a period of five years from COD. This arrangement is not appropriate as no

incentive is available after five years and the TSDiscoms have to purchase at the levelised tariff determined by the Commission.

54. Purchase of renewable energy under this Scheme would lead to further backing down of surplus power, with payment of fixed charges, and market purchases for meeting peak demand. Such a situation would defeat the objective of ensuring supply of power to consumers at competitive tariffs.
55. As the subsidy requirement for 24 hrs free power to agricultural consumers is borne by the State Government, Component-A of PM-KUSUM Scheme may not be appropriate. The impact of purchase of solar power, under this Scheme, by the Government and supply to the agricultural consumers, on subsidy reduction has to be examined.
56. The agricultural consumers are currently being supplied from the pooled sources of power purchase by the TSDiscoms. As per the guidelines, the renewable energy plants connected to existing 33/11 kV or 66/11 kV or 110/11 kV sub-stations results in saving in transmission system requirement and transmission and distribution (T&D) loss. If the solar power purchased under this Scheme cannot be supplied to the local agricultural consumers, without adversely affecting the TSDiscoms, the rationale provided in the guidelines does not hold good.
57. The pre-fixed levelised tariff is applicable for solar projects of capacity 500 kW to 2 MW commissioned under Component-A of PM-KUSUM Scheme, subject to the terms and conditions of the Scheme. The overall impact of the scheme i.e., the additional burden on TSDiscoms and non-agricultural consumers, also has to be examined.
58. The TSDiscoms may be directed to submit the following details:
 - (a) studies, if any, made, regarding sub-station-wise requirement of solar power under this Scheme.
 - (b) estimated/determined demand growth, requirement of addition of generation capacities year-wise, during the current and next control periods.
 - (c) power available under existing PPAs in force and power plants under execution with obligations to purchase power therefrom.

- (d) year wise compliance of RPPO for the completed years and the ensuing years.
 - (e) year-wise availability of surplus power, sale in the market, prices that could be realised, and profit or loss thereof.
 - (f) year-wise backing down of thermal power plants, especially for purchasing renewable energy, and fixed charges paid therefor.
 - (g) purchase of additional power in the market or from other sources to meet demand during peak hours and seasons, despite having surplus power and due to intermittent nature of renewable power.
 - (h) problems of grid integration and related costs, if any, for purchasing renewable energy.
59. The time for submission of suggestions may be extended and the interested stakeholders may be permitted to study the above sought information and file their detailed submissions. The TSDiscoms may be directed to submit the replies to the stakeholders' submissions. Thereafter, public hearing may be conducted on the same.
60. The TSDiscoms may be directed to decide a medium-term target for capacity addition, say 250-500 MW, under this Scheme based on the demand projections and RPPO targets. Given the financial attractiveness, the TSDiscoms have to try to maximise the solar power to agriculture under this model. This will also provide time for separation of agricultural load from non-agricultural load.
61. In addition to the national target of 10,000 MW under PM-KUSUM Scheme, Gol is planning to solarise all agriculture feeders with some possible capital grants. This is a very desirable approach and will address some of the core challenges in the sector such as: (i) improvement of financial viability of TSDiscoms by reducing cross subsidy and subsidy requirement; (ii) facilitation of better grid integration of solar by shifting demand to day time and through distributed deployment; (iii) promotion of growth in distributed/rural jobs; (iv) contribution towards meeting solar RPPO. This model has been successfully adopted in Maharashtra, Madhya Pradesh, Haryana, and Chhattisgarh. The same was also highlighted in the meeting of Power Ministers held in July, 2020. Therefore, this approach has to be comprehensively adopted in Telangana.

62. The TSDiscoms have to be directed to create awareness amongst individual farmers/ group of farmers/ cooperatives/ panchayats/ Farmer Producer Organisations /Water User Associations and to extend support for implementation as they are potential developers.
63. MNRE has finalised the guidelines for development of decentralised solar power plants including those above 2 MW capacity. Those guidelines have to be adopted in Telangana.

Commission’s view

64. The Commission has considered auxiliary consumption of 0.75% and not degradation factor as apprehended by the stakeholder.
65. This *Suo-Moto* proceeding for determination of pre-fixed levelized tariff under Component-A does not circumvent or relax the other compliances to be met by the TSDiscoms as regards power procurement. Therefore, the apprehension of the stakeholders is misplaced.
66. The performance-based incentive is available to the TSDiscoms only for 5 years after COD as per the Scheme. The TSDiscoms may examine the issue and take appropriate course of action, if they deem fit, for performance-based incentive from 6th year onwards.
67. The other submissions of the stakeholders are unrelated to this *Suo-Moto* proceeding for determination of pre-fixed levelized tariff under Component-A and hence does not require to be commented upon.

Norms approved by the Commission

68. Based on the above, the Commission approves the following norms for determination of the pre-fixed levelised tariff for the solar plants of capacity 500 kW to 2 MW under Component-A:

Table-2: Norms approved for pre-fixed levelised tariff determination under Component-A

Parameter	Unit	Proposed Norm
Useful life	Years	25
Capital Cost per MW* (including dedicated line)	Rs. Crore	3.60

Parameter	Unit	Proposed Norm
Salvage value	%	10%
Debt	%	70%
Equity	%	30%
O&M expenses per MW for 1st year	Rs. Crore	0.045
Annual escalation for O&M expenses	%	4.04%
Depreciation rate		
1-12 years	%	5.83%
13th year onwards	%	1.54%
Loan tenure	Years	12
Interest on long-term loan	%	10.00%
Working capital components	-	<ul style="list-style-type: none"> ▪ O&M expenses for 1 month; ▪ Maintenance spares @ 15% of O&M expenses; ▪ Receivables for 2 months.
Interest on working capital	%	11.00%
Rate of Return on Equity	%	14.00%
Income Tax	-	Income tax paid by the Generator on the income derived from the power project shall be reimbursed by the Distribution Licensee(s) on submission of challans of payment of Tax to the Income Tax Department.
Discount Factor	%	11.20%
Capacity Utilisation Factor	%	19%
Auxiliary consumption	%	0.75%

*Land value is not part of capital cost

Pre-fixed levelised tariff determined by the Commission

69. Based on the approved norms, the Commission hereby determines the pre-fixed levelised tariff of Rs.3.13/kWh. The computations of the same have been enclosed at Annexure-3.

Applicability

70. This pre-fixed levelised tariff of Rs.3.13/kWh shall be applicable for the solar projects of capacity 500 kW to 2 MW commissioned under Component-A of the PM-KUSUM Scheme, subject to the terms and conditions of the Scheme.

This Order is corrected and signed on this 2nd day of January, 2021.

**Sd/-
(BANDARU KRISHNAIAH)
MEMBER**

**Sd/-
(M.D.MANO HAR RAJU)
MEMBER**

**Sd/-
(T.SRIRANGA RAO)
CHAIRMAN**



TELANGANA STATE ELECTRICITY REGULATORY COMMISSION

Press Release

O.P.No.24 of 2020 (Suo-Moto)

Vide the Public Notice Dated 22.09.2020 the Commission had invited Suggestions/objections/comments on Suo-Moto determination of pre-fixed levelised tariff for Solar based power plants under PM-KUSUM scheme u/s 62 of the Electricity Act, 2003.

The virtual Public hearing in this matter is scheduled on 18.12.2020 the interested stake holders desiring to be heard in person are required to furnish the following details at secy@tserc.gov.in on or before 16.12.2020

1. Name
2. Address
3. Mobile No.
4. Email Address

For details on virtual Hearing refer to the practice directions (Proceedings' No.TSERC/Secy/No. PD-1 /2020 Dated:09.09.2020) hosted on the Commission's website www.tserc.gov.in

Hyderabad
24.11.2020

Secretary (FAC)
TSERC

**Annexure-2 – List of stakeholders who submitted written suggestions/
comments**

Sl. No.	Name of the Stakeholder
1.	Sri M.Venugopala Rao, Senior Journalist & Convener, Centre for Power Studies, H.No.1-100/MP/101, Monarch Prestige, Journalists' Colony, Gopanpally, Serilingampally Mandal, Hyderabad - 500 032
2.	Sri B.Sudharshan, Plot # 27, Street No.1A, Czech Colony, Sanathnagar, Hyderabad – 500018
3.	Ms M.Subbalaxmi, Flat-306, Mahalaxmi Homes, Opp.Royal garden function hall, Mothinagar, Hyderabad – 500018
4.	Sri K.Seeta Rama Raju, Plot # 75, 76 Flat #101, SriSaiBalaju Nivas, Rajivnagar, behind A.G.Colony, Hyderabad – 500 045
5.	Sri G.Lingaiah, Pandena palle (village), Kattangoor (mandal), Nalgonda – 508 205
6.	Sri R.Venkatesh
7.	Sri V.Balaram
8.	Sri B.Somaraju
9.	Sri B.Shankar
10.	Sri A.Yadagiri Yadav
11.	Sri L.Ramaiah
12.	Sri M.Thimma Reddy, Convenor, People's Monitoring Group on Electricity Regulation, 139, Kakatiyanagar, Hyderabad – 500 008
13.	Southern Power Distribution Company of Telangana Limited, #6-1-50, Corporate Office, Mint Compound, Hyderabad – 500063
14.	Prayas (Energy Group), Unit III, Devgiri, Joshi Museum Lane, Kothrud Industrial Area, Kothrud, Pune - 411 038
15.	Northern Power Distribution Company of Telangana Limited, #2-5-31/2, Vidyuth Bhavan, Nakkalagutta, Hanamkonda, Warangal – 506 001

**Annexure-3 – List of stakeholders who attended the virtual public hearing on
18.12.2020**

Sl. No.	Name of the Stakeholder
1.	Sri M.Venugopala Rao, Senior Journalist & Convener, Centre for Power Studies, H.No.1-100/MP/101, Monarch Prestige, Journalists' Colony, Gopanpally, Serilingampally Mandal, Hyderabad - 500 032
2.	Ms M.Subbalaxmi, Flat-306, Mahalaxmi Homes, Opp.Royal garden function hall, Mothinagar, Hydrabad – 500018
3.	Sri K.Seeta Rama Raju, Plot # 75, 76 Flat #101, SriSaiBalaju Nivas, Rajivnagar, behind A.G.Colony, Hyderabad – 500 045
4.	Sri B.Sudharshan, Plot # 27, Street No.1A, Czech Colony, Sanathnagar, Hyderabad – 500018
5.	Southern Power Distribution Company of Telangana Limited, #6-1-50, Corporate Office, Mint Compound, Hyderabad – 500063
6.	Northern Power Distribution Company of Telangana Limited, #2-5-31/2, Vidyuth Bhavan, Nakkalagutta, Hanamkonda, Warangal – 506 001

Annexure-4 – Computation of levelised tariff for solar projects under Component-A of PM-KUSUM Scheme

Computation of Levelised Tariff for Solar projects

Parameter	Units	Value
Installed Capacity	MW	1
Useful life	Years	25
Capital Cost per MW* (including dedicated line)	Rs. Crore	3.60
Salvage value	%	10%
Debt	%	70%
Equity	%	30%
O&M expenses per MW for 1st year	Rs. Crore	0.045
Annual escalation for O&M expenses	%	4.04%
Depreciation rate		
1-12 years	%	5.83%
13th year onwards	%	1.54%
Loan tenure	Years	12
Interest on long-term loan	%	10.00%
Interest on working capital	%	11.00%
Rate of Return on Equity	%	14.00%
Discount Factor	%	11.20%
Capacity Utilisation Factor	%	19%
Auxiliary consumption	%	0.75%

*Land value is not part of capital cost

Particulars	Units	Year																								
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Gross Generation	MU	1.664	1.664	1.664	1.664	1.664	1.664	1.664	1.664	1.664	1.664	1.664	1.664	1.664	1.664	1.664	1.664	1.664	1.664	1.664	1.664	1.664	1.664	1.664	1.664	1.664
Net Generation	MU	1.652	1.652	1.652	1.652	1.652	1.652	1.652	1.652	1.652	1.652	1.652	1.652	1.652	1.652	1.652	1.652	1.652	1.652	1.652	1.652	1.652	1.652	1.652	1.652	1.652
Tariff components																										
O&M expenses	Rs. Lakh	4.50	4.68	4.87	5.07	5.27	5.49	5.71	5.94	6.18	6.43	6.69	6.96	7.24	7.53	7.84	8.15	8.48	8.82	9.18	9.55	9.94	10.34	10.76	11.19	11.64
Depreciation	Rs. Lakh	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99	20.99
Interest on term loan	Rs. Lakh	24.15	22.05	19.95	17.85	15.75	13.65	11.55	9.45	7.35	5.25	3.15	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working capital	Rs. Lakh	1.33	1.30	1.27	1.23	1.20	1.18	1.15	1.12	1.09	1.06	1.03	1.01	0.71	0.72	0.74	0.75	0.77	0.78	0.80	0.81	0.83	0.85	0.87	0.89	0.91
Return on Equity	Rs. Lakh	15.12	15.12	15.12	15.12	15.12	15.12	15.12	15.12	15.12	15.12	15.12	15.12	15.12	15.12	15.12	15.12	15.12	15.12	15.12	15.12	15.12	15.12	15.12	15.12	15.12
Total	Rs. Lakh	66.09	64.14	62.19	60.26	58.34	56.42	54.51	52.61	50.72	48.85	46.98	45.12	28.62	28.92	29.24	29.57	29.92	30.28	30.65	31.04	31.44	31.86	32.30	32.75	33.22
Per unit Tariff																										
O&M expenses	Rs./kWh	0.27	0.28	0.29	0.31	0.32	0.33	0.35	0.36	0.37	0.39	0.40	0.42	0.44	0.46	0.47	0.49	0.51	0.53	0.56	0.58	0.60	0.63	0.65	0.68	0.70
Depreciation	Rs./kWh	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27	1.27
Interest on term loan	Rs./kWh	1.46	1.33	1.21	1.08	0.95	0.83	0.70	0.57	0.44	0.32	0.19	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Interest on working capital	Rs./kWh	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Return on Equity	Rs./kWh	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Total	Rs./kWh	4.00	3.88	3.76	3.65	3.53	3.42	3.30	3.18	3.07	2.96	2.84	2.73	1.73	1.75	1.77	1.79	1.81	1.83	1.86	1.88	1.90	1.93	1.96	1.98	2.01
Levelised Tariff																										
Discount Factor		1.00	0.90	0.81	0.73	0.65	0.59	0.53	0.48	0.43	0.38	0.35	0.31	0.28	0.25	0.23	0.20	0.18	0.16	0.15	0.13	0.12	0.11	0.10	0.09	0.08
Levelised Tariff	Rs./kWh																									