



# REGULATORY INSIGHTS



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## Editorial

Regulated tariff for inter-state generating stations as well as transmission licensees has evolved since CERC issued the first Terms and Conditions of Tariff in 2001. The discussion paper floated on the subject of terms and conditions of tariff for the period beginning in 2019 proposed a number of changes in the regulatory framework. Centre for Energy Regulation also gave its detailed inputs on these proposals in the paper. The recently issued Terms and Conditions of Tariff Regulations for the tariff period 2019-2024 have retained some of those proposals in principle, particularly those reflecting on the broader regulatory framework for computation of capacity charges for thermal generating stations. Some of the inputs provided by CER have been considered while issuing these regulations. However, capacity charges differentiated across seasons and across peak/off-peak periods of the day may need to be reconsidered based on new inputs given by CER in this issue of the newsletter. Another important aspect highlighted through CER's comments includes the additional rate of RoE linked to the ramp rate of coal-based power stations which, being disproportionate, would impose an additional financial burden on the final consumers as capital cost recovery has already been put in place for the technical characteristics of these plants.

The need for the development of a South Asian regional market for electricity and the desired policy and regulatory framework for the same has been proposed and highlighted through a number of previous works undertaken by researchers at CER, IIT Kanpur. CERC's new set of regulations aims to facilitate cross-border trade of electricity and provide some regulatory clarity for taking it further, beyond the government designated entities, by encouraging participation of generating plants and buying entities in the region. This edition of **Regulatory Insights** highlights a number of issues that need to be addressed in order to further enhance the regulatory certainty, like close coordination between the system operator and the concerned utilities of the participating countries to ensure that there is a coordinated framework for granting open access for cross-border interconnections for instance.

The importance of specifying a separate tariff category for EV charging was highlighted in the previous issues of Regulatory Insights. UPERC has implemented the same through its recent order. This would assist the utilities to identify and manage the development of this new load growth with gradual roll-out of electric mobility in the state.

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**UK Government**

## Key Features of Central Electricity Regulatory Commission (Cross Border Trade of Electricity) Regulations, 2019

Institutional Framework (Role of Institutions)				
Designated Authority	Transmission Planning Agency (TPA)	Settlement Nodal Agency (SNA)	National Load Dispatch Centre (NLDC)	Central Transmission Utility
<ul style="list-style-type: none"> <li>Establishing the process of approval and procedure for CBTE</li> <li>Coordinating with the authority designated by the concerned neighbouring country</li> </ul>	<ul style="list-style-type: none"> <li>Planning of transmission system and coordinating with the TPA of the concerned neighbouring country</li> <li>Designated Authority to act as TPA for India</li> </ul>	<ul style="list-style-type: none"> <li>Setting charges related to grid operations; transaction and charges related to transactions and deviation</li> <li>Participant in pools for deviation and reactive energy for settlement of charges in the pool accounts</li> </ul>	<ul style="list-style-type: none"> <li>System Operator for CBTE</li> <li>Responsible for granting short-term open access (STOA), and collecting and disbursing transmission charges for STOA, as per Sharing Regulations</li> </ul>	<ul style="list-style-type: none"> <li>Granting long-term and medium-term open access for CBTE, and collecting and disbursing transmission charges as per Sharing Regulations</li> </ul>

Trade Agreements	System Operation
<ul style="list-style-type: none"> <li>Bilateral agreements between two countries</li> <li>Agreements through bidding</li> <li>Mutual agreements between Indian entity(ies) and entity(ies) of the neighbouring country(ies)</li> </ul>	<ul style="list-style-type: none"> <li>System Operator in India and the concerned neighbouring country would assess in advance the Total Transfer Capability (TTC), the Transmission Reliability Margins (TRM) and the Available Transfer Capability (ATC) for CBTE.</li> <li>The lower of the two values of ATC assessed by the two countries will be considered for allowing CBTE.</li> </ul>

Transmission Planning and Connectivity	Tariff Determination
<ul style="list-style-type: none"> <li>Cross Border Transmission Link would be planned jointly by TPAs of India and the concerned country, after approval from the respective governments.</li> <li>Dedicated transmission system may be developed by the participating entity.</li> <li>Cross Border Transmission Link would not be considered as a part of the basic ISTS network for the determination of PoC charges.</li> </ul>	<ul style="list-style-type: none"> <li>Competitive bidding</li> <li>Mutual agreement between the buying entity (Indian) and the selling entity of the neighbouring country</li> <li>Government-to-Government negotiation under Inter Government Agreements (IGA)</li> </ul>

*Note: Some of the relevant publications analysing the overall regulatory and policy framework for cross-border trade of electricity, and specific issues and solutions thereof, can be accessed through CER's portal.*

## Metering, Energy Accounting and Settlement, and Curtailment

- Interface meters (main meter, check meter and standby meter) would be installed at both the ends of the Cross Border Transmission Link, in accordance with CEA Regulations.
- Energy Accounting for import/export would be carried out by the concerned Regional Power Committee(s) in India. Participating entities would provide weekly meter readings of actual injection or drawl for the previous week to the concerned RLDC(s) or NLDC, through SNA, by Tuesday noon.
- Settlement Nodal Agency would pay or receive charges on account of deviation as per the provisions of DSM Regulations in India and pay Reactive Energy Charges in accordance with the Grid Code.
- In order to maintain grid security, curtailment of power would be carried out as per the Grid Code and other relevant regulations.
- In case of curtailment of the approved schedule by NLDC, transmission charges would be payable on a pro-rata basis in accordance with the curtailed schedule.

## Dispute Settlement and Resolution Mechanism

- Disputes within the Indian territory would be settled as per the provisions of Electricity Act, 2003.
- Disputes involving entities of separate countries would be resolved at the Government level or through International Arbitration Centre.

## Transmission Charges and Losses

- PoC injection/withdrawal charges for delivery of electricity at the pooling station within India would be regulated as per provisions of Sharing Regulations
- Charges for injection PoC losses and withdrawal PoC losses, as applicable, would be applied at the interface.

## Cyber Security

- All participating entities would have a cyber-security framework in place.

## CER Opinion

- ❖ Coordination between system operator and transmission utilities of the interconnected countries, specifically for the grant of short-term, medium-term and long-term open access, needs to be ensured so that two nodal agencies do not end up giving uncoordinated open access for the same interconnection up to the pooling stations of the respective countries.
- ❖ Provisions for determination of tariff for import of electricity in the case of hydro projects located in neighbouring countries need to be clarified in the context of small projects, multiple projects, and less than 100% allocation of a single or multiple hydro projects. The role(s) of intermediaries (like traders) may also be specified.
- ❖ Scope and modalities of dispute resolution, including arbitration, may be pre-specified to avoid conflicts thereafter. For example, in case a legal recourse has been resorted to by any of the affected parties of their respective country, either or both of them getting a favourable outcome may complicate the dispute resolution process unless modalities of arbitration are able to address this beforehand.
- ❖ It is not clear as to which International Arbitration Centre (IAC) is referred to in the regulations, as such IACs are located within India as well as in other locations like Singapore, Hong Kong, London, etc.
- ❖ In the case of CBTE, taxes, duties, etc. may be applicable both within the exporting as well as the importing entity. However, Section 30(3) refers to those applicable within India only.
- ❖ The regulations are designed from the Indian perspective – for both import and export of electricity. However, regulatory provision for ‘transit’ of electricity needs to be detailed out as well.

## Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019

### CER Opinion

CERC issued the draft CERC (Terms and Conditions of Tariff) Regulations 2019 in Jan., 2019, and the final regulations on 7<sup>th</sup> March, 2019. Whereas several changes proposed in the draft were retained, certain others were either done away with or modified before inclusion in the final document. CER's analysis and opinions on some of the salient features of the regulations are highlighted below:

#### Computation of Capacity Charge for Thermal Generating Stations

- Clause 42(2) of the regulations introduces the concept of Time of Day (ToD) as well as season-based recovery of Annual Fixed Charges (AFC). The recovery of monthly AFC (subject to maintaining the PAF equal to or more than the NAPAF) would be as per the following matrix:

	Peak period (4 hours)	Off peak period (20 hours)	Total (24 hours)	Ratio
High demand season (3 months)	$0.2 \times \text{AFC} \times 0.25 \times (\text{PAFMp}/\text{NAPAF})$	$0.8 \times \text{AFC} \times 0.25 \times (\text{PAFMop}/\text{NAPAF})$	$\text{AFC} \times 0.25$	3:9 = 1:3
Low demand season (9 months)	$0.2 \times \text{AFC} \times 0.75 \times (\text{PAFMp}/\text{NAPAF})$	$0.8 \times \text{AFC} \times 0.75 \times (\text{PAFMop}/\text{NAPAF})$	$\text{AFC} \times 0.75$	
Total (10 months)	$0.2 \times \text{AFC} \times (\text{PAFMp}/\text{NAPAF})$	$0.8 \times \text{AFC} \times (\text{PAFMop}/\text{NAPAF})$	AFC	
Ratio	4/24 ~ 0.17	20/24 ~ 0.83		

- In an absence of high NAPAF for high demand season (as compared to low demand season), the purpose of distribution of AFC recovery on account of changes in the identified high and low demand seasons and peak and off-peak periods would be defeated as the apportionment of AFC across high and low demand seasons in the ratio 0.25:0.75 (1:3) is equivalent to that of the number of months across the seasons (3:9 = 1:3).
- The allocation of AFC across peak and off-peak periods (0.2:0.8) is inversely proportional to the proportion of the number of hours in the two periods (0.17:0.83), thus giving perverse incentive for sacrificing availability during the peak period vis-à-vis that of the off-peak period. This may ultimately raise the overall cost of procurement for the DISCOMs.
- Due to diversity in peak period and high demand season across the states, this mechanism of AFC recovery would have distributional impact wherein some states may gain while the other may lose in terms of AFC payment.
- Incentive in energy charges for scheduled generation beyond the normative quarterly plant load factor (NQPLF) is undesirable as it would encourage over-injection that may cause frequency deviation – a scenario pre-dating ABT regime. Furthermore, the absence of under-injection penalty ensures that generators are only incentivised for over-injection and do not lose due to under-injection subsequent to the instruction of sign reversal.

#### Computation and Payment of Capacity Charge and Energy Charge for Hydro Generating Stations

- Generation in excess of design energy (excluding auxiliary consumption and free energy to home state) billed at the rate of ₹1.12/kWh would lead to over-recovery of cost because the AFC is recovered fully otherwise. more over, this is disproportionately high compared to incentive for over-injection (though undesirable) for thermal stations, which actually increases fuel cost.
- The heat rate of thermal generating stations achieving CoD on or after 1<sup>st</sup> April, 2019 should not be more than the design heat rate. Increase in multiplying factor (to calculate Gross Station Heat Rate) from 1.045 to 1.05 is avoidable as it does not give any incentive for enforcing contractual commitment with the equipment supplier.

## Interest on Working Capital

- The term 'advanced payment' with reference to cost of coal towards stock seems ambiguous. The existing regulations in such regards result in an inventory cost of 10 or 20 days and its additional carrying cost for 30 days (in terms of advance payment) to be considered for working capital.
- Maintenance spares at a rate of 30% of O&M expenses seems high and should be the lower of the actual annual average spares inventory and 30% of O&M expenses.
- Receivables for sale of electricity should be calculated based on actual average plant availability in the previous year rather than NAPAF.

## Computation of Capital Cost

- Prudence check based on historical data instead of benchmark norms leads to subjectivity and is likely to result in carry forward of historical inefficiencies, hence providing no incentive for further improvement. (Section 61 (e) of Electricity Act, 2003: The Appropriate Commission would be guided by principles rewarding efficiency in performance while specifying the terms and conditions for the determination of tariff.)

## Return on Equity

- As per the provision for ramp rate-based penalty and incentive on RoE (w.e.f. 1<sup>st</sup> April, 2020), the rate of RoE would be reduced by 0.25% if ramp rate is less than 1% per minute and increased by 0.25% (subject to ceiling of 1%) if it is more than 1% per minute. However, the basis for increase in RoE from 0.25% (25 bp) to 1% (100 bp) is not specified.
- The basis for percentage requirement of ramp rate, though obvious (generally, the name plate rating), should be clearly specified. The penalty should be proportionate to the degree of failure and its economic impact on power system operation.
- Any change in RoE (a percentage itself) should be expressed in terms of 'basis points' rather than a percentage (of a percentage value). Thus, it would be more sensible to use '25 basis points' (100 bp) instead of '0.25%' (1%).
- If the ramp rates are already a part of the designed technical parameters of the plant and capital cost has already been approved accordingly and is being paid for by the beneficiaries, a case for further incentives is not justified. The proposed incentive scheme is akin to an air/rail transportation service provider asking for additional payment for timely arrival at their respective destination on a fully paid ticket.

## Others

- The term 'Designated ISTS Customers', despite having been replaced with 'long term customers', has been retained in the definition of 'Transmission Service Agreement'.
- Land acquisition delays attributable to the generating company or the transmission licensee should also be included in the list of controllable factors.
- Clarification regarding income from RRAS is required – whether it would be considered as non-tariff income.

## Sharing of Benefits

- Sharing of saving in interest due to re-financing or restructuring of loan: Sharing of net savings on interest between beneficiaries and the generating company or the transmission licensee due to re-financing of loan (after having accounted for costs associated with such re-financing or restructuring) may be retained in the ratio 2:1 as per the earlier regulations for the period 2014-19, for it seems reasonable to pass on a higher share of such benefits to the consumers. In the case of efficiency improvement due to technological interventions, which requires additional capital investment and major efforts in terms of redesigning and re-fabrication, it is pertinent to share the benefits of such interventions in the ratio of 1:1 as provided in the impugned regulations.

## Norms of Operation

- Higher normative availability during peak hours and high demand season would be more desirable than a constant level of 85% throughout the year as provided by the regulations.

## Depreciation

- Salvage value for IT equipment as mentioned in regulation 33 and Appendix I (Depreciation Schedule) do not match.



## Regulatory Updates

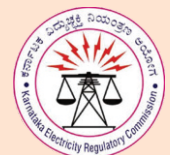
### Tariff



For the part of the tariff period 2014-19 starting from 5<sup>th</sup> Feb., 2015, APERC approved ₹10761.40 crore as capital cost and ₹6936.01 crore as fixed cost for APPDCL.



Northern Railways was directed by DERC to pay Wheeling Charges on the approved maximum OA quantum, deviation beyond 20% from which would be charged at 1.25 times the normal rate.



KERC approved Fuel Adjustment Charge (FAC) for the first two billing quarters of FY 2019-20 as:

ESCOM	FAC (₹/kWh)
BESCOM	0.18
MESCOM	0.05
CESC	0.07
HESCOM	0.10
GESCOM	0.09



MERC reviewed its mid-term review order for TPCL-G as:

- Additional Capitalisation: ₹14.76 crore (FY 2015-16), ₹25.81 crore (FY 2016-17)
- Interest on Working Capital: increased by ₹0.16 crore (FY 2015-16) and ₹0.08 crore (FY 2016-17)
- Efficiency Loss for FY 2015-16 (due to Unit 6 Auxiliary Consumption, to be borne by TPC-G): reduced by ₹0.37 crore
- Additional Surplus (Unit 6, FY 2015-16): ₹3.50 crore

Upon MSDEL's prayer, MERC revised the ceiling rate for compensation (for providing electricity connections to agriculture and residential consumers of notified wadis/vastis) to twice the service connection charges on the compensation amount payable, the new ceiling being valid for compensation of pending cases as well.



TNERC directed TANGEDCO to pay interest on Security Deposit from the consumers at 6.65% for FY 2018-19. TANGEDCO was also directed to pay interest on Advance Current Consumption Charges at 3.50% p.a. for FY 2019-20.

Owing to additional capital cost for NSTPD, TSERC revised fixed charges of the generation tariff of Nagarjuna Sagar HES Complex as:



FY	Tariff (₹/kWh)
2017-18 (Feb. and Mar., 2018)	1.33 (earlier 1.28)
2018-19	1.49

UERC approved FAC for the fourth quarter of FY 2018-19, in the range of ₹0.07/kWh to ₹0.18/kWh.

UERC also approved ₹127.87 crores against PTCUL's petitioned capital investment of ₹177.09 crores.



In continuation of the tariff order for FY 2018-19 and the multi-year tariff order for FY 2017-18 to 2019-20, UPERC issued a corrigendum notifying the Apportionment of Approved Power Purchase for FY 2018-19 for state DISCOMs and NPCL, and revisions in the tables involving Cost of Service.



UPERC approved EV charging tariff (separate category) for the state as:

Category	Demand Charge (₹/kWh)	Energy Charge (₹/kWh)
Multi-storeyed buildings (separate connection)	Nil	6.20 (LMV-1b) 5.90 (HV-1b)
Public charging stations	Nil	7.70 (LT), 7.30 (HT)
Domestic and Others (EV load < CL)	As per existing rate schedule	

The ToD structure for PCS would be as:

Hours	Percentage of Energy Charges	
	Summer (Apr.-Sept.)	Winter (Oct.-Mar.)
0500-1100	-15	0
1100-1700	0	0
1700-2300	15	15
2300-0500	0	-15

UPERC approved tariff for supply of 187 MW from DIL to NPCL as:

Component	Charge (₹/kWh)
Transmission (PGCIL) losses and charges	As per actuals
Levelised fixed charge	1.87
Levelised energy charge	2.21

WBERC approved the investment plan for 4 transmission schemes of WBSETCL, with total project cost of ₹422.65 crore.



## Regulatory Updates



JERC (Manipur and Mizoram) approved **levelised feed-in-tariff for solar rooftop projects** set up or commissioned in FY 2019-20 as:

Category	Unit	1-10 kW	10-100 kW	100-500 kW
Without subsidy	₹/kWh	7.89	7.33	7.10
Residential, Institutional and Social sectors				
70% subsidy	₹/kWh	3.16	2.99	2.92
Governmental Institutions (based on achievement)				
60% incentive	₹/kWh	3.84	3.61	3.52
36% incentive	₹/kWh	5.46	5.10	4.95
24% incentive	₹/kWh	6.27	5.84	5.67

## Power Procurement

MoP issued the Bidding Documents of medium-term (for 3 years) procurement of **2500 MW for Pilot Scheme II** through PFC Consulting Limited as the Nodal Agency. The scheme aims at tapping the capacities of existing power plants which are not tied in PPAs.

To incorporate the provisions of SHAKTI Policy into medium-term power procurement, MoP revised the Model Bidding Documents for **medium-term power procurement** and **long-term power procurement**.



BERC approved purchase of **200 MW of round-the-clock (RTC)** power by BSPHCL at the rate of ₹4.195/kWh, through DEEP portal, subject to approval by CERC.



CSERC accorded approval to CSPDDCL's short-term power procurement, with tariff of ₹4.74-5.25/kWh for **23<sup>rd</sup> Jan.-Feb., 2019** and ₹3.99-7.34/kWh for **Mar.- May, 2019**.



HERC approved purchase of **400 MW power through DEEP portal**, at a tariff of ₹4.24/kWh (including fixed charge of ₹0.01/kWh) at 55% scheduling, with no provision for escalation.

In response to AEML-D's petition for procuring short-term power, MERC increased the **ceiling rate** for the same to ₹5/kWh (earlier ₹3.50/kWh) for FY 2018-19 and FY 2019-20, approving their short-term power procurement with cost recoverable through Fuel Adjustment Cost Mechanism.

**TPCL-D's short-term power procurement** through competitive bidding at DEEP portal, with tariff of ₹4.78-5.54/kWh for May, 2019, was approved by MERC.

The existing PPA between TPC-G and BEST was also granted extension by MERC, for 5 years. Additionally, BEST was allowed to sign a PPA for **100 MW** with M/S Manikaran Power Ltd. at ₹3.94/kWh, for FY 2019-20 to 2023-24.

WBSEDCL's PPAs of 100 MW each with **Jhabua Power Limited** and **Jaiprakash Power Ventures Limited**, through PTC India Limited, was granted approval for 3 years, at a tariff of ₹4.24/kWh at ex-bus (no escalation) with a trading margin of ₹0.05/kWh.

WBERC approved the **PPA of 126 MW between WBSEDCL and TPTCL** (through TPTCL from DHPC) with tariff at delivery point as ₹3.395/kWh (from the date of supply, gradually escalating to ₹3.821/kWh in March, 2022).

## Other

CERC directed POSOCO to implement **Security Constrained Economic Dispatch (SCED)** for ISGS (regional entities, whose tariff is determined by CERC) on a trial basis for six months starting from 1<sup>st</sup> April, 2019.



Owing to new set of compensation guidelines for the reorganised Rangareddy and Sangareddy districts of Telangana, and introduction of GST, CERC approved compensation of expenditure incurred under **change in law** during construction period as an increase of 0.313% of Non-Escalable Transmission Charges for every ₹1.24 crore additional expense.

**Slab-wise PoC rates** (Jan. to Mar., 2019) for LTA/MTOA were revised by CERC, with new PoC slab rates ranging from ₹61175-344744/MW/month.

## Regulatory Updates

CERC heeded the petition of [Reliance Energy Trading Limited](#) surrendering their trading licence and revoked the same on account of inactivity for three years.

Transfer of rights and obligations of [SGPL under TSA to SEIL](#) was approved by CERC.

The inter-state trading licence of [Manikaran Power Limited](#) was upgraded from Category II to Category I.

[PPA of 700 MW between TPC-D and TPC-G](#) was approved by MERC for FY 2019-20 to FY 2023-24.

Under 'Go Green Initiative', MSEDCL was allowed to use SMS and provide a rebate linked to a percentage of the bill amount or Rs 10/- per bill – the higher of the two.

SBICAP Trustee Company Ltd. was assigned the [distribution licence of AEML-D](#) (License No. 1 of 2011) by means of security.

To ensure equitable supply of power during power shortages, [TNERC allowed TANGEDCO to execute load-shedding on rotational basis](#) across 4 rural and 6 urban groups.

UPERC allowed [SBI to transfer 75% of the equity shares and 100% of the preference shares of PPGCL](#) to Renascent Power Ventures Pvt. Ltd. if the latter agreed to reduce the PPA-discovered non-escalable capacity charges by ₹0.14/kWh each year for the remaining term of the PPA.

WBERC ruled that DVC's power supply to [IPCL](#) and [WBSEDCL](#), in radial mode, does not count as sale of power by a generating company to a consumer.

Indian Railways was [denied open access](#) (tentatively) by WBERC in the interest of the general multitude.

WBERC approved the [installation of single-phase export-import type meter](#) for net metering of grid-connected rooftop solar PV plants with no three-phase system.

WBERC granted approval to [WBSEDCL taking over the entire business of DPL](#), along with associated assets and liabilities, and electricity distribution in DPL's command area.

## Renewable Energy, RPO and REC

Solar Energy Corporation of India (SECI) was designated as the [Renewable Energy Implementing Agency](#) for LTA in ISTS network.



CERC determined [state-wise levelised generic tariff](#) for renewable energy sources.

BERC approved purchase of [400 MW of wind power on long-term basis](#) (25 years) through SECI, with tariff determined by CERC.



DERC [exempted waste-to-energy generation plants](#) in NCR from Wheeling Charges, Transmission Charges, Regulatory Asset Surcharge, Pension Trust Surcharge and Cross Subsidy Surcharge on sale of electricity within NCT of Delhi under Open Access Regulations, and charges under UI/DSM. OA consumers drawing power from renewable energy sources were also [exempted from Wheeling Charges](#) (even in the case of over-drawl of electricity).

DERC approved the [PPAs](#) of BRPL, BYPL and TPDDL with Tehkhand Waste to Electricity Project after complying with the Commission's earlier directions regarding certain components of the PPA(s), and directed NDMC to do the same.

PSAs of [BSES RPL and PTC India Ltd. with M/S Green Infra Wind Energy Ltd. \(50 MW\) and M/S Inox Wind Infrastructure Services Ltd. \(50 MW\)](#), and between SECI and TPDDL ([50 MW wind power, 20 MW solar power on long-term basis, 300 MW solar power on long-term basis, and 50 MW wind power](#)) were also accorded approval by DERC.

GERC extended the term of [wind power PPA](#) between CLP Power India Private Limited and Torrent Power Limited (TPL), with a reduction in tariff from ₹3.37/kWh to ₹3.27/kWh.



GERC granted approval to GVUNL for the purchase of [2.7 MW of solar power](#) from Surendranagar Mahila and Bal Vikas Mandal during off season period, at a tariff equal to the APPC of GUVNL for the year of project commissioning. HERC approved the PPAs for



## Regulatory Updates

procurement of **49.8 MW power from paddy straw biomass-based power projects** through RfP, by HPPC.

HERC granted approval to HPPC for procurement of **590 MW wind power** from SECI's scheme, at a tariff of ₹2.77/kWh with a trading margin of ₹0.07/kWh, and of **4MW solar power**, at ₹2.4/kWh (excluding a trading margin of ₹0.07/kWh).

HERC approved the PPA between HPPC and **Tashiding Hydro Electric Project** (106.7 MW, Sikkim), **Chanju-I** (36 MW, Himachal Pradesh), and **Jorethang Hydro Electric Project** (105.6 MW, Sikkim), at regulated tariff.

KSERC approved **25-year levelised tariff for 50 MW solar** power unit at Kasaragod at ₹3.83/kWh, considering accelerated depreciation (AD) benefit of ₹0.48/kWh.

MERC directed MSEDCL to fulfil the shortfall 2147.016 MU in its **cumulative solar RPO** for FY 2017-18 by purchasing RECs or solar power by Mar., 2020.

MSEDCL was granted approval for procuring **JSSSKL's bagasse-based cogeneration power** at ₹3.56/kWh for FY 2018-19 and at APPC for energy already supplied to MSEDCL from FY 2014-15 to 2017-18.

MERC approved purchase of **180 MW solar power** by MSEDCL from various sources at tariff ranging from ₹3.29/kWh to ₹3.30/kWh (reduced by ₹0.18/kWh in case Safeguard Duty is not paid).

MPERC extended the control periods of the last tariff orders passed for **wind electric generators**, **bagasse-based cogeneration** power projects, **solar energy** projects, **municipal solid waste-based power** generating plants and **biogas-based power projects** in the state, until further notice.

RERC determined tariff for **biomass-based power** plants for FY 2018-19 as:

(₹/kWh)	Variable Charge	Levelised Fixed Charge	AD*
Biomass-based (water-cooled condensor)	4.12	2.71	0.12
Biomass-based (air-cooled condensor)	4.45	2.96	0.13
Biogas power projects (commissioned in FY 2018-19)	4.34	3.50	0.17
Biomass gasifier power projects	4.11	2.56	0.09

\* to be deducted for considering accelerated depreciation (AD) benefit

Following their order on revised accounting methodology for solar feed-in consumers, TNERC issued an order on the **new scheme of rooftop Solar generation** (including provisions on metering, commercial arrangements, maximum generation, connectivity, restrictions on grid penetration, etc.) for consumers under LT (except Hut and Agricultural category), effective from 25<sup>th</sup> Mar., 2019.

TNERC, proposing a control period of one year (starting from 1<sup>st</sup> April, 2019) and a tariff period of 25 years, approved **generic tariff for solar power plants** as: ₹3.04/kWh without AD, and ₹2.80/kWh with AD (AD: ₹0.23/kWh). TNERC also **redetermined the tariff for wind energy generators** as:

Group	Tariff (₹/kWh)	
	Current	Previous
I (projects commissioned based on agreements executed before 15 <sup>th</sup> May, 2006)	2.91 (without AD) 2.60 (with AD)	2.75
II (projects commissioned based on future agreements after 15 <sup>th</sup> May, 2006)	3.05 (without AD) 2.72 (with AD)	2.90

TNERC approved levelised tariff (effective from 1<sup>st</sup> Apr., 2019) for **power purchase from Municipal Solid Waste (MSW)-based power plants** as: ₹6.28/kWh (without AD) and ₹5.90/kWh (with AD).

UERC allowed **extension of benchmark capital cost and generic tariff** of FY 2018-19 up to June, 2020 for upcoming solar PV power plants with cumulative capacity up to 200 MW.

UPERC, in granting approval to IIIT Allahabad for installing 1.142 MW solar rooftop under net metering, **relaxed the ceiling** of 1 MW as per UPERC RSPV/Net Metering Regulations, 2015.

UPERC **amended the bidding documents for purchase of bagasse-based power** as follows:

Component	Amendment
Requisitioned bid capacity (MW)	25 (±20%) (earlier 50)
Term of PPA (years)	10 (earlier 20)
Ceiling on non-escalable charges (%)	45
Quoted tariff ceiling	4.81
ABT and DSM	Provided for
Reduction due to use of existing transmission line (₹/kWh)	0.18
Discount rate (%)	9.15 (earlier 9.08)

## Tariff Orders

State/Union Territory (SERC)	Licensee/Utility	True-up	Annual Performance Review (APR)	Aggregate Revenue Requirement (ARR)	Tariff
Assam (AERC)	APGCL	2017-18	2018-19	2019-20 to 2021-22	2019-20
	AEGCL	2017-18	2018-19	2019-20 to 2021-22	2019-20
	APDCL	2017-18	2018-19	2019-20 to 2021-22	2019-20
	APGCL LRPP	---	2018-19	2019-20 to 2021-22	2019-20
Andhra Pradesh (APEREC)	APSPDCL, APEPDCL	---	---	---	2019-20
	APTRANSCO	---	---	---	2019-20 to 2023-24
	RESCOs (PP)	---	---	2019-20	2019-20
	APSPDCL, APEPDCL	2015-16	---	---	---
Bihar (BERC)	NBPDCL	2017-18	2018-19	2019-20 to 2021-22	2019-20
	SBPDCL	2017-18	2018-19	2019-20 to 2021-22	2019-20
	BGCL	2017-18	2018-19	2019-20 to 2021-22	2019-20
	SLDC	2017-18	2018-19	2019-20 to 2021-22	2019-20
	BSPTCL	2017-18	2018-19	2019-20 to 2021-22	2019-20
Chhattisgarh (CSERC)	CSPGCL, CSPTCL, CSLDC, CSPDCL	---	---	---	2019-20
Haryana (HERC)	HVPNL	2017-18	2018-19	---	2019-20
	HPGCL	2017-18	2018-19	---	2019-20
Jharkhand (JSERC)	TPCL*	2015-16	---	2016-21	2016-21
	APNRL*	2014-15, 2015-16	---	2016-21	2016-21
	JUUNL*	2013-14 (Q4), 2014-15 & 2015-16	---	2016-21	2016-21
Uttarakhand (UERC)	UPCL	2017-18	---	2019-20 to 2021-22	2019-20
	PTCUL	2017-18	2018-19	2019-20 to 2021-22	2019-20 to 2021-22
	UJVNL	2017-18	2018-19	2019-20 to 2021-22	2019-20 to 2021-22
	SLDC	---	2018-19	---	2019-20 to 2021-22
	GIPL	2017-18	2018-19	2019-20 to 2021-22	2019-20 to 2021-22
	SEPL	2017-18	2018-19	2019-20 to 2021-22	2019-20 to 2021-22
	GBHPPL	2017-18	2018-19	2019-20 to 2021-22	2019-20 to 2021-22
Uttar Pradesh (UPERC)	NPCL	2016-17	2017-18	2018-19	2018-19
	DVVNL+PVVNL+MVVNL +PuVVNL+KESCO	2015-16	2017-18	2018-19	2018-19
	UPPTCL	2015-16	2016-17, 2017-18	2018-19	---
Manipur and Mizoram JERC (M&M)	Power & Electricity Dept. (Govt. of Mizoram)	2017-18	2018-19	---	2019-20
	MSPDCL	---	2018-19	---	2019-20
	MSPCL	---	2018-19	---	2019-20
	MANIREDA	---	---	---	2029-20

\*Review order

## Regulations

Title	Date of Approval/Notification
<b>Tariff</b>	
Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019	7 <sup>th</sup> March, 2019
Central Electricity Regulatory Commission (Sharing of inter-State Transmission Charges and Losses) (Sixth Amendment), Regulations, 2019	27 <sup>th</sup> March, 2019
Andhra Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff for Transmission of Electricity) First Amendment Regulation, 2019	16 <sup>th</sup> February, 2019
Andhra Pradesh Electricity Regulatory Commission (Security Deposit) Second Amendment Regulation, 2019	16 <sup>th</sup> February, 2019
Madhya Pradesh Electricity Regulatory Commission (Terms and Conditions for determination of Generation Tariff) Regulations, 2015 (Revision III) Regulations, 2015 (First Amendment)	7 <sup>th</sup> March, 2019

Madhya Pradesh Electricity Regulatory Commission (Terms and Conditions for determination of Transmission Tariff) Regulations, 2015 (Revision III) Regulations, 2015 (First Amendment)	7 <sup>th</sup> March, 2019
Punjab State Electricity Regulatory Commission (Terms and Conditions for intra -State Open Access) (8th Amendment) Regulations, 2019	15 <sup>th</sup> February, 2019
Punjab State Electricity Regulatory Commission (Terms and Conditions for determination of Generation, Transmission, Wheeling and Retail Supply Tariff) Regulations, 2019 (Draft)	7 <sup>th</sup> February, 2019
Telangana State Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff) Regulations, 2019	4 <sup>th</sup> January, 2019
Uttar Pradesh Electricity Regulatory Commission (Multi Year Tariff for Distribution, Transmission & SLDC) Regulations, 2020 (Draft)	---
Joint Electricity Regulatory Commission for Manipur & Mizoram (Multi Year Tariff) (First Amendment) Regulations, 2019	27 <sup>th</sup> March, 2019
<b>Renewable Energy (including RPO and REC)</b>	
Gujarat Electricity Regulatory Commission (Forecasting, Scheduling, Deviation Settlement and Related Matters of Solar and Wind Generation Sources) Regulations, 2019	19 <sup>th</sup> January, 2019
Himachal Pradesh Electricity Regulatory Commission (Promotion of Generation from the Renewable Energy Sources and Terms and Conditions for Tariff Determination) (Second Amendment) Regulations, 2019	28 <sup>th</sup> January, 2019
Punjab State Electricity Regulatory Commission (Renewable Purchase Obligation and its compliance) (Amendment-2) Regulations, 2018	2 <sup>nd</sup> January, 2019
UPERC (Rooftop Solar PV Grid Interactive Systems Gross/Net Metering) Regulations, 2019	4 <sup>th</sup> January, 2019
<b>Deviation Settlement Mechanism</b>	
Maharashtra Electricity Regulatory Commission (Deviation Settlement Mechanism & related matters) Regulations, 2019	1 <sup>st</sup> March, 2019
Punjab State Electricity Regulatory Commission (Forecasting, Scheduling, Deviation Settlement and Related Matters of Solar and Wind Generation Sources) Regulations, 2019	7 <sup>th</sup> January, 2019
Tamil Nadu Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement and related matters for Wind and Solar Generation) Regulations, 2019	1 <sup>st</sup> March, 2019
Tamil Nadu Electricity Regulatory Commission (Deviation Settlement Mechanism and related matters) Regulations, 2019	1 <sup>st</sup> March, 2019
<b>Codes</b>	
Andhra Pradesh Electricity Regulatory Commission (Electricity Supply Code) Third Amendment Regulation, 2019	16 <sup>th</sup> February, 2019
Andhra Pradesh Electricity Regulatory Commission (Interim Balancing & Settlement Code for Open Access Transactions) Fourth Amendment Regulation, 2019	11 <sup>th</sup> March, 2019
Punjab State Electricity Regulatory Commission (Punjab State Grid Code) (1st Amendment) Regulations, 2019	7 <sup>th</sup> January, 2019
Punjab State Electricity Regulatory Commission (Electricity Supply Code and Related Matters) (5th Amendment) Regulations, 2019	28 <sup>th</sup> January, 2018
<b>Others</b>	
Central Electricity Regulatory Commission (Cross Border Trade of Electricity) Regulations, 2019	8 <sup>th</sup> March, 2019
Delhi Electricity Regulatory Commission (Power System Development Fund) Regulations, 2019	11 <sup>th</sup> January, 2019
Haryana Electricity Regulatory Commission (Guidelines for establishment of Forum for Redressal of Grievances of the Consumers, Electricity Ombudsman and Consumer Advocacy) Regulations, 2019	29 <sup>th</sup> March, 2019
Himachal Pradesh Electricity Regulatory Commission (Conduct of Business) (Ninth Amendment) Regulations, 2019	4 <sup>th</sup> January, 2019
Kerala State Electricity Regulatory Commission (Consumer Grievances Redressal Forum and Electricity Ombudsman) Amendment Regulations, 2019	19 <sup>th</sup> February, 2019
Maharashtra Electricity Regulatory Commission (Specific Conditions of Distribution Licence applicable to Laxmipati Balaji Supply Chain Management Ltd. for FTWZ and IT/ITES SEZ at Village Sai, Taluka Panvel, Dist. Raigad) Regulations, 2019	26 <sup>th</sup> February 2019
Punjab State Electricity Regulatory Commission (Harnessing of Captive Power Generation) (1st Amendment) Regulations, 2019	15 <sup>th</sup> Feb, 2019
Uttarakhand State Electricity Regulatory Commission (Guidelines for Appointment of Members and Procedure to be followed by the Forum for Redressal of Grievances of the Consumers) Regulations, 2019	22 <sup>nd</sup> January, 2019

Note: 'Other Notifications' can be accessed through the online version of this issue.

## Other Notifications

Issuing Authority	Title	Date of Approval/Notification
MNRE	Offshore Wind Energy Lease Rules, 2019	25 <sup>th</sup> January, 2019
MNRE	Modification in Scheme for “Development of Solar Parks and Ultra Mega Solar Park Scheme”	9 <sup>th</sup> March, 2019
MNRE	Scheme for farmers for installation of solar pumps and grid connected solar power plants	8 <sup>th</sup> March, 2019
MoP	Amendments to the Guidelines for Tariff Based Competitive Bidding Process for Procurement of Power from Grid Connected Solar PV Power Projects	3 <sup>rd</sup> January, 2019
MoP	Revised Guidelines for Procurement of Electricity for Medium Term from Power Stations set up on Finance, Own and Operate (FOO) basis	30 <sup>th</sup> January, 2019
MoP	Guidelines for Procurement of aggregated Power of 2500 MW under Pilot Scheme-II for three years (covered under Medium Term) facilitated by PFC Consulting Limited as Nodal Agency and through an Aggregator	1 <sup>st</sup> February, 2019
MoP	Guidelines for long term Procurement of Electricity from Thermal Power Stations set up on Design, Build, Finance, Own and Operate (DBFOO) basis and sourcing fuel as provided under Model Bidding Documents including allocation of coal under B (I), B(III) and B(IV) of SHAKTI (Scheme for Harnessing and Allocating Koyala (Coal) Transparently in India) Policy	6 <sup>th</sup> March, 2019
MoP	Guidelines for short-term (i.e. for a period of more than one day to a year) Sale of Power by Power Generating Company and Distribution Licensees (the ‘Seller’) through Tariff based bidding process ( <i>Draft</i> )	6 <sup>th</sup> March, 2019
MoP	Measures to Promote Hydro Power Sector	8 <sup>th</sup> March, 2019
MoP	BIS Standards for Solar Photovoltaic Water Pumping Systems ( <i>Draft</i> )	4 <sup>th</sup> February, 2019
CERC	Pilot on Security Constrained Economic Dispatch for ISGS pan India	31 <sup>st</sup> January, 2019
HERC	Discussion Paper for finalization of the Haryana Electricity Regulatory Commission (Conduct of Business) Regulations, 2019	2 <sup>nd</sup> February, 2019
HERC	Discussion Paper for finalization of the Haryana Electricity Regulatory Commission (Terms and Conditions of Service of the Electricity Ombudsman and the Officers and the Staff of the Office of the Electricity Ombudsman) Regulations, 2019	2 <sup>nd</sup> February, 2019
KERC	Discussion Paper on determination of tariff and finalisation of related issues for solar photovoltaic Plants allowed to be installed on rooftops of consumers by persons other than consumers under different business models	2 <sup>nd</sup> February, 2019
KERC	Discussion Paper on Determination of tariff for waste to energy plants in the State of Karnataka	19 <sup>th</sup> February, 2019
TNERC	Procedure for verification of Captive Generating Plant (CGP) status ( <i>Draft</i> )	---
TNERC	Consultative Paper for issue of Tariff order for Solar power and related issues	1 <sup>st</sup> March, 2019
TNERC	Consultative Paper on Fixation of Norms for Determination of Tariff for Procurement of Power from Municipal Solid Waste (MSW) Based Power Generating Plants	1 <sup>st</sup> March, 2019

Note: This page is available exclusively in the online version of this issue.



## 12<sup>th</sup> Capacity Building Programme (CBP) for Officers of Electricity Regulatory Commissions

CER, on behalf of Forum of Regulators (FOR), organised the 12<sup>th</sup> Capacity Building Programme for Officers of Electricity Regulatory Commissions on 'Tariff Setting in the Power Sector – Best Practices and Emerging Regulatory Scenario' from 11<sup>th</sup> to 13<sup>th</sup> Feb., 2019 at IIT Kanpur. Thirteen officers from nine State Electricity Regulatory Commissions participated in this event. Resource persons included experts affiliated to CERC, TSERC, Deloitte Touche Tohmatsu India LLP, Tata Power – DDL, ABPS Infrastructure Advisory Pvt. Ltd., SECI and IITK. The programme had sessions on a variety of topics pertaining to tariff setting, covering areas like regulatory economics, PoC framework, MYT regime, estimating demand and planning for power procurement, standards of performance, comparison of distribution tariff across states, and competitive bidding for renewable energy. The programme included a hands-on session on generation tariff calculation.



## 1<sup>st</sup> Global Regulatory Perspectives Programme for Commissioners of Electricity Regulatory Commissions



CER, in collaboration with FOR, conducted its first Global Regulatory Perspectives Programme for Commissioners of Electricity Regulatory Commissions at Melbourne, Australia, from 13<sup>th</sup> to 15<sup>th</sup> March, 2019. The programme was attended by the Chairmen and the Members of sixteen SERCs. The sessions provided insights on the Australian electricity sector – network operation, consumer empowerment and involvement, overall regulatory framework and integration of distributed energy resources. The participants visited the office of Australian Energy

Market Operator (AEMO) where they had a live view of their Gas Control Room in operation. The programme also included site visits to Ballarat Energy Storage Facility and AusNet Distribution Monitoring Centre, where various aspects of battery storage and distribution network operation, especially those dealing with contingency and disruptions, were discussed.

We invite readers to register with CER's Regulatory Skill Mapping (RSM) initiative ([cer.iitk.ac.in/RSM](http://cer.iitk.ac.in/RSM)). This would help us design CER's activities and deliver a more relevant output by engaging with stakeholders. We also request your inputs on the newsletter as well as on the activities of the Centre.

*Regulatory Insights Team*

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