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REGULATORY INSIGHTS

Centre for Energy Regulation

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Editorial

Regulated tariff structure not only influences the overall return to investors but also impacts the final tariff payable by the consumers. Introduction of time-of-day (ToD) based capacity charges for generators may present implementation challenges and lead to higher consumer tariff. It should hence be ensured that the proposed structure does not give perverse incentives for gaming availability during various times of the day. It would also be more financially appropriate to reduce the capital base for Return on Equity (RoE) once the depreciation recovered is greater than loan repayment. Moreover, incentive for over-injection due to generation in excess of NQPLF is likely to result in an increase of system frequency beyond 50 Hz during off-peak hours, a scenario pre-dating ABT regime.

EV charging would be a new type of load in the Indian power grid, with the potential of significantly altering the load curve in future. Therefore, roll-out of EV charging stations requires careful assessment of the scenario - current as well as prospective. A study by IIT Kanpur suggests that bidding parameters based on Viability Gap Funding (VGF) should be used for setting up such infrastructure under public-private partnership (PPP) framework. A separate tariff category for EV charging, based on ToD, would be beneficial in managing this new type of demand, thereby smoothening the load curve.

Wind-Solar Hybrid technology, though beneficial in terms of higher utilisation of land and transmission networks, might present challenges before investors because of sub-optimal potential of either resource at a location, thus influencing the overall economics. Additionally, apportionment of RPOs, RECs, PPAs and scheduling of power also need to be addressed in the Policy.

Identifying the need for reliable demand projections and economical power procurement plans, CER published a monograph titled ***'Regulatory Framework for Long-term Demand Forecasting and Power Procurement Planning'***. It identifies key ingredients for a holistic set of regulations fostering reliable demand projection, aiding ERCs and DISCOMs to develop an optimal long-term power procurement strategy that would help contain power procurement cost and ensure resource adequacy in the long run. Furthermore, in an endeavour to promote regulatory research, Centre for Energy Regulation conducted an International Capacity Building programme in Europe, and an MoU was signed between Florence School of Regulation (FSR, Italy) and IIT Kanpur.

Anoop Singh
Coordinator, Centre for Energy Regulation

The Centre is seed funded by the Government of United Kingdom through a programme titled 'Supporting Structural Reforms in the Indian Power Sector' under Power Sector Reforms (PSR) programme.

UK Government

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Draft CERC (Terms and Conditions of Tariff) Regulations, 2019

Key Features of the Draft Central Electricity Regulatory Commission (CERC) (Terms and Conditions (T&C) of Tariff) Regulations, 2019 for the Tariff Period 2019-2024

Re-defined Terms

- Bank rate to be linked to the MCLR of SBI
- Useful life of hydro generating stations to be increased to 40 years
- O&M to include water charges and security expenses

Additional CAPEX

- Additional CAPEX to include ash disposal requirements
- R&M and special allowance to be mutually exclusive
- Special allowance to be raised to ₹9.5 lakh/MW

Capital Cost

- Prudence check of capital cost to be carried out on the basis of historical data of similar projects
- CERC to appoint an independent agency or expert body for vetting of capital cost of hydro plants
- Capital cost to include gains/losses on account of foreign exchange risk variation pertaining to loan amount availed during the construction period
- Incentives pertaining to RoE to be removed

Others

- Thermal generating stations availing special provision after 25 years of CoD to be allowed to exhibit a single part tariff payable based on scheduled generation
- Late payment surcharge to be reduced to 1.25% and levied in case of delay beyond 45 days
- Working capital requirement for non-pithead generating stations (coal/lignite) to be reduced to 20 days and receivables (thermal generation and transmission) to 45 days
- The time limit for an anticipated generating station or transmission system to apply for tariff determination to be reduced from 6 months to 2 months
- Time and cost over-run on account of land acquisition not attributable to the generating company or transmission licensee to be included in the list of uncontrollable factors
- STATCOMs to be recognised as an element of transmission network for the computation of availability factor
- Units having part capacity tied up in long-term Power Purchase Agreements (LT PPAs) to be identified; tariff to be determined only for such part capacities

T&C of Tariff Regulations, 2019

CERC initiated discussion on Terms and Conditions of Tariff Regulations for the period 1st April, 2019 to 31st March, 2024 by notifying a consultation paper in May, 2018. Moving closer to the beginning of the next tariff period, a draft regulation was notified in the month of January, 2019. The suggested modifications encircled several operational parameters that were deliberated upon by engaging stakeholders and were later compiled into a draft for further consultation. A public hearing in this regard was held on 1st February, 2019 in New Delhi. The proceedings and other details can be viewed at CERC's website.

Capacity (Fixed) Charges and Energy (Variable) Charges

- The fixed/capacity charges of a thermal generating station (for the n^{th} month of a financial year), in the tariff period 2014-2019, were arrived at by comparing its availability up to the n^{th} month of that financial year with the Normative Annual PAF (NAPAF), that is, 85%.
- Linking of fixed charges with ToD proposed for the tariff period 2019-2024, allowing recovery of fixed charges in two parts:
  - Recovery during peak period to be 25% more than that during off-peak period
  - Peak/off-peak plant availability factors to be compared with Normative Quarterly PAF (NQPAF)
- NQPAF to be reduced to 83% (excluding annual scheduled maintenance)
- Generators to be incentivised (variable charges) for scheduled generation in excess of that corresponding to Normative Quarterly Plant Load Factor (NQPLF) as: ₹0.65/kWh during peak and ₹0.5/kWh during off-peak periods
- Normative Annual Transmission System Availability Factor (NATAF) of HVDC bi-pole links and HVDC back-to-back stations for incentive consideration in recovery of annual fixed charges to be increased from 96% to 97.5%
- Landed cost of reagents, based on normative consumption, on account of implementation of revised emission control standards to be included in the variable cost of thermal generating stations
- Recovery of annual fixed charges, through depreciation, to be allowed for 95% (salvage value 5%) of the capital cost instead of 90% (salvage value 10%)
- Normative gross Station Heat Rate (SHR) for computing the variable charges of existing thermal (coal) generating stations up to 250 MW (except a few stations of NTPC and DVC) to be reduced to 2410 kCal/kWh

CER Opinion

Return on Equity

- RoE should be determined based on appropriate models for cost of capital. A study by IITK earlier found the regulated returns to be higher than that provided by the market.

Additional CAPEX

- R&M should include CAPEX for enhancing flexible or variable plant operation.
- Capitalisation/CAPEX borne by funds like PSDF, etc. should be accounted for.

Capital Cost

- Prudence check based on national and international benchmarks should be retained.
- If permissible depreciation amount in a financial year is more than the actual loan repaid, the excess amount should be used to reduce the capital base for RoE.
- Any gain/loss on account of foreign exchange risk variation must be passed through only to the extent that is not hedged.

Others

- Recovery of fixed and variable charges as a single part tariff, for old thermal generating stations (25 years or more past COD), may lead to under-/over-recovery of costs if the actual PLF deviates from the normative PLF used for determining the single part tariff. This would prolong the operational life of inefficient plants with high variable charges which should ideally be replaced with efficient units.
- Critical stock positions often observed and reported at various coal-based generating stations highlight that the average coal inventory is significantly less than 2 months' equivalent. Hence, the recovery of interest on working capital for the same should be based on a reasonable period of stock maintained as per best industry practices.
- Time and cost over-run on account of controllable factors (including land acquisition) attributable to the generating company or transmission licensee should be retained in the list of controllable factors.
- Weightage factor of a line (transmission availability factor) should be a function of power transfer capability of the line to capture the relative importance of lines having the capability of transferring more power.
- STATCOM should be included in the formula for availability factor (transmission).

Regulatory Practices

- The operational parameters including SHR should have a tighter range under a regulatory jurisprudence providing incentive for efficiency improvement. Otherwise, the long-term signal to the sector would encourage inefficiency.
- Operational norms post R&M should not remain relaxed as the capital expenditure would have been justified on account of improvement in operational parameters.
- The cost-benefit analysis required on several occasions should go beyond expected regulatory changes in other spheres as well (for example, change in environmental laws, regulations and standards, etc.).

Capacity (Fixed) Charges and Energy (Variable) Charges

- The relative difference of 25% in the weights for peak and off-peak periods would not incentivise maintaining availability during peak hours unless it is augmented with a relative difference in the normative availability requirement between the two periods. Moreover, $NQPAF_{peak}$ should be more than $NQPAF_{off\text{-}peak}$.
- The duration and time of occurrence of peak and off-peak hours vary even within a region, across seasons, and cannot be predicted with accuracy. Thus, declaration by RLDCs in such regard, in advance (monthly basis), may not be congruent with the actual peak demand of various states in different regions.
- Offset of under-recovery during off-peak hours with over-recovery during peak hours may result in gaming on DCs to take advantage of 25% additional recovery during peak. It may raise cost recovery and burden on end consumers.
- A reduction in the availability factor from 85% to 83% indicates laxity on the part of generating plants.
- Incentive in energy charges for generation in excess of NQPLF would encourage over-injection of power into the grid and may cause the system frequency to go beyond 50 Hz, as was prevalent in the pre-ABT regime.
- The normative gross SHR for generating stations having a combination of units of different capacities should be the weighted average of SHR based on actual energy generated by the combination of units to avoid undue benefits on account of DCs.
- 5% relaxation in SHR to new thermal generating stations is not justifiable as the EPC contract should provide for a guaranteed heat rate.
- The salvage value should be retained at the existing level of 10%, although differentiation among hydro and thermal generating stations is justifiable.

Note: Additional comments on Draft Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 can be accessed at CER's web portal.

Regulatory Guidelines and Standards for Electric Vehicle Charging Infrastructure

Ministry of Power (MoP), through an order dated 14th November, 2018, issued Regulatory Guidelines and Standards for Electric Vehicles Charging Infrastructure. Some of its key aspects are:

Source: Pixabay

- Private charging permitted; may be facilitated by DISCOMs
- Setting up of Public Charging Station (PCS) to be a delicensed activity; public EV charging facilities to be treated as 'services'
- PCS to have: an exclusive transformer, 33/11 kV line/cables, one or more electric kiosks/boards with all charger models – CCS (minimum 50 kW, 200-1000 V), CHAdeMO (minimum 50 kW, 200-1000V), Type-2 AC (minimum 22 kW, 380-480V), Bharat DC-001 (15 kW, 72-200V), Bharat AC-001 (10 kW, 230V)
- PCS would – (a) have ties up with at least one online Network Service Provider (NSP) to enable remote/online booking, and (b) share charging station data with the appropriate DISCOM(s) (the database accessible to CEA)
- Captive charging infrastructure for 100% internal use, as well as non-commercial private charging points, not required to install all types of chargers or have NSP tie-ups
- PCS for long distance and/or heavy-duty EVs to have at least 2 chargers (minimum 100 kW), each of different specifications (CCS and CHAdeMO); appropriate liquid cooling cable for high-speed charging; a possible option for battery swapping
- At least one PCS to be set up in every 3×3 km grid; a PCS at every 25 km on both sides of highways; at least one Fast Charging Station at every 100 km (for long-range EVs)
- CEA to create and maintain a national online database of all PCS, through DISCOMs
- Tariff for EV PCS to be determined by ERCs and not to be more than 15% higher than the Average Cost of Supply (tariff for domestic charging same as domestic consumption rates); the State Nodal Agency to determine Service Charges
- Two-phase roll-out of EV charging infrastructure: Phase I – cities with population over 4 million, and Phase 2 – big cities (State capitals and UT headquarters)
- MoP to designate a Central Nodal Agency for the roll-out; State Government to nominate a Nodal Agency for setting up charging infrastructure
- Implementing agency(ies) for installation, operation and maintenance of PCS and battery swapping facilities to be selected by the State Nodal Agency; the Nodal Agency may invite bids for selecting the implementing agency

CER Opinion

- The rigidity of the area grids (3 km × 3 km or 25 km × 25 km) for installation of EV charging stations is undesirable. The choice of grid size or distance for setting up PCS should be flexible and based on feasibility studies, considering EV clustering, travel patterns, availability of parking space, vehicle characteristics, economics of ridership, etc. Existing parking stations at public and semi-public places should be identified first for setting up PCS under public-private partnership (PPP) framework. This would help avoid high incidence of land cost in initial phases.
- EV charging roll-out strategy should be flexible and account for expected growth in EV population, capacity of onboard battery, feasibility of battery swapping, ridership, availability of space, etc. It should also be compatible with EV roll-out across vehicle user segments, cab aggregators, food delivery services, postal services, and other logistic services with a predictable range of travel.
- A study by IIT Kanpur evaluated business models for EV charging infrastructure for two highways and a metropolitan city. The study suggested that bidding parameters based on Viability Gap Funding (VGF) may be used for setting up EV PCS under PPP framework. Furthermore, it was also found that the absence of time-of-day (ToD) based tariff may significantly alter the demand profile in future.
- Competitive bidding-based PPP framework using VGF as a bidding parameter should be used for setting up EV infrastructure.

- Tariff (including ceiling tariff) for EV charging should be a part of Tariff Policy. Moreover, EV charging, especially for PCS and fast private charging, should be a separate consumer category with ToD-based tariff to ensure that such infrastructure does not adversely affect the load curve in future.
- A separate tariff category for EV charging infrastructure would facilitate determination of tariff by ERCs and maintaining a database of PCS. This would also provide for innovation in tariff design, especially ToD tariff.
- The identified State Nodal Agency should facilitate setting up of EV charging infrastructure under PPP framework instead of taking charge of setting up such infrastructure using public funds.
- Automobile agencies or industry associations also play a constructive role in the preparation of an integrated and phased development plan for EV charging infrastructure.
- Requirement of amenities should be applicable for EV charging stations located on highways. For urban locations, adequate amenities may be made mandatory for PCS with large charging infrastructure.

National Wind-Solar Hybrid Policy

Ministry of New and Renewable Energy (MNRE) announced the National Wind-Solar Hybrid Policy on 14th May, 2018, which seeks to promote new wind-solar hybrid projects as well as hybridisation of existing ones. Some notable features of the policy are:

- A framework for promotion of large grid-connected wind-solar hybrid systems for optimal and efficient utilisation of transmission infrastructure and land, and for reducing the variability in renewable power generation to achieve better grid stability
- Flexibility of integration of wind-solar hybrid systems at AC or DC level, depending on the size of each source integrated and the type of technology
- The size of technological elements or components to be added determined by the characteristics and the availability of the resource at the site; to be recognised as a hybrid project, the rated power capacity of one resource to be at least 25 percent of the rated power capacity of the other resource
- Scope for existing wind/solar projects to be hybridised with higher transmission capacity than sanctioned, subject to availability of margin in the existing transmission capacity and its technical feasibility
- Mandate for Central Electricity Authority (CEA) and Central Electricity Regulatory Commission (CERC) to formulate necessary standards and regulations for wind-solar hybrid systems

Source: Pixabay

CER Opinion

- A hybrid system would improve the overall power generation profile as wind and solar generation profiles can complement one another, moderate the overall variability and economise the CAPEX accounted, thus making it more conducive for grid integration.
- However, resource intensity for a given or prospective project site may not be optimal for both wind and solar simultaneously, leading to compromise in efficiency. Thus, availability of project sites with optimal wind as well as solar energy might pose a challenge for deploying hybrid systems.
- A mechanism for apportionment of RPOs and RECs into solar and non-solar needs to be designed. Apportionment of scheduling of power in case of separate PPAs for solar and wind also needs to be addressed, especially for existing plants to be hybridised. This can be done:
  - As per the Agreement between the two parties of the PPA
  - As declared by the generator
  - By adopting normative generation schedule
  - By installing separate transformers and metering infrastructure
- Each of the above methods has its own shortcomings. For instance, provision for separate metering/transformer would dilute the economic gains of hybridisation.

CER's Publications

Regulatory Framework for Long-term Demand Forecasting and Power Procurement Planning - A CER Monograph

Power procurement cost accounts for 70-80 percent of the total cost of electricity served to final consumers and receives significant regulatory scrutiny in approving the annual revenue requirement (ARR) of a DISCOM. Long-term demand forecasting and power procurement planning requires foresighted planning by the utilities and should be regulated by the respective ERCs. For understanding the associated aspects and the current scenario in the Indian power sector, CER analysed historical demand projections and relevant regulations of selected states – Andhra Pradesh, Assam, Delhi, Gujarat, Madhya Pradesh, Maharashtra, Odisha, Punjab and Uttar Pradesh. Based on this analysis and learnings from international practices from Australia, California, CEER Member States (Europe), Japan, Singapore, Thailand and West Virginia, the following key aspects to be considered while formulating regulations for long-term demand forecasting and power procurement planning were identified.

Recommendations on Regulatory Framework for Long-Term Demand Forecasting and Power Procurement Planning

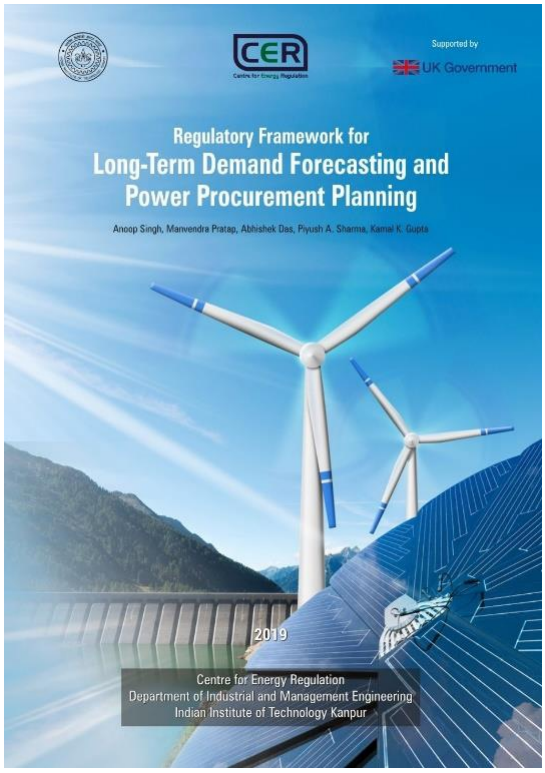
Responsibility
- ❑ Nodal entity
- ❑ Compliance monitoring

Methodology
- ❑ Open and adaptable
- ❑ Scope of load forecast

Resource Adequacy*
- ❑ 90-95% of projected peak demand (5th year)
- ❑ 70-75% of projected peak demand (10th year)

Data Sharing and Warehousing
- ❑ Responsibility of stakeholders
- ❑ Availability of data and forecast in public domain

Regulatory Process
- ❑ Forecast submission timeline
- ❑ Stakeholder consultation and third party validation



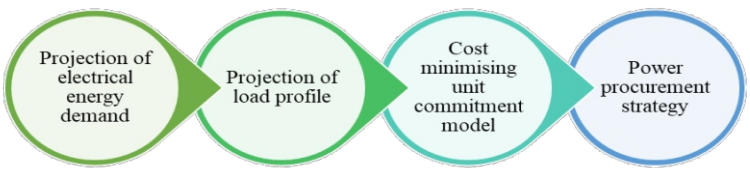
ISBN: 978-93-5321-969-7

Note: *excluding reserve requirements

Power Procurement Strategy for Uttar Pradesh Power Corporation Limited (UPPCL) – A Study by IIT Kanpur

A study on long-term demand forecasting and power procurement strategy for Uttar Pradesh Power Corporation Limited (UPPCL) by IIT Kanpur revealed that the methodological approach (as shown in the adjoining figure) to be adopted for a state should consider state-specific socio-economic characteristics, prevailing contracts as well as policy targets. Further, the study found that reduction in power procurement cost can be achieved if such a study is undertaken at least every two years to allow the procuring agencies to adopt to the new forecast and dynamically adapt their power procurement portfolio comprising a mix of long-term, mid-term and short-term power procurement options.

Methodological Approach for UPPCL Study



Source: A study by IIT Kanpur

Regulatory Updates

Tariff

BERC permitted post facto adoption of e-bidding tariff for June, 2018 to March, 2019 (excluding December, 2018) by BSPHCL. 50 MW power was to be procured between October, 2018 and March, 2019 (excluding December, 2018) during 6 a.m. to 6 p.m., at the rate of ₹4.69/kWh to ₹5.09/kWh.

CSERC approved long-term (25 years) power procurement of 150 MW between CSPDCL and SECI, with levelized tariff of ₹2.45/kWh (excluding a trading margin of ₹0.07/kWh).

HPERC determined and approved an APPC of ₹2.25/kWh (with no provision of true-up).

HPERC approved normative rates for service lines for LT connection up to 50 kW/kVA for 1st January, 2019 to 31st March, 2019.

Load/Supply	Service Connection Charges for load up to 50 kW/KVA at LT	
	Fixed cost up to 40m length of service line (₹)	Variable cost in excess of 40m length of service line (₹/kWh)
load up to 2 kW	1542	397
2 kW < load < 5 kW		
Single phase	1542	397
Three phase	2750	515
5 kW < load < 8 kW		
Single phase	1542	397
Three phase	2750	515
8 kW < load < 10 kW		
Single phase	1750	397
Three phase	3270	515
10 kW < load < 15 kW		
Single phase	2088	397
Three phase	3962	515
15 kW < load < 20 kW (three phase)	5253	515
20 kW < load < 35 kW (three phase)	12464	515
35 kW < load < 50 kW (three phase)	13707	515

GERC approved PPAs for a purchase of 86.55 MW of wind energy at the rate of ₹3.46/kWh.

GERC approved the selection of GCEL for supplying 1000 MW power at the rate of ₹3.16/kWh at GETCO periphery, identified through bidding.

KERC accorded approval to the collection of FAC from BESCOM and HESCOM consumers, and carry forward of increase/savings in FAC to the next quarter (of FY 2019) for MESCOM, GESCOM and CESC.

ESCOM	FAC to be collected from consumers (paise/kWh)	FAC to be carried forward to Q4 of FY 2019 (paise/kWh)
BESCOM	11	---
MESCOM	---	(-) 1
CESC	---	1
HESCOM	4	---
GESCOM	---	1

MERC, in response to a petition, ordered that JPTL is entitled for recovery of additional income tax of ₹0.74 crore in FY 2017 in the next MYT tariff order.

MERC ordered that 11 kV voltage level would be included in the tariff for HT V (B) – Railway/Metro/Monorail category and approved the following tariff for high voltage power supply to railways, metro and monorail.

Consumption Slab	Fixed/Demand Charge (₹/kVA/month)	Wheeling Charge (₹/kWh)	Energy Charge (₹/kW)
FY 2019			
110/132 kV	275	---	5.90
11/33 kV	275	0.52	5.90
FY 2020			
110/132 kV	305	---	5.55
11/33 kV	395	0.53	5.55

Owing to an inadvertent consideration of HT PWW category EHV consumption as HV VI category EHV consumption, MERC (in response to a petition filed by Mumbai International Airport Limited) carried out a mid-term review of its tariff order for TPC-D, revising the energy charge and the regulatory asset charge (RAC) as follows:

Consumer Category and Consumption Slab	Energy Charge (₹/kWh)	Regulatory Asset Charge (₹/kWh)
HT VI (B) Public Service Others	6.35 (FY 2019) 6.30 (FY 2020)	1.14 (FY 2019) 1.01 (FY 2020)

TNERC determined subsidy payable by Govt. of Tamil Nadu for FY 2019 as ₹7731.67.

TSERC determined the pooled cost of power purchase for FY 2018 as ₹4.097/kWh, which is to be considered for FY 2019.

TSERC notified tariff for EV charging stations (with an ACoS of ₹6.04/kWh).

Voltage level	Tariff (₹/kWh)
LT – IX	6.00
HT – IX (11kV and above)	7.00 (0600 to 1000 hours and 1800 to 2200 hours) 5.00 (1000 to 1800 hours) 6.00 (other time slots)

UERC approved FCA charges for the second quarter of FY 2019, with the approved variable charge ranging from ₹1.514/kWh to ₹4.066/kWh, and subsequent recoverable FCA adding up to ₹2.19 crore (for all power stations considered).

UPERC approved a rebate of 5% on timely or early payment of bills for LMV-5 (Rural) category consumers.

Others

CERC approved the petitions of Amplus Energy Solutions Private Limited and ABJA Power Private Limited for the respective upgrading and downgrading of their inter-state transmission licenses.

CERC approved slab-wise PoC rates for long-term access, medium-term open access and short-term open access; reliability support charges and HVDC charges; and transmission losses.

MERC directed Indian Railways to submit a petition suggesting Specific Conditions for its distribution licence. Until then, Indian Railways would provisionally adhere to certain relevant regulations of MERC.

MERC directed AEML-G to incorporate the effect of the additional capitalisation of ₹12.32 million in FY 2016 and ₹12.40 million in FY 2017 while submitting its forthcoming tariff petition.

MERC allowed MSEDCL to supply power to agricultural consumers of Gadchiroli, Chandrapur districts and Pandharkawda, Ralegaon sub-divisions of Yavatmal district for 8 hours (only) in day time, from 2nd November, 2018 to 30th November, 2018, subject to condition that no financial impact of the deviation in Load Shedding Protocol would be passed on to consumers.

MERC reviewed certain aspects of their mid-term review order for MBPPL as follows:

- MSLDC charges (₹): 1.11 lakh (FY 2019), 1.83 lakh (FY 2020)
- Capitalisation under Supply Business (FY 2019): Nil
- Actual interest on Consumer Security Deposit (allowed) (₹): 0.32 crore (FY 2016)
- Income Tax rate (percent): 21.34 (FY 2016), 20.39 (FY 2017)
- Interest on Working Capital allowed without sharing of gains

PSERC deferred the availability of kVAh tariff and contract demand system for Small Power Industrial Supply (SP) consumers from 1st August, 2018 to 1st January, 2019, and directed PSPCL to ensure 100% installation of kVAh compliant meters.

UPERC approved the Smart Meter roll-out plan of UPPCL and UP DISCOMs.

UPERC granted an intra-state transmission licence to Ghatampur Transmission Ltd.

WBERC directed IPCL to hand over the transmission line from LILO point up to J. K. Nagar substation to WBSETCL, free of cost, and WBSETCL would maintain the line at their cost, forming a part of the State Transmission System under WBSETCL.

Regulatory Updates

Renewable Energy, RPO and REC

KERC determined generic tariff for new grid-connected solar rooftop photovoltaic units (1 kW to 10 kW) at ₹4.15/unit (without capital subsidy) and at ₹3.08/unit (with capital subsidy).

UERC assigned duties to and stated the functions of Obligated Entities and State Agencies for the implementation of RPO Compliance System (RPOSC Web Tool) in Uttarakhand.

PSERC approved procurement of 500 kW of power, from a 2.92 MW bagasse-based cogeneration project, at a tariff of ₹5.08/kWh (₹2.57/kWh as levelized fixed charges and ₹2.51/kWh as variable charges) for the first year, with 5% per annual escalation in variable charges for the tariff period of 20 years.

TSERC determined levelized (generic) tariff for wind power projects in Telangana as ₹3.61/kWh for the period 2018-2020 (FY 2019 and FY 2020). For the same tariff period, levelized tariff for bagasse-based power plants was also determined – ₹2.23/kWh as fixed charge, with variable charge to be consequently determined every year by notification of actual fuel cost escalation, based on indexation methodology.

Tariff Orders

State/Union Territory (SERC)	Licensee/Utility	True-up	Annual Performance Review (APR)	Aggregate Revenue Requirement (ARR) and Tariff
Andhra Pradesh *(APSERC)*	Dept. of Hydro Power Development, Government of Arunachal Pradesh	---	---	2018-19
Gujarat *(GERC)*	GIFT PCL	---	---	2018-19
Madhya Pradesh *(MPERC)*	MPPGCL	2016-17	---	---
	MPPMCL, MPEZ, MPCZ, MPWZ	2013-14	---	---
	M/s. M B Power (Madhya Pradesh) Limited	---	---	2017-18 to 2018-19
Meghalaya *(MSERC)*	MePGCL (including MLHEP)	2015-16	---	---
	MePTCL	2015-16	---	---
	MePDCL	2015-16	---	---

Regulations

Title	Date of Approval/Notification
Tariff	
CERC (Deviation Settlement Mechanism and related matters) (Fourth Amendment) Regulations, 2018	20th November, 2018
Andhra Pradesh Electricity Regulatory Commission First Amendment (Terms and conditions for Determination of Tariff for Transmission of Electricity) Regulation, 2018	9th October, 2018
Haryana Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff for Generation, Transmission, Wheeling and Distribution & Retail Supply under Multi Year Tariff Framework) Regulations, 2012 (2nd Amendment), 2018	15th October, 2018
Himachal Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of Transmission Tariff) (Second Amendment) Regulations, 2018	22nd November, 2018
Himachal Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of Hydro Generation Tariff) (Third Amendment) Regulations, 2018	22nd November, 2018
Himachal Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of	22nd November, 2018

Title	Date of Approval/Notification
Wheeling Tariff and Retail Supply Tariff) (Third Amendment) Regulations, 2018	
Kerala State Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff) Regulations, 2018	5th October, 2018
Madhya Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff for Supply and Wheeling of Electricity and Methods and Principles for Fixation of Charges) Regulations, (First Amendment) Regulations, 2015	30th November, 2018
Renewable Energy (including RPO and REC)	
Bihar Electricity Regulatory Commission (Renewable Purchase Obligation, its compliance and REC Framework Implementation) (3rd Amendment) Regulations, 2018	17th December, 2018
Himachal Pradesh Electricity Regulatory Commission (Rooftop Solar PV Grid Interactive System based on Net Metering) (First Amendment) Regulations, 2018	6th November, 2018
Himachal Pradesh Electricity Regulatory Commission (Renewable Power Purchase Obligation and its Compliance) (Fifth Amendment) Regulations, 2018	27th November, 2018
Meghalaya State Electricity Regulatory Commission (Renewable Energy Purchase Obligation & its Compliance) Regulations, 2018	22nd October, 2018
Deviation Settlement Mechanism	
CERC (Deviation Settlement Mechanism and related matters) (Fourth Amendment) Regulations, 2018	20th November, 2018
Assam Electricity Regulatory Commission (Deviation Settlement Mechanism and related matters) Regulations, 2018 *(Draft)*	November, 2018
Haryana Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement and related matters for Solar and Wind Generation) Regulations, 2018 *(Draft)*	---
Himachal Pradesh Electricity Regulatory Commission (Deviation Settlement Mechanism and Related Matters) Regulations, 2018	16th October, 2018
Maharashtra Electricity Regulatory Commission (Deviation Settlement Mechanism and related matters) Regulations, 2018 *(Draft)*	23rd October, 2018
Meghalaya State Electricity Regulatory Commission (Forecasting, Scheduling and Deviation Settlement of Solar and Wind Generation) Regulations, 2018	31st October, 2018
Meghalaya State Electricity Regulatory Commission (Deviation Settlement Mechanism and related matters) Regulations, 2018	5th November, 2018
Codes	
Assam Electricity Regulatory Commission (Electricity Supply Code) (First Amendment), Regulations, 2018 *(Draft)*	9th October, 2018
Andhra Pradesh Electricity Regulatory Commission (Electricity Supply code) third Amendment Regulation, 2018	16th November, 2018
Delhi Electricity Regulatory Commission (Supply Code and Performance Standards) (Third Amendment) Regulations, 2018	18th December, 2018
Himachal Pradesh Electricity Grid Code (First Amendment) Regulations, 2018	9th October, 2018
Himachal Pradesh Electricity Supply Code (Third Amendment) Regulations, 2018	3rd December, 2018
Meghalaya State Electricity Regulatory Commission (Electricity Supply Code) Regulations, 2018	7th December, 2018
Joint Electricity Regulatory Commission for the State of Goa and UTs (Electricity Supply Code) Regulations, 2018	26th November, 2018

Title	Date of Approval/Notification
Others	
Andhra Pradesh Electricity Regulatory Commission (Interim Balancing & Settlement Code for Open Access Transactions) Fourth Amendment Regulation, 2006	16th November, 2018
Haryana Electricity Regulatory Commission (Standards of Performance of Distribution Licensees and Determination of Compensation) Regulations, 2018	12th December, 2018
Himachal Pradesh Electricity Regulatory Commission (Levy and Collection of Fees and Charges by State Load Despatch Centre) (Second Amendment) Regulations, 2018	22nd November, 2018
Maharashtra Electricity Regulatory Commission (Specific Conditions of Distribution Licence applicable to Jawaharlal Nehru Port Trust for SEZ at Jawaharlal Nehru Port, Taluka Uran, District Raigad) Regulations, 2018	13th November, 2018
Meghalaya State Electricity Regulatory Commission (Power Quality) Regulations, 2018	31st October, 2018
Telangana State Electricity Regulatory Commission (Licensee's duty for supply of electricity on request) (First Amendment Regulation No. 4 of 2013) Regulation, 2018 *(Draft)*	15th November, 2018
Uttar Pradesh Electricity Regulatory Commission (Fees & Fines) Regulations, 2010 (First Amendment) *(Draft)*	11th December, 2018

Other Notifications

Title	Date of Approval/Notification
AERC Discussion Paper on Distribution Franchisee Network	---
HERC Discussion Paper for approval of general and miscellaneous charges for the various services rendered by the distribution and transmission licensees	---
HERC Discussion paper for finalization of the Haryana Electricity Regulatory Commission (Rooftop Solar Grid Interactive Systems Based on Net Metering) Regulations, 2018	---
HERC Revised discussion paper for finalizing the amendments in the Haryana Electricity Regulatory Commission (Electricity Supply Code) Regulations, 2014	---
KERC Conditions of Supply of Electricity of Distribution Licensees in the State of Karnataka (CoS) (Seventh Amendment), 2018 *(Draft)*	4th October, 2018
KERC Conditions of Supply of Electricity of Distribution Licensees in the State of Karnataka (CoS) (Eight Amendment) 2018 *(Draft)*	28th November, 2018
KERC Discussion Paper on Determination of Generic Tariff for Wind Power Projects for 2019-20	---
MERC Practice Directions under Electricity Supply Code Regulations, 2005	5th December, 2018
MERC Guidelines for Operation of Merit Order Despatch *(Draft)*	---
PSERC Public Interest Bulletin – Consumers' Electricity Grievances Resolution System at a Glance	
PSERC Staff Papers on Proposed Amendments to PSERC (Terms and Conditions for Intra-State Open Access) Regulations, 2011 and PSERC (Harnessing of Captive Power Generation) Regulations, 2009	---
PSERC Staff Paper on Proposed Amendments in State Grid Code	1st November, 2018
PSERC Staff Paper on Proposed Amendments in Supply Code, 2014	2nd November, 2018
RERC Staff Paper on Renewable Energy Projects registered under REC mechanism in Rajasthan State	October, 2018
CERC Regulatory Compliance application in compliance of Regulation 7(2) and 24 of the Central Electricity Regulatory Commission (Power Market) Regulations, 2010 and Commission's order dated 11.08.2016 in Petition No. 95/RC/2014.	9th October, 2018
MNRE Indian Wind Turbine Certification Scheme *(Draft)*	5th November, 2018

CER News

International Capacity Building

CER organised its First International Capacity Building (ICB) programme on ***'Learnings from Regulatory Experiences and Market Development in Europe'*** from 14th to 20th October, 2018. Representatives from Ministry of Power, CERC, SERCs, POSOCO, electric utilities, and academia participated in this programme. Key deliberations of ICB included interactive sessions by representatives of energy regulators of France (CRE) and UK (Ofgem), leading academic institutions (University of Cambridge, CentraleSupélec, Florence School of Regulation, University College London and Imperial College London) and electric utilities.

Visit to ENEDIS (Paris, France), UK Power Networks (UK) and EPEX SPOT (London, UK) provided technical perspectives of distribution network monitoring and management and network operation, enhancing the participants' practical experiences of regulatory and power market aspects of Europe.

CER-FSR Symposium and Signing of MoU

Centre for Energy Regulation, in collaboration with Florence School of Regulation (FSR), Italy, organised a symposium on ***'Future of Utilities: International and Indian Perspectives'*** on 10th and 11th October, 2018. The key speakers of the symposium included Prof. Jean-Michel Glachant (Director, FSR), Dr. Anoop Singh (Coordinator, CER), Dr. Pradyumna Bhagwat (Research Fellow, FSR) and Ms. Shwetha Bhagwat (Head of Global Relations, FSR). A Memorandum of Understanding was also signed between IIT Kanpur and FSR to enhance collaboration between CER and FSR.

CER's First Monograph Released

CER's first monograph (ISBN: 978-93-5321-969-7), titled ***'Regulatory Framework for Long-term Demand Forecasting and Power Procurement Planning'***, was released by Shri P. K. Pujari (Chairperson, CERC) and other dignitaries in the 66th meeting of Forum of Regulators (FoR), on 18th January, 2019, at CERC, New Delhi. The online version of this monograph can be accessed at CER's web portal.

We invite readers to register with CER's Regulatory Skill Mapping (RSM) initiative. 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