TARIFF FRAMEWORK FOR PROCUREMENT OF POWER BY DISTRIBUTION LICENSEES AND OTHERS FROM SOLAR ENERGY PROJECTS AND OTHER COMMERCIAL ISSUES FOR THE STATE OF GUJARAT

Order No. 03

8th May, 2020

GUJARAT ELECTRICITY REGULATORY COMMISSION

6th Floor, GIFT ONE,
Road 5C, Zone 5, GIFT CITY,
Gandhinagar-382355,
Gujarat

Contents

Abbreviations

ABT	:	Availability-Based Tariff
AC	:	Alternating Current
CEA	:	Central Electricity Authority
CERC	:	Central Electricity Regulatory Commission
CUF	:	Capacity Utilization Factor
DC	:	Direct Current
EPC	:	Engineering, Procurement & Commission
EPD	:	Energy and Petrochemicals Department
GEDA	:	Gujarat Energy Development Agency
GERC	:	Gujarat Electricity Regulatory Commission
GETCO	:	Gujarat Energy Transmission Corporation Ltd.
GHI	:	Global Horizontal Insolation
GoG	:	Government of Gujarat
GoI	:	Government of India
h	:	Hour
Hz	:	Hertz
IEC	:	International Electrotechnical Commission
IMD	:	India Meteorological Department
INR	:	Indian Rupees
JNNSM	:	Jawaharlal Nehru National Solar Mission
kWh	:	Kilowatt-hour (also known as a 'Unit')
L	:	Litre
Lac(s)	:	A unit in the Indian numbering system, which equals to 100,000. Also known as 'Lakh.'
LCOE	:	Levelized Cost of Electricity
MAT	:	Minimum Alternate Tax
MNRE	:	Ministry of New and Renewable Energy
MW	:	Megawatt

NASA	:	National Aeronautics and Space Administration
NSM	:	National Solar Mission
NTPC	:	National Thermal Power Corporation Ltd.
NVVN	:	NTPC Vidyut Vyapar Nigam Ltd.
O&M	:	Operation and Maintenance
ph	:	Phase
PPA	:	Power Purchase Agreement
PR	:	Performance Ratio
PV	:	Photovoltaic(s)
RBI	:	Reserve Bank of India
REC	:	Renewable Energy Certificate
RPO	:	Renewable Purchase Obligation
SBI	:	State Bank of India
SECI	:	Solar Energy Corporation of India
SERC	:	State Electricity Regulatory Commission
SEZ	:	Special Economic Zone
SPP	:	Solar Power Policy
sq.	:	Square
STC	:	Standard Testing Conditions
STU	:	State Transmission Utility
V	:	Voltage
W	:	Watt

Order No. 03 of 2020

In the matter of:

Tariff framework for procurement of power by distribution licensees and others from Solar Energy Projects and other commercial issues for the State of Gujarat

Date of Public hearing: 07.03.2020

Date of the Order: 08.05.2020

CORAM

Shri Anand Kumar, Chairman

Shri P. J. Thakkar, Member

1. Introduction

1.1. Background

In exercise of the powers conferred under Sections 3 (1), 61 (h), 62 (1) (a), and 86 (1) (b) & (e) of the Electricity Act, 2003, National Electricity Policy, 2005, and Tariff Policy, 2016 and all other powers enabling it in this behalf, the Gujarat Electricity Regulatory Commission (GERC or Commission) presents this Order on the tariff framework for procurement of power by Distribution Licensees and others from Solar power projects to be commissioned prospectively.

The Gujarat Solar Power Policy-2015 as well as the amendments notified by the Government of Gujarat, have been considered while preparing this Order. The Commission had issued the previous generic Tariff Order on 17th August, 2015, for procurement of power by Distribution Licensees from Solar power projects in Gujarat. The Control Period of GERC Solar power Tariff Order 2015 expired on 31 March, 2018. This Order details the tariff framework for the prospective period as well as the intervening period.

The Commission duly considered the various provisions of the following Statutory/Policy documents, while preparing the Discussion Paper on the proposed Tariff framework:

1.2. The Electricity Act, 2003

The following provisions of the Act provide the enabling legal framework for promotion of Renewable Sources of energy by the State Electricity Regulatory Commissions (SERCs):

1.2.1 Section 61 (h) of the Act provides that, while specifying the terms and conditions of determination of tariff, the Commission shall be guided by the objective of promotion of cogeneration and generation of electricity from renewable sources of energy.

> *"The promotion of cogeneration and generation of electricity from renewable sources of energy."*

1.2.2 Section 62 (1) (a) of the Act provides for determination of tariff for supply of electricity by a generating company to a distribution licensee.

> *"Supply of electricity by a generating company to a distribution licensee: Provided that the Appropriate Commission may, in case of shortage of supply of electricity, fix the minimum and maximum ceiling of tariff for sale or purchase of electricity in pursuance of an agreement, entered into between a generating company and a licensee or between licensees, for a period not exceeding one year to ensure reasonable prices of electricity."*

1.2.3 Section 86.1 (b) of the Act regulates the procurement process of electricity by the distribution licensees as under:

"regulate electricity purchase and procurement process of distribution licensees including the price at which electricity shall be procured from the generating companies or licensees or from other sources through agreements for purchase of power for distribution and supply within the State;"

1.2.4 Section 86.1 (e) of the Electricity Act 2003 mandates promotion of cogeneration and generation of electricity from renewable sources of energy:

"Promote cogeneration and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee."

1.2.5 Section 3 (1) of the Electricity Act 2003 requires the Central Government to formulate, inter alia, the National Electricity Policy in consultation with the Central Electricity Authority (CEA) and State Governments. The provision is quoted below:

"The Central Government shall, from time to time, prepare the National Electricity Policy and tariff policy, in consultation with the State Governments and the Authority for development of the power system based on optimal utilization of resources such as coal, natural gas, nuclear substances or materials, hydro and renewable sources of energy."

1.3. National Electricity Policy, 2005

The National Electricity Policy, 2005 formulated in compliance with the above-stated Section 3 of the Electricity Act envisages:

Clause 5.6.1 stipulates about the need for Technology Development and R&D on non-conventional energy systems, as reproduced below:

"Special efforts would be made for research, development demonstration and commercialisation of non-conventional energy systems. Such systems would need to meet international standards, specifications and performance parameters."

Clause 5.12 stipulates several conditions for promotion and harnessing of renewable energy sources. The salient features of the said provisions of NEP are reproduced below.

5.12.1: Non-conventional sources of energy being the most environment-friendly, there is an urgent need to promote generation of electricity based on such sources of energy. For this purpose, efforts need to be made to reduce the capital cost of projects based on non-conventional and renewable sources of energy. Cost of energy can also be reduced by promoting competition within such projects. At the same time, adequate promotional measures would also have to be taken for development of technologies and a sustained growth of these sources.

5.12.2: The Electricity Act, 2003, provides that co-generation and generation of electricity from non- conventional sources would be promoted by the SERCs by providing suitable measures for connectivity with the grid and sale of electricity to any person and also by specifying, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee. Such percentage for purchase of power from non-conventional sources should be made applicable for the tariffs to be determined by the SERCs at the earliest. Progressively, the share of electricity from non-conventional sources would need to be increased as prescribed by State Electricity Regulatory Commissions. Such purchase by distribution companies shall be through competitive bidding process. Considering the fact that it will take some time before non-conventional technologies compete, in terms of cost, with conventional sources, the Commission may determine an appropriate differential in prices to promote these technologies.

1.4. Tariff Policy, 2006

The Tariff Policy, 2006 issued by the Ministry of Power, Government of India, also emphasizes on the importance of non-conventional sources of energy generation and states:

"Pursuant to provisions of section 86(1)(e) of the Act, the Appropriate Commission shall fix a minimum percentage for purchase of energy from such sources taking into account availability of such resources in the region and its impact on retail tariffs. Such percentage for purchase of energy should be made applicable for the tariffs to be determined by the SERCs latest by April 1, 2006."

1.5. Tariff Policy, 2016

In compliance with the Section (3) of the Act, the Central Government has notified the revised Tariff Policy on 28th January, 2016. The Tariff Policy elaborates the role of Regulatory Commissions, the mechanism for promoting renewable energy, the time-frame for implementation, etc. Clause 5.2 of the Tariff Policy provides as under:

"Provided also that the State Government can notify a policy to encourage investment in the State by allowing setting up of generating plants, including from renewable energy sources out of which a maximum of 35% of the installed capacity can be procured by the Distribution Licensees of that State for which the tariff may be determined under Section 62 of the Electricity Act, 2003."

Clause 6.4 of the Tariff Policy addresses various aspects associated with promoting and harnessing renewable sources of energy generation including co-generation from renewable energy sources, as reproduced below:

1) *"Pursuant to provisions of Section 86(1)(e) of the Act, the Appropriate Commission shall fix a minimum percentage of the total consumption of electricity in the area of a distribution licensee for purchase of energy from renewable energy sources, taking into account availability of such resources and its impact on retail tariffs. Cost of purchase of renewable energy shall be taken into account while determining tariff by SERCs. Long term growth trajectory of Renewable Purchase Obligations (RPOs) will be prescribed by the Ministry of Power in consultation with MNRE.*

   Provided that cogeneration from sources other than renewable sources shall not be excluded from the applicability of RPOs.

   (i) Within the percentage so made applicable, to start with, the SERCs shall also reserve a minimum percentage for purchase of solar energy from the date of notification of this policy which shall be such that it reaches 8% of total consumption of energy, excluding Hydro Power, by March 2022 or as notified by the Central Government from time to time.

   (ii) Distribution Licensee(s) shall compulsorily procure 100% power produced from all the Waste-to-Energy plants in the State, in the ratio of their procurement of power from all sources including their own, at the tariff determined by the Appropriate Commission under Section 62 of the Act.

   (iii) It is desirable that purchase of energy from renewable sources of energy takes place more or less in the same proportion in different States. To achieve this objective in the current scenario of large availability of such resources only in certain parts of the country, an appropriate mechanism such as Renewable Energy Certificate (REC) would need to be promoted. Through such a mechanism, the renewable energy based generation companies can sell the electricity to local distribution licensee at the rates for conventional power and can recover the balance cost by selling certificates to other distribution companies and obligated entities enabling the latter to meet their renewable power purchase obligations. The REC mechanism should also have a solar specific REC.

   (iv) Appropriate Commission may also provide for a suitable regulatory framework for encouraging such other emerging renewable energy technologies by prescribing separate technology based REC multiplier (i.e. granting higher or lower number of RECs to such emerging technologies for the same level of generation). Similarly, considering the change in prices of renewable energy technologies with passage of time, the Appropriate Commission may prescribe vintage based REC multiplier (i.e. granting higher or lower number of RECs for the same level of generation based on year of commissioning of plant).

2) *States shall endeavour to procure power from renewable energy sources through competitive bidding to keep the tariff low, except from the waste to energy plants. Procurement of power by Distribution Licensee from renewable energy sources from projects above the notified capacity, shall be done through competitive bidding process, from the date to be notified by the Central Government.*

   However, till such notification, any such procurement of power from renewable energy sources projects, may be done under Section 62 of the Electricity Act, 2003. While determining the tariff from such sources, the Appropriate Commission shall take into account the solar radiation and wind intensity which may differ from area to area to ensure that the benefits are passed on to the consumers.

3) *The Central Commission should lay down guidelines for pricing intermittent power, especially from renewable energy sources, where such procurement is not through competitive bidding. The tariff stipulated by CERC shall act as a ceiling for that category.*

4) *In order to incentivize the Distribution Companies to procure power from renewable sources of energy, the Central Government may notify, from time to time, an appropriate bid-based tariff framework for renewable energy, allowing the tariff to be increased progressively in a back-loaded or any other manner in the public interest during the period of PPA, over the life cycle of such a generating plant. Correspondingly, the procurer of such bid-based renewable energy shall comply with the obligations for payment of tariff so determined.*

5) *In order to promote renewable energy sources, any generating company proposing to establish a coal/lignite based thermal generating station after a specified date shall be required to establish such renewable energy generating capacity or procure and supply renewable energy equivalent to such capacity, as may be prescribed by the Central Government from time to time after due consultation with stakeholders. The renewable energy produced by each generator may be bundled with its thermal generation for the purpose of sale. In case an obligated entity procures this renewable power, then the SERCs will consider the obligated entity to have met the Renewable Purchase Obligation (RPO) to the extent of power bought from such renewable energy generating stations.*

   Provided further that in case any existing coal and lignite based thermal power generating station, with the concurrence of power procurers under the existing Power Purchase Agreements, chooses to set up additional renewable energy generating capacity, the power from such plant shall be allowed to be bundled and tariff of such renewable energy shall be allowed to be pass through by the Appropriate Commission. The Obligated Entities who finally buy such power shall account towards their renewable purchase obligations.

Provided also that scheduling and despatch of such conventional and renewable generating plants shall be done separately.

6) *In order to further encourage renewable sources of energy, no inter-State transmission charges and losses may be levied till such period as may be notified by the Central Government on transmission of the electricity generated from solar and wind sources of energy through the inter-State transmission system for sale.*

7) *Appropriate Commission may provide regulatory framework to facilitate generation and sale of electricity from renewable energy sources particularly from roof-top solar system by any entity including local authority, Panchayat Institution, user institution, cooperative society, Non-Governmental Organization, franchisee or by Renewable Energy Service Company. The Appropriate Government may also provide complementary policy support for this purpose."*

1.6. National Action Plan on Climate Change

The Prime Minister of India released the country's National Action Plan on Climate Change (NAPCC) on 30th June 2008. There are Eight National Missions which form the core of the National Action Plan. The NAPCC consists of several targets on climate change issues and addresses the urgent and critical concerns of the country through a directional shift in the development pathway. It outlines measures on climate change related adaptation and mitigation while simultaneously advancing development. The Missions form the core of the Plan, representing multi-pronged, long-term and integrated strategies for achieving goals in the context of climate change. NAPCC set the target of 5% renewable energy purchase for FY 2009-10. Further, NAPCC envisages that such target will increase by 1% annually for the next 10 years. This would mean NAPCC envisages renewable energy to constitute approximately 15% of the energy mix of India.

The National Action Plan on Climate Change is the National strategy of India to achieve a sustainable development path that simultaneously advances economic and environmental objectives. The National Action Plan hinges on the development and use of new technologies. The National Solar Mission is one of the eight national missions which form the core of the National Action Plan. Based on this vision a National Solar Mission was launched.

1.7. Gujarat Solar Power Policy, 2009

The Gujarat Solar Power Policy was announced on 6th January, 2009, by the Energy and Petrochemicals Dept. (EPD), Government of Gujarat, with the following objectives:

- Promoting generation of green and clean power in the State using solar energy.

- To put in place an appropriate investment climate, that could leverage the Clean Development Mechanism (CDM).
- Productive use of the wastelands, thereby engendering a socio-economic transformation.
- Employment generation and skill enhancement of local youth.
- Promotion of R&D and facilitation of technology transfer.
- Establish core technical competence in professionals in the State to initiate and sustain use and effective management of newer applications.
- Promotion of local manufacturing facilities.
- Creation of environmental consciousness among citizens.

This Policy was effective up to 31st March, 2014, and targets a net installed solar generation capacity of 500 MW.

1.8. Jawaharlal Nehru National Solar Mission

The Jawaharlal Nehru National Solar Mission (JNNSM) was announced in 2009. JNNSM aims to promote the development of solar energy for grid connected and off-grid power generation. The ultimate objective is to make solar power competitive with fossil based applications by 2020-2022. The mission aims to achieve 22 GW of both off-grid and on-grid solar power by 2022, which was subsequently revised to 100 GW by 2022.

In order to encourage rapid scale-up, a scheme is introduced in cooperation with the Ministry of Power, National Thermal Power Corporation Ltd. (NTPC) and Central Electricity Authority (CEA) to offtake solar power and reduces the financial burden on the government. NTPC Vidyut Vyapar Nigam Ltd. (NVVN), a wholly owned subsidiary of NTPC, was chosen as the nodal agency for entering into Power Purchase Agreement (PPA) with solar power Developers during Phase 1 (Batch 1&2). In the Phase 2 (Batch 1) of the NSM, the Solar Energy Corporation of India (SECI) signed the PPA on behalf of the government due to absence of unallocated power for bundling purposes.

State Governments are also encouraged to promote and establish solar generation parks with dedicated infrastructure for setting up utility scale plants to ensure ease of capacity creation.

1.9. GERC Solar Tariff Order, 2012

Gujarat Electricity Regulatory Commission (GERC), in its Order No. 1 of 2012 dated 27th January, 2012 determined the tariff for procurement of power by Distribution Licensees and others from solar energy projects for the State of Gujarat. In fact, GERC was the first State Electricity Regulatory Commission (SERC) in the country to issue a comprehensive Tariff Order on solar energy.

The said order was challenged by solar energy society of India by filing appeal no. 75 of 2012 before Hon'ble APTEL. Hon'ble APTEL passed an order dated 17th April, 2013 in the said appeal and remanded the matter to the Commission directing to pass the consequential order in terms of the observation and directions given in the said Judgment. Based on the above Judgment the Commission passed an order dated 7th July, 2014 and also issue corrigendum to it by order dated 11th July, 2014.

1.10 Gujarat Solar Policy, 2015

Government of Gujarat, Energy and Petrochemical department declared the solar power policy of Gujarat, vide G.R. No. SLR-11-2015-2442-B dated 13th August 2015, which would be operative till 31st March, 2020. This policy intends to facilitate and promote large scale promotion of the solar power generation capacities in the State and the interests of all the investors, developers, consumers and various other stakeholders.

The main features of the Policy are as follows:

- The minimum size of a MW scale project shall be 1 MW and 1 KW for KW scale projects.
- Any company or group of individuals shall be eligible for setting up a solar generating plant, either for purpose of captive use and/or selling of electricity to distribution licensee/third party whether or not under REC mechanism in accordance with Electricity Act 2003.
- There is project based provisions and incentives provided for Rooftop solar PV systems with net metering depending on the type of consumers.
- The State is blessed with several natural resources of energy that augments its renewable energy growth. Through its proactive planning on capacity addition front it has successfully managed to eliminate the demand supply deficit. In sync with the solar power policy the Government has also launched the Industrial Policy 2015, through which Government would encourage private participation in all energy generation to meet the growing demand in the state.
- Promoting generation of green and clean power in the State using solar energy.
- To put in place an appropriate investment climate, that could leverage the Clean Development Mechanism (CDM).
- Productive use of the wastelands, thereby engendering a socio-economic transformation.
- Employment generation and skill enhancement of local youth.
- Promotion of R&D and facilitation of technology transfer.

- Establish core technical competence in professionals in the State to initiate and sustain use and effective management of newer applications.
- Promotion of local manufacturing facilities.
- Creation of environmental consciousness among citizens.

1.11 GERC Solar Tariff Order, 2015

Gujarat Electricity Regulatory Commission (GERC) determined the solar tariff in its discussion paper titled "Determination of tariff for Procurement by the Distribution Licensees and others from Solar Energy Projects" and thereafter the Commission passed an order No. 3 of 2015 dated 17th August, 2015 declaring the solar tariff order for kilowatt and megawatt scale solar projects. The levelized tariffs for solar photovoltaic plants for a period from July 1, 2015 to March 31, 2018 arrived through a financial analysis were as follows:

Table 1.2: Levelized tariff for megawatt-scale and kilowatt-scale photovoltaic systems

For Megawatt Scale Projects	July 1, 2015 to March 31,2016	April 1, 2016 to March 31,2017	April 1, 2017 to March 31,2018
Without accelerated depreciation benefit	INR 6.77 per kWh	INR 6.30 per kWh	INR 5.86 per kWh
With accelerated depreciation benefit	INR 6.17 per kWh	INR 5.74 per kWh	INR 5.34 per kWh

For kilowatt Scale Projects	July 1, 2015 to March 31,2016	April 1, 2016 to March 31,2017	April 1, 2017 to March 31,2018
Without accelerated depreciation benefit	INR 8.42 per kWh	INR 7.83 per kWh	INR 7.28 per kWh
With accelerated depreciation benefit	INR 7.64 per kWh	INR 7.11 per kWh	INR 6.61 per kWh

Table 1.3: Levelized tariff for solar thermal power plants commissioned between April 1, 2015 and March 31, 2018

Category	Levelized Tariff	Period
Without accelerated depreciation benefit	INR 11.22 per kWh	For 25 Years
With accelerated depreciation benefit	INR 10.11 per kWh	For 25 Years

1.12 Gujarat's Renewable Purchase Obligation

GERC, in its regulations titled 'Procurement of Energy from Renewable Sources' (Notification No. 1 of 2018) dated 21st April, 2018 has mandated to obligatory entities for minimum purchase of electricity (in kWh) from renewable energy sources.

Table 1.5: Renewable Purchase Obligation for Gujarat, 2017-2022[1]

Year	Minimum Quantum of purchase (in %) from renewable energy sources (in terms of energy in kWh).			
	Wind (%)	Solar (%)	Others (Biomass, Bagasse, MSW and Hydro) (%)	Total (%)
(1)	(2)	(3)	(4)	(5)
2017-18	7.75	1.75	0.50	10.00
2018-19	7.95	4.25	0.50	12.70
2019-20	8.05	5.50	0.75	14.30
2020-21	8.15	6.75	0.75	15.65
2021-22	8.25	8.00	0.75	17.00

The Commission has also decided that if the above mentioned minimum quantum of power purchase either from Solar or Wind or Others (including Biomass, Bagasse, Hydro and MSW) is not available in a particular year of FY 2017-18 to 2021-22, then in such cases, additional renewable energy available either from Solar or Wind or Others shall be utilised for fulfilment of RPO in accordance with Column 5.

The Commission has also added new third para after second para of Regulation 4.1 of the Principal Regulations as under:

Distribution Licensee(s) shall compulsorily procure 100% power produced from all the Waste-to-Energy Projects in the State of Gujarat, in the ratio of their procurement of power from all sources including their own, at the tariff discovered through a Competitive Bidding Process as envisaged in the Gujarat Waste to Energy Policy, 2016 subject to ceiling of generic tariff as determined by the Commission.

[1] https://bit.ly/2QCjJaI | Notification: No. 01 of 2018

1.13 Policy for development of Small Scale Distributed Solar PV Power Projects-2019

The Government of Gujarat, Energy and Petrochemical department declared a Policy for development of Small Scale Distributed Solar PV Power Projects-2019, vide G.R. No: SLR/11/2019/51/B1 dated 6th March, 2019, which would be operative for a period of 5 years. This Policy for the Development of Small Scale Distributed Solar Projects - 2019 aims at facilitating the development of Small Scale Solar Projects with a size of 0.5 MW and above up to 4 MW in the distribution network of licensees of Gujarat State in rapid manner and at the same time the rate of power purchase is proposed at reasonable level. Any individual, company or body corporate or association or body of individuals, Co-operative Society of individuals/farmers or artificial juridical person shall be eligible for setting up Small Scale Solar Projects under this policy exclusively for the purpose of sale to Obligated Entities i.e. Distribution Licensees for fulfillment of RPO of such Obligated Entities. The main aim of this policy is to encourage small investors to participate in the energy transition without having to participate in the auctions, for which they may not have the relevant institutional capacity.

The tariff applicable under this Policy shall be as per following mechanism:

The tariff contracted in the Competitive Bidding Process conducted by GUVNL at which PPAs are signed for procurement of Solar Power from projects located outside the Solar Park prevailing as on 31st March (computed based on simple average of such tariff discovered and contracted over six months ending on 31st March) of any given year with an addition of Rs. 0.20 per unit shall be the applicable tariff at which the PPAs shall be signed during the immediately succeeding period of April to September by the Obligated Entities with these Solar Projects under this policy and similarly the contracted tariff prevailing as on 30th September of any given year (computed based on simple average of such tariff discovered and contracted over six months ending on 30th September) with an addition of Rs. 0.20 per unit shall be the applicable tariff for PPAs to be signed during the immediately succeeding period of October to March

The additional INR 0.20 per unit addition in tariff is allowed for INR 0.12 per unit for saving in transmission loss as power will be injected in distribution grid and INR 0.08 per unit is to compensate for expensive land cost, higher capital investment and maintenance cost due to small size of projects. The above mentioned tariff shall be applicable for a PPA term of 25 years from Commercial Operation Date of the Projects.

1.14 Amendments in Gujarat Solar Power Policy for MSME Manufacturing Enterprises

The State Government amended the provisions of Solar Power Policy 2015, vide G. R. No. SLR-11/2015/2442/B1 dated 26th September 2019, to make special provisions for the MSME sector,

which is the backbone of industrial activity in Gujarat, to provide special dispensation in the policy to Micro, Small and Medium Manufacturing Enterprises (MSME) so that MSME (Manufacturing) can arrange affordable power by setting up solar capacity as per their consumption requirement. In respect of Micro, Small and Medium Manufacturing Enterprises (MSME) - Manufacturing consumers across the State, Micro, Small and Medium Manufacturing Enterprises shall be allowed to set up of Solar Project of any capacity, irrespective of its sanctioned load/contract demand with the concerned DISCOM. Any surplus solar power not consumed by consumers shall be purchased by DISCOMs at INR 1.75/Unit and Energy Accounting shall be carried out on 15 minute time block basis.

1.15 Surya Urja Rooftop Yojana (SURYA)

The Government of Gujarat launched the Surya Urja Rooftop Yojana-Gujarat (SURYA-Gujarat), vide G. R. No. SLR-11/2015/401/B1 dated 5th August, 2019 to give further boost for promotion of Solar Roof Top in the State for residential sector. The Policy has targeted 2 lakh residential consumers during the year 2019-20 and 8 lakh residential consumers cumulatively until the year 2021-22. This is over and above the capacity commissioned as on 31st March, 2019. The Policy operative period shall be up to the financial year 2021-22. Any capacity of solar rooftop system equal to or greater than 1 (one) kilowatt DC can be installed irrespective of the sanctioned load of the residential consumers. The electricity generated from the solar rooftop system shall be net metered on the billing cycle period and the surplus power fed to the grid upon self-consumption shall be purchased by the concerned distribution licensee at the rate of INR 2.25 per unit.

1.16 Discussion Paper for Solar Energy Tariff Framework

The Commission also considered the prevailing Tariff for energy from Solar PV in other States, the levelized tariff approved by the Commission in 2012 and 2015 and various Policies of Government and Orders of the Commission, related to Solar Energy. Further, the Commission has also considered the competitively discovered tariffs for energy from Solar PV projects in Gujarat and other States, while proposing the tariff framework for the prospective period as well as the intervening period, in the Discussion Paper.

Accordingly, the Discussion Paper was published on the Commission's website www.gercin.org in downloadable format on 04th February, 2020, inviting comments from stakeholders by 04th March, 2020. A list of stakeholders communicated their views on the Discussion Paper is given at **Annexure I.**

1.17 Public Hearing

The Commission examined the objections / suggestions received. The Commission fixed the date for public hearing on the proposed Tariff framework for Solar Energy Projects on 07th

March, 2020 at the Commission's Office, Gandhinagar. The public hearing was conducted in the Commission's Office at Gandhinagar as scheduled on the above date. A list of stakeholders participated in the public hearing and presented their objections/suggestions is given at **Annexure-II**.

The main comments and views expressed by the stakeholders through their written/oral submissions and the Commission's views thereon have been summarized in the following paragraphs. It may be noted that all the suggestions given by the stakeholders have been considered, and the Commission has attempted to elaborate all the suggestions as well as the Commission's decisions on each suggestion, however, in case any suggestion is not specifically elaborated, it does not mean that the same has not been considered.

Wherever possible, the comments and suggestions have been summarised clause-wise, along with the Commission's analysis and ruling on the same. However, in some cases, due to overlapping of the issues/comments, two clauses have been combined in order to minimise repetition.

2. Comments and Suggestions on Proposed Tariff Framework and Commission's View

2.1. Clause 3.1: Tariff Framework

2.1.1. Proposed in Discussion Paper

"…..*In view of the above, the* ***Commission has decided to determine the tariff for all prospective Solar power projects, based on the rates discovered through competitive bidding, and discontinue the practice of determining the generic tariff for Solar power projects.***

Further, as stated earlier, the Control Period under the present dispensation expired on 31st March, 2018. The present Order outlines the approach and tariff framework for the prospective period. However, projects have continued to be set up during the intervening period, i.e., post 31st March, 2018 and before date of commencement of the dispensation approved in this Order. Hence, in order to ensure regulatory certainty for such projects set up in the intervening period, it is clarified that the Control Period ended on 31st March, 2018, shall be deemed to be extended till the date of effectiveness of the tariff framework proposed in this Order. ……

The Gujarat Urja Vikas Nigam Limited has also filed a Petition No. 1802/2019 before the Commission for approval of the same and the same was decided and approved the tariff mechanism vide Order dated 08.08.2019…….

We note that the tariff discovered in the competitive bidding process at State as well National level is quite lower than the feed-in-tariff determined by the Commission. The aforesaid facts prove that the tariff discovered under the competitive bidding process is quite lower than the feed-in-tariff determined by the Commission from time to time. ***We therefore, decides that the small projects which will be installed in the State the procurement of energy from such projects be purchased by the distribution licensee having linkage with the tariff rate discovered under the competitive bidding process****.*

The power generated from the small scale solar projects ***having size below 5 MW****, the procurement price of energy is at the rate of tariff discovered under the competitive bidding process in different time period of 6 months of the year plus additional 20 paisa per kWh thereon for the projects located outside the solar park as under:*

The average tariff, available as on 1st April (as discovered in the competitive bidding by GUVNL during previous six months October-March and adopted by the Commission) shall be applicable for the project commissioned during April-September. Similarly, the average tariff, available as on 1st October (as discovered in the competitive bidding by GUVNL during previous six months April-September and adopted by the Commission) shall be applicable for the project commissioned during October-March.

Incase average tariff is not available for particular 6 months period then latest average tariff available for 6 months period as discussed above shall be considered.

The distribution licensees shall place on its website the applicable tariff on which it will buy the energy generated from Small Scale Solar Power Projects of the capacity of 0.5 to 5 MW. The rate will be updated every 6 months.

For solar thermal technology, the Commission is of the view that solar thermal technology has failed to achieve the same economies of scale as compared to solar PV technology. Further, several projects commissioned in earlier years have failed to perform satisfactorily, showing that the technology is not yet mature for Indian conditions. Thus, owing to large variations of technology and their respective costs, it is difficult to determine a generic tariff. Therefore, the Commission adopts a project specific tariff for solar thermal technology for power generation. "

2.1.2. ***Suggestions/Objections of the Stakeholders***:

Some Developers suggested that the tariff should be determined for all prospective Solar Power Projects based on competitive bidding, in place of applying the competitive bidding rate of Mega scale solar projects with correction factor to KW based Solar Power Project a separate formula should be devised based on actual field criteria and cost escalation.

Some Developers suggested that additional INR 0.20 per unit is not cost competitive for small scale solar project, there should be capacity based matrix to make investment competent enough to derive maximum possible opportunities in win-win situation for developers and Discom.

Some stakeholder suggested that additional INR 0.20 per unit is potentially likely to interest small investors who are unable to participate in the large tenders, however whether the Rs.0.20/kWh higher rate would be viable for these small projects remains to be seen.

Some other Stakeholders suggested that the discussion paper presents a solid case for the need to continue with the practice of tariff discovery through competitive bidding and hence this proposal is most welcome.

Some Distribution companies suggested that in regard to the period after 31.03.2018, the Order dated 17.08.2015 should not be extended. Evidently, there was no rate for surplus power determined for the period after 31.03.2018 and Distribution company has already entered into the wheeling agreements with some of the solar power projects commissioned after 31.03.2018 for wheeling of energy and the generators have willingly agreed to the applicable competitive bidding rate. Therefore it would be incongruous to give APPC tariff to such generators who have already agreed to a competitive bid rate which is lower than APPC rate. There would have been no reason to enter into agreements with such generators after expiry of the control period of order dated 17.08.2015.

There cannot be consideration of allowing APPC / 85% of APPC for the period after 31.03.2018 which is much higher than the competitive bid rate as well as being substantially

higher than the rate of Rs. 1.75 per unit proposed by the Hon'ble Commission. Therefore at the very least, the proposed framework should apply from 01.04.2018.

2.1.3. Commission's Ruling

The intent of the Act, Policies and Regulations is also to prefer competitive bidding for renewable energy in future so as to maintain reasonable and competitive tariff. It is, therefore, in the interest of the consumers that such solar energy is procured by the licensees at the most competitive rates.

As regards Additional Rs. 0.20 per unit is not cost competitive, the issue is very well dealt in the Order dated 08.08.2019 of the Petition No.1802/2019.

As regards the contentions of Distribution licensees that the period after 31.03.2018, the Order dated 17.08.2015 should not be extended and proposed framework should apply from 01.04.2018, the Commission has stated in its Order dated 22.11.2019 in Petition No. 1727 of 2018, that the Commission will take an appropriate view in the matter at the time of revising the relevant Regulations and Orders to decide about the monetary compensation if any in such cases. Accordingly, the Commission published the Discussion Paper and invited comments, and has finalised its Order after considering the comments received. However, it is not appropriate to make any dispensation effective retrospectively. Projects set up in the intervening period cannot be subjected to a dispensation that has been decided after a public process at a later date.

Hence, as stated in Commission's past directions/Orders and stand taken with regard to necessity of pre-publication of draft Regulation/Order and public consultation prior to making any amendment in the existing Regulations/Orders, the contentions raised by Distribution licensees are not acceptable and other terms of the existing Orders shall be deemed to be extended till the date of issuance of this Order.

In view of the above, the Commission retains the approach for tariff determination as proposed in the Discussion Paper, with minor modification and to provide more clarity as under:

"The power generated from the small scale Solar Power Projects having size 0.5 MW or above but below 5 MW, the procurement price of energy shall be at the rate of tariff discovered under the competitive bidding process and adopted by the Commission in different time period of 6 months of the year plus additional 20 paisa per kWh thereon for the projects located outside the solar park as under:

The average tariff, available as on 1st April (as discovered in the competitive bidding by GUVNL during previous six months October-March and adopted by the Commission) shall be applicable for the project commissioned during April-September. Similarly, the average tariff, available as on 1st October (as discovered in the competitive bidding by GUVNL during previous six months April-September and adopted by the Commission) shall be applicable for the project commissioned during October-March.

In case average tariff is not available for particular 6 months period then latest average tariff available for 6 months period as discussed above shall be considered. ”

2.2. Clause 3.2(a): Control Period

2.2.1. Proposed in Discussion Paper

a) Control Period

The new control period of the tariff framework approved in this Order shall be effective from the date of this order till further Order in this regard.

2.2.2. Commission’s Ruling

Commission is of the view that it would be appropriate to have pre-defined control period up to 31st March, 2023. Hence, the Commission has modified the Clause as under:

“a) Control Period
The new control period of the tariff framework approved in this Order shall be effective from the date of this Order to 31st March, 2023.”

2.3. Clause 3.2(b): Plant and Machinery

2.3.1. Proposed in Discussion Paper

b) Plant and Machinery

Solar Power Projects established with only new Plants and Machinery would be eligible for the benefit of tariff determined within the scope of this Order.

2.3.2. *Suggestions/Objections of the Stakeholders*:

One Developer suggested to consider old Plant and Machinery eligible for the benefit of tariff determined within the scope of this Order.

2.3.3. Commission’s Ruling

The Commission do not find any merit to consider old Plant and Machinery eligible for the benefit of tariff approved within the scope of this Order.

To provide more clarity it is modified as under;

“b) Solar Power Projects established with only new Plants and Machinery would be eligible for the benefit of tariff approved within the scope of this Order.”

c) Useful life of Plant

The Useful Life for the Solar Power Projects to be commissioned during the new Control Period shall be considered as 25 years.

d) Tariff period
The tariff period for the tariff framework approved by the Commission for procurement of Solar Power Projects by the distribution licensees in the State shall be 25 years.

2.4. Clause 3.2(e): Eligibility Criteria

2.4.1. Proposed in Discussion Paper

e) Eligibility Criteria

The Solar power projects commissioned during the new control period will be eligible to sell power to distribution licensees of Gujarat at the tariff approved by the Commission under this Tariff framework.

2.4.2. Commission's Ruling

The Commission has modified the Clause as under to provide more clarity as under;

"e) Eligibility Criteria

The Solar power projects commissioned and PPAs signed during the new control period will be eligible to sell power to distribution licensees of Gujarat at the tariff approved by the Commission under this Tariff framework."

2.5. Clause 3.3: Capacity

2.5.1. Proposed in Discussion Paper

The maximum capacity for solar power projects shall be up to a maximum of 50% of consumers contracted load for captive use, Third-party sale, power projects set up under NSM with sale of power to consumers within the State.

However, MSME (Manufacturing) Enterprise are allowed to set up Solar Power project of any capacity irrespective of their sanctioned load/contract demand.

2.5.2. ***Suggestions/Objections of the Stakeholders*:**

Some Developer suggested that for Units operating completely on Captive / Group Captive there should be no restriction. And for consumers operating using power from Discom, In order to balance the objective of Grid Stability and promoting Green Power the restriction on capacity should be increased to at least 100% of Contracted Load after taking into consideration of the above two factors. In such cases there can be some amount of restriction on the power being injected to the Grid if there is a demonstrable Challenge in Grid Management.

Some Distribution companies suggested that in order to ensure safety, reliability and efficiency of the Distribution Network, a cap of 50% of contracted demand/sanctioned load is proposed inclusive of all renewable sources for all the consumers seeking wheeling of power for captive/ third party sale including MSME(Manufacturing). This is also essential to ensure that such open access customers are not benefited at the cost of small consumers who otherwise will have to cross subsidize consumers with higher paying capacity.

One of the developer raised the issue regarding DC capacity of solar plant, and requested for clarification, and suggested that Plant capacity should be in AC as all the permission regarding electricity connections are in terms of AC. Further, as per the clarifications issued by SECI in this regard that, there is no need for monitoring DC capacity of the project as far as generation on AC side is in line with the permission.

2.5.3. ***Commission's Ruling***

Looking to the present status of Solar PV installations and its impact on grid and other electricity consumers, the Commission decides to continue present arrangement of cap of 50% installation for consumers other than MSME (Manufacturing) Enterprises and in order to make exiting Regulation aligned to State Government Policy for MSME (Manufacturing) Enterprises, they are allowed to install Solar PV system above 50% of its sanctioned load/ contract demand subject to 15-minute settlement mechanism.

As far as Capacity of Solar PV plant installation is concerned, the Commission has already defined the "Plant Capacity" in the Order no. 3 of 2015 issued on 17th August, 2015, it is reproduced as under;

"…… The Commission therefore decides to retain the definition of the capacity of the solar plant as the cumulated rated capacity of the photovoltaic modules at Standard Testing Conditions (STC). Moreover a tolerance of ±3% is retained due to design and module constraints."

Hence, no modification has been made to this Clause.

2.6. Clause 3.5: Security Deposit

2.6.1. **Proposed in Discussion Paper**

For all solar power projects, it is required to submit security deposit of INR 5 lakhs per MW to STU/Discom for ensuring speedy and timely completion of evacuation facility by Solar power project developers failing which bank guarantee may be forfeited.

2.6.2. ***Suggestions/Objections of the Stakeholders*:**

Transmission licensee suggested that to add the following table in the above clause in line with already existing provisions of the Wind Orders:

Table 2-1: Capacity and Commissioning Period for the Solar Projects

MW	Period for commissioning the entire capacity
1 MW to 100 MW	1.5 years from the date of allotment of transmission capacity
101 MW to 200 MW	2 years from the date of allotment of transmission capacity
201 MW to 400 MW	2.5 yea rs from the date of allotment of transmission capacity
401 MW to 600 MW	3.5 years from the date of allotment of transmission capacity

The bank guarantee shall be encashed by the transmission company if the project is not commissioned within a specified time period as given above, provided further that the developer shall commission at least 10% of the allotted capacity within one month of charging of the evacuation line. Failing this, the developer shall be liable to pay long term transmission charges for 10% of allotted capacity till such 10% of allotted capacity is commissioned. Developer shall open Irrevocable, Revolving Letter of Credit for the 10% amount.

Further suggested that in case of delay in commissioning of the project beyond the prescribed time period due to unforeseen reasons beyond the control of the project developer, the developer may approach GETCO for time limit extension approval.

2.6.3. ***Commission's Ruling***

In view of the above, the Commission consider the submission of GETCO, to create seriousness amongst the Solar Power Project developer and to avoid unutilisations of assets created by licensees for Solar Power Project developers, the Commission has modified the Clause as under;

"In order to assure GETCO/DISCOMs about seriousness of project developer towards commissioning of the Solar projects, the Solar Power Project Developers have to furnish a Bank Guarantee of Rs 5 Lakh/MW to GETCO/DISCOMs based on allotment of evacuation capacity, and in case the Solar Power Project Developer fails to commission the entire evacuation line along with bays and metering system, within the time period mentioned hereunder, GETCO/DISCOMs shall encash the Bank Guarantee.

Table 2-2: Capacity and Commissioning Period for the Solar Projects

Solar Project Capacity in MW	***Period for commissioning the entire evacuation line along with bays and metering system***
1 MW to 100 MW	*1.5 years from the date of allotment of evacuation capacity*
101 MW to 200 MW	*2 years from the date of allotment of evacuation capacity*
201MW to 400 MW	*2.5 years from the date of allotment of evacuation capacity*
401 MW to 600 MW	*3.5 years from the date of allotment of evacuation capacity*

Provided that GETCO may issue extension on case to case basis to the Developers if they fail to commission the entire evacuation line along with bays and metering system within the stipulated time period due to unforeseen reasons.

The Solar Power Project Developer shall commission the Solar Power Project of at least 10% of the allotted capacity within one month of charging of evacuation line, failing which, the Developer shall be liable to pay long-term Transmission Charges for 10% of allotted capacity till such 10% of allotted capacity is commissioned."

2.7. Clause 3.8: Energy Accounting and RPO

2.7.1. ***Proposed in Discussion Paper:***

i. Solar projects not registered under REC Mechanism and the consumer does not take benefit of the renewable attribute

For such projects, the adjustment of the Solar energy generation shall be allowed within the consumer's billing cycle. The entire Solar energy generation of such consumer shall be utilized for meeting the RPO of that Distribution Licensee.

Banking of energy shall be allowed within one billing cycle of the consumer, wherein set off may be given against energy consumed at any time of the billing cycle. However, peak charges shall be applicable for consumption during peak hours.

In the event of any surplus Solar energy not consumed as per energy accounting, such excess electricity shall be compensated by the concerned Distribution Licensee at the rate Rs. 1.75 per unit or the rate, if any, specified by the Commission for Surplus Injection Compensation (SIC) from time to time for whole life of the Solar power projects.

For the Solar power projects set up by MSME (Manufacturing) Enterprise above 50% of its contracted demand, energy account settlement shall be carried out on 15 minute time block basis.

ii. Solar projects not registered under REC Mechanism and the consumer takes the benefit of the renewable attribute to meet their own RPO.

The energy accounting shall be carried out on 15 minutes time block basis.

In the event of any surplus solar energy not consumed as per energy accounting based on 15-minute time block, such excess electricity shall be compensated by the concerned Distribution Licensee at the rate Rs.1.75 per unit or the rate, if any, specified by the Commission for Surplus Injection Compensation (SIC) from time to time for whole life of the Solar power projects.

Such surplus energy compensated by the Distribution Licensee shall be utilized for meeting the RPO of that Distribution Licensee.

iii. ***Solar projects registered under REC Mechanism and the Solar projects not registered under REC Mechanism but benefit of the renewable attribute is not given to distribution licensee***.

The energy accounting shall be carried out on 15 minutes time block basis.

In the event of any surplus Solar energy not consumed as per energy accounting based on 15-minute time block, such excess electricity shall be compensated by the concerned Distribution Licensee at the rate Rs.1.50 per unit or the rate, if any, specified by the Commission for Surplus Injection Compensation (SIC) from time to time for whole life of the Solar power projects.

2.7.2. ***Suggestions/Objections of the Stakeholders*:**

Some Developers suggested that Consumers with less than 1 MW should not have Energy Accounting of 15 minutes.
It is also submitted by one Developer that banking of energy shall be allowed within one billing cycle of the consumer, wherein set off may be given against energy consumed at any time of the billing cycle. However, peak charges shall be applicable for consumption during peak hours. In the event of any surplus solar energy not consumed as per energy accounting, such excess electricity shall be compensated by the concerned Distribution Licensee at the rate Rs. 1.75 per unit or the rate, if any, specified by the Commission for Surplus injection Compensation(SlC) from time to time for whole life of the solar power projects.

Some Distribution companies request to completely do away with any banking facility and consider settlement in 15 minutes time block basis as par with other open access consumers in order to reduce the burden on the other consumers.

It is also submitted by one Distribution company that the Commission may consider to allow levy of banking charges for Solar Power Projects also. Further, in the changed scenario when there is significant reduction in the solar power cost, as a balancing of interest, the Commission may enhance banking charges from 2%.

Some Educational Institutes requested that small projects (below 5 MW), have significant diseconomies of scale leading to high cost of installation, financing as well as operation and maintenance (O&M) cost. A decline in tariff for larger projects has primarily been on account of decline in the project cost and the financing costs. Smaller projects have proportionately smaller share of "EPC" cost as compared to larger ones. Hence, a decline in competitively bid prices are not directly replicable for smaller projects.

Some of the stakeholders suggested that to encourage more participation, the banking period shall be increased to six months. States like Rajasthan, Karnataka etc. provide banking period of more than 6 months.

2.7.3. ***Commission's Ruling:***

The Commission decides to continue the existing arrangement of settlement mechanism to balance the interest of stakeholders. Hence, no modification has been made to this Clause.

2.8. Clause 3.9: Transmission/ Wheeling Charge and Losses

2.8.1. ***Proposed in Discussion Paper:***

i. ***General***

Whenever the entire Solar generation is sold to distribution licensee, the generator will supply the power at the interconnection point. Thereafter, the transmission/ wheeling charges will be borne by the distribution licensee.

ii. ***Transmission Charges and Losses***

Solar Power Projects setup for captive use /Third party sale/Registered under REC, transmission charges and losses as applicable to normal Open-Access Consumers shall be applicable.

iii. ***Wheeling Charges and Losses***

i. *Solar Power Projects for captive consumption and not registered under REC Mechanism, 50% of Wheeling charges and losses as applicable to normal Open-Access Consumers shall be applicable.*

ii. *For Solar Power Projects set up for third-party sale/National Solar Mission and registered under REC Mechanism, 100% of the Wheeling Charges & Losses as applicable to normal Open-Access Consumers shall be applicable.*

iv. ***Wheeling at Two or More Locations***

If a Solar Power Generator owner desires to wheel electricity to more than two locations, he shall pay INR 0.05 per unit on energy fed into the grid to distribution licensee in whose area power is consumed in addition to the abovementioned transmission charges and losses, as applicable.

2.8.2. ***Suggestions/Objections of the Stakeholders*:**

Some Developers suggested that whenever the entire Solar generation is sold to distribution licensees, the generator will supply the power at the interconnection point. Thereafter, the transmission/ wheeling charges will be borne by the distribution licensee.

Some stakeholders suggested that given the fall in the prices of solar PV, it would be prudent to do away with such concessions for new solar projects. If this is too abrupt a change for the sector, GERC at least suggest a sunset clause and gradually phase out such concessions in 2-3 years.

A Developer suggested that for real promotion of solar generation in Gujarat, the wheeling charges and losses should not be more than 50% for both captive and third party sale.

Some Distribution companies suggested that the solar power projects opting for captive use should be treated at par with other open access consumers by levying wheeling charges and losses as determined by the Hon'ble Commission.

2.8.3. ***Commission's Ruling:***

As stated in the Discussion Paper, the Commission has proposed differential treatment for the Captive Solar Projects in accordance with the "Gujarat Solar Power Policy – 2015". The Commission is of the view that Captive Solar Projects are entitled to such differential treatment. The EA 2003 also gives certain concessions to Captive Projects, and similar concessions have been given in the "Gujarat Solar Power Policy – 2015", which have been adopted by the Commission. Hence, no modification has been made to this Clause.

2.9. Clause 3.10: Cross-Subsidy Surcharge & Additional Surcharge

2.9.1. ***Proposed in Discussion Paper****:*

i. *For the Solar Power Project registered under REC Mechanism with sale of power to third party (including sale of power under NSM) within the State, 100% of Cross-Subsidy Surcharge and Additional Surcharge as applicable to normal Open-Access Consumers shall be applicable.*

ii. *For the Solar Power Projects set up by MSME (Manufacturing) Enterprise above 50% of its contracted demand, 100% of Cross-Subsidy Surcharge and Additional Surcharge as applicable to normal Open-Access Consumers shall be applicable.*

iii. *For the Solar Power Project not registered under REC Mechanism with sale of power to third party (including sale of power under NSM) within the State, 50% of Cross-Subsidy Surcharge and Additional Surcharge as applicable to normal Open-Access Consumer shall be applicable.*

iv. *For the Solar Power Projects set up for captive consumption, for sale to distribution licensee and for sale outside the State, Cross-Subsidy Surcharge and Additional Surcharge shall not be applicable.*

2.9.2. ***Suggestions/Objections of the Stakeholders*:**

Some Developers suggested that as per Section 42 (2) of Electricity Act 2003, "Provided also that such surcharge shall not be leviable in case open access is provided to a person who has established a captive generating plant for carrying the electricity to the destination of his own use".

A developer suggested that Cross Subsidy should not be applicable if consumed by the Unit, This will restrict the MSME to access cheaper Power.

Distribution licensee suggested that there has been significant reduction in the capital cost of solar power projects and consequently the cost of generation of solar power. Under the changed scenario, huge capacity addition is expected by consumers specifically cross subsidizing Industrial/ Commercial consumers to avail cheaper source of power. Therefore, it would be in the interest of all the stakeholders not to extend any concessions on the Cross Subsidy Surcharge, Additional Surcharge, wheeling charges and wheeling losses for wheeling of solar power.

2.9.3. ***Commission's Ruling:***

As stated in the Discussion Paper, the Commission has proposed differential treatment for the Captive Solar Projects in accordance with the "Gujarat Solar Power Policy – 2015". The Commission is of the view that Captive Solar Projects are entitled to such differential treatment. The EA 2003 also gives certain concessions to Captive Projects, and similar concessions have been given in the "Gujarat Solar Power Policy – 2015", which have been adopted by the Commission. Hence, no modification has been made to this Clause.

3. Tariff Framework, General Principles and Other Considerations

Having considered all the comments from the stakeholders, the Commission hereby issues the final Tariff Framework for Solar Power Projects for the prospective period as under:

3.1. Tariff Framework

The tariff for all prospective Solar Power Projects shall be determined based on the rates discovered through competitive bidding.

The tariff for Solar Power Projects below the threshold limit of eligibility for participating in Competitive Bidding shall be purchased by the distribution licensee having linkage with the tariff rate discovered under the competitive bidding process.

The power generated from the small scale Solar Power Projects having size 0.5 MW or above but below 5 MW, the procurement price of energy shall be at the rate of tariff discovered under the Competitive Bidding process and adopted by the Commission in different time period of 6 months of the year plus additional 20 paisa per kWh thereon for the projects located outside the solar park as under:

The average tariff, available as on 1st April (as discovered in the Competitive Bidding by GUVNL during previous six months October-March and adopted by the Commission) shall be applicable for the project commissioned during April-September. Similarly, the average tariff, available as on 1st October (as discovered in the Competitive Bidding by GUVNL during previous six months April-September and adopted by the Commission) shall be applicable for the project commissioned during October-March.

In case average tariff is not available for particular 6 months period then latest average tariff available for 6 months period as discussed above shall be considered.

The distribution licensees shall place on its website the applicable tariff at which it will buy the energy generated from Small Scale Solar Power Projects of the capacity of 0.5 to 5 MW. The rate will be updated every 6 months.

For Solar Thermal Technology, the Commission is of the view that Solar Thermal Technology has failed to achieve the same economies of scale as compared to Solar PV technology. Further, several projects commissioned in earlier years have failed to perform satisfactorily, showing that the technology is not yet mature for Indian conditions. Thus, owing to large variations of technology and their respective costs, it is difficult to determine a generic tariff. Therefore, the Commission shall determine project specific tariff for Solar Thermal Technology for power generation.

3.2. General Principles

a) Control Period

The new control period of the tariff framework approved in this Order shall be effective from the date of this Order to 31st March, 2023.

b) Plant and Machinery

Solar Power Projects established with only new Plants and Machinery would be eligible for the benefit of tariff approved within the scope of this Order.

c) Useful life of Plant

The Useful Life for the Solar Power Projects to be commissioned during the new Control Period shall be considered as 25 years.

d) Tariff period

The tariff period for the tariff framework approved by the Commission for procurement of Solar Power Projects by the distribution licensees in the State shall be 25 years.

e) Eligibility Criteria

The Solar power projects commissioned and PPAs signed during the new control period will be eligible to sell power to distribution licensees of Gujarat at the tariff approved by the Commission under this Tariff framework.

f) Forecasting and scheduling for Solar power

The Solar power projects shall require to follow the provisions as prescribed under the GERC (Forecasting, Scheduling, Deviation Settlement and Related Matters of Solar and Wind Generation Sources) Regulations, 2019 notified on 19th January, 2019 and its amendments issued from time to time.

g) Applicability of Merit Order Dispatch Principle

The Solar power plants irrespective of plant capacity shall be considered as 'MUST RUN' power plants and shall not be subjected to 'Merit Order Dispatch' principles.

h) Reactive Energy Charges

The Reactive Energy Charges as approved by the Commission in tariff Orders for the Gujarat Energy Transmission Corporation Ltd. (GETCO) from time to time shall be applicable to such projects.

3.3. Capacity

The maximum capacity for solar power projects shall be up to a maximum of 50% of consumer's sanctioned load for captive use, Third-party sale, power projects set up under NSM with sale of power to consumers within the State.

However, MSME (Manufacturing) Enterprise are allowed to set up Solar Power project of any capacity irrespective of their sanctioned load/contract demand.

3.4. Evacuation Facilities

Grid stability and security is of prime importance. Since the penetration of infirm nature of renewable energy may endanger grid security, adequate protection measures are necessary. The CEA (Technical Standards for connectivity to the Grid) Regulations, 2007 and its amendments from time to time and The CEA (Technical Standards for connectivity of the Distributed Generation Sources) Regulations, 2013 and its amendments from time to time, specifying various technical requirements for grid connection of renewable energy sources shall be applicable. These Regulations and provisions of Sate Grid Code shall be binding to the Solar Project Developers and SPGs.

Interconnection voltages shall be governed as per Gujarat Electricity Grid Code-2013, Electricity Supply Code-2015 and GERC's orders, as amended from time to time.

The intending Solar Generator shall apply to the STU/ Distribution Licensee concerned well in advance.

The evacuation facility shall be approved by STU/ DISCOMs depending on injection level after carrying out system studies.

The intending Solar generator shall lay dedicated line for evacuation of power up to Sub-Station of STU/ 11 kV system of DISCOM as per system study by STU/ DISCOM where the generator desires to inject power in the State grid. From there onwards, STU/ DISCOM shall ensure transmission/ distribution system and connectivity.

To optimize costs, Common dedicated transmission line shall be encouraged for cluster of adjoining Developers with appropriate metering at their respective end of project as well as a common meter for such SPGs at the receiving end at STU substation/ 11 kV system of DISCOM. Energy injection by each SPG at the receiving end shall be worked out on the basis of meter reading of common meter appropriately apportioned as per the respective meter reading at the sending end meter of that SPG by SLDC.

Switchyard equipment, metering and protection arrangement and RTUs at generator end shall be provided by the owners of solar generators at their cost. The interconnection voltage at generator switchyard will depend on the quantum of power to be evacuated and as per the connectivity granted by the STU/ Distribution licensees in line with the State Grid Code and Supply Code.

3.5. Security Deposit

In order to assure GETCO/DISCOMs about seriousness of project developer towards commissioning of the Solar Power Projects, the Solar Power Project Developers have to furnish a Bank Guarantee of Rs 5 Lakh/MW to GETCO/DISCOMs based on allotment of evacuation capacity, and in case the Solar Power Project Developer fails to commission the entire evacuation line along with bays and metering system, within the time period mentioned hereunder, GETCO/DISCOMs shall encash the Bank Guarantee.

Table 3-1: Capacity and Commissioning Period for the Solar Projects

Solar Project Capacity in MW	Period for commissioning the entire evacuation line along with bays and metering system
1 MW to 100 MW	1.5 years from the date of allotment of evacuation capacity
101 MW to 200 MW	2 years from the date of allotment of evacuation capacity
201MW to 400 MW	2.5 years from the date of allotment of evacuation capacity
401 MW to 600 MW	3.5 years from the date of allotment of evacuation capacity

Provided that GETCO may issue extension on case to case basis to the Developers if they fail to commission the entire evacuation line along with bays and metering system within the stipulated time period due to unforeseen reasons.

The Solar Power Project Developer shall commission the Solar Power Project of at least 10% of the allotted capacity within one month of charging of evacuation line, failing which, the Developer shall be liable to pay long-term Transmission Charges for 10% of allotted capacity till such 10% of allotted capacity is commissioned.

3.6. Operation and maintenance of dedicated lines

The Operation and Maintenance of dedicated evacuation line shall be carried out at the cost of the Solar Project/ Plant Developer as per applicable technical standards and best practices.

3.7. Metering

The electricity generated from the Solar Power Generators, shall be metered on 15-minute time block by STU/Discom/SLDC/ALDC at the receiving end of the STU Substation/ 11 kV system of DISCOM. For the purpose of energy accounting, Solar generating projects shall provide ABT compliant meters and RTUs at the interface points. Interface metering shall conform to the Central Electricity Authority (Installation and Operation of Meters) Regulations 2014 and amendment thereto. STU/ DISCOM shall stipulate specifications in this regard.

3.8. Energy Accounting and RPO

i. Solar Power Projects not registered under REC Mechanism and the consumer does not take benefit of the renewable attribute

For such projects, the adjustment of the Solar energy generation shall be allowed within the consumer's billing cycle. The entire Solar energy generation of such consumer shall be utilized for meeting the RPO of that Distribution Licensee.

Banking of energy shall be allowed within one billing cycle of the consumer, wherein set off may be given against energy consumed at any time of the billing cycle. However, peak charges shall be applicable for consumption during peak hours.

In the event of any surplus Solar energy not consumed as per energy accounting, such excess electricity shall be compensated by the concerned Distribution Licensee at the rate Rs. 1.75 per unit or the rate, if any, specified by the Commission for Surplus Injection Compensation (SIC) from time to time for whole life of the Solar Power Projects.

For the Solar Power Projects set up by MSME (Manufacturing) Enterprise above 50% of its contracted demand, energy account settlement shall be carried out on 15 minute time block basis.

ii. Solar Power Projects not registered under REC Mechanism and the consumer takes the benefit of the renewable attribute to meet their own RPO.

The energy accounting shall be carried out on 15 minutes time block basis.

In the event of any surplus solar energy not consumed as per energy accounting based on 15-minute time block, such excess electricity shall be compensated by the concerned Distribution Licensee at the rate Rs.1.75 per unit or the rate, if any, specified by the Commission for Surplus Injection Compensation (SIC) from time to time for whole life of the Solar power projects.

Such surplus energy compensated by the Distribution Licensee shall be utilized for meeting the RPO of that Distribution Licensee.

iii. **Solar Power Projects registered under REC Mechanism and the Solar Power Projects not registered under REC Mechanism but benefit of the renewable attribute is not given to distribution licensee**.

The energy accounting shall be carried out on 15 minutes time block basis.

In the event of any surplus Solar energy not consumed as per energy accounting based on 15-minute time block, such excess electricity shall be compensated by the concerned Distribution Licensee at the rate Rs.1.50 per unit or the rate, if any, specified by the

Commission for Surplus Injection Compensation (SIC) from time to time for whole life of the Solar Power Projects.

3.9. Transmission/ Wheeling Charge and Losses

i. ***General***

Whenever the entire Solar generation is sold to distribution licensee, the generator will supply the power at the interconnection point. Thereafter, the transmission/ wheeling charges will be borne by the distribution licensee.

ii. ***Transmission Charges and Losses***

Solar Power Project setup for captive use /Third party sale/Registered under REC, transmission charges and losses as applicable to normal Open-Access Consumers shall be applicable.

iii. ***Wheeling Charges and Losses***

i. Solar Power Projects for captive consumption and not registered under REC Mechanism, 50% of Wheeling charges and losses as applicable to normal Open-Access Consumers shall be applicable.

ii. For Solar Power Projects set up for third-party sale/National Solar Mission and registered under REC Mechanism, 100% of the Wheeling Charges & Losses as applicable to normal Open-Access Consumers shall be applicable.

iv. ***Wheeling at Two or More Locations***

If a Solar Power Generator owner desires to wheel electricity to more than two locations, he shall pay INR 0.05 per unit on energy fed into the grid to distribution licensee in whose area power is consumed in addition to the abovementioned transmission charges and losses, as applicable.

3.10. Cross-Subsidy Surcharge & Additional Surcharge

i. For the Solar Power Project registered under REC Mechanism with sale of power to third party (including sale of power under NSM) within the State, 100% of Cross-Subsidy Surcharge and Additional Surcharge as applicable to normal Open-Access Consumers shall be applicable.

ii. For the Solar Power Projects set up by MSME (Manufacturing) Enterprise above 50% of its contracted demand, 100% of Cross-Subsidy Surcharge and Additional Surcharge as applicable to normal Open-Access Consumers shall be applicable.

iii. For the Solar Power Project not registered under REC Mechanism with sale of power to third party (including sale of power under NSM) within the State, 50% of Cross-Subsidy Surcharge and Additional Surcharge as applicable to normal Open-Access Consumer shall be applicable.

iv. For the Solar Power Projects set up for captive consumption, for sale to distribution licensee and for sale outside the State, Cross-Subsidy Surcharge and Additional Surcharge shall not be applicable.

3.11. Sharing of Clean Development Mechanism (CDM) Benefit

The sharing of CDM benefits as per Regulation 21 of the CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2012 (Notification No. L-1/94/CERC/2011 dated 6th February, 2012) is as under:

"100% of the gross proceeds on account of CDM benefit to be retained by the project Developer in the first year after the date of commercial operation of the generating station. In the second year, the share of the Beneficiaries shall be 10% which shall be progressively increased by 10% every year till it reaches 50%, where after the proceeds shall be shared in equal proportion, by the Generating Company and the Beneficiaries."

This Regulation for sharing of CDM benefit shall be retained for Solar Power Projects in Gujarat.

The commission decides that this Order shall come into force from date of issue of this Order.

Sd/-
[P. J. THAKKAR]
Member

Sd/-
[ANAND KUMAR]
Chairman

Place: Gandhinagar.
Date: 08.05.2020

Annexure - 1: List of Stakeholders communicated their views on the Discussion Paper

Sr. No.	Name of Stakeholders
1	Welspun Group
2	Gujarat Urja Vikas Nigam Limited (GUVNL)
3	Federation of Renewable & Consumers of Energy
4	IB Vogt Solar India Pvt. Ltd.
5	Madhu Silica Pvt. Ltd.
6	ASSOCHAM
7	RAMEV Project
8	Confederation of Indian Industry-Gujarat
9	Gaurav Lotia
10	Users Welfare Association
11	Rajkot Chamber of Commerce and Industry
12	Reliance Industries Ltd.
13	Torrent Power Limited
14	Gujarat Electricity Transmission Corporation Limited (GETCO)
15	Prayas
16	Dr. Anoop Singh, IIT-Kanpur

Annexure - II: List of Stakeholders participated in the public hearing

Sr. No.	Name of Stakeholders
1	Welspun Group
2	Gujarat Urja Vikas Nigam Limited (GUVNL)
3	Federation of Renewable & Consumers of Energy
4	IB Vogt Solar India Pvt. Ltd.
5	Madhu Silica Pvt. Ltd.
6	Confederation of Indian Industry - Gujarat
7	Users Welfare Association
8	Rajkot Chamber of Commerce and Industry
9	Reliance Industries Ltd.
10	Torrent Power Limited
11	Gujarat Electricity Transmission Corporation Limited (GETCO)
12	Madhya Gujarat Vij Company Limited (MGVCL)
13	Uttar Gujarat Vij Company Limited (UGVCL)
14	UUWA