

### 3. Integrated rating methodology

#### (i) Summary of Rating Parameters

S.No.	Parameters	Marks
<b>1</b>	<b>OPERATIONAL &amp; REFORM Parameters</b>	<b>43</b>
<b>I)</b>	<b>Operational related</b>	
i)	AT&C Losses	28,-4
ii)	Power purchase	3
iii)	Cost Efficiency	6
<b>II)</b>	<b>Reform related</b>	
iv)	RPO Compliance	2
v)	Corporate Governance	4
<b>2</b>	<b>EXTERNAL Parameters</b>	<b>15</b>
I)	Regulatory	11,-19
II)	Govt. Support	4
<b>3</b>	<b>FINANCIAL Parameters</b>	<b>42</b>
I)	Ratios	
a	Cost Coverage Ratio	15
b	Interest Coverage Ratio	4
c	Total Debt to Net Worth	3,-2
II)	Sustainability	6
III)	Receivables	5
IV)	Payables	4
V)	Audited Accounts	5,-12
VI)	Audit Qualifications	0,-1
VII)	Default to Banks / FIs	0,-2
	<b>Total</b>	<b>100</b>

**(ii) Definitions**

S. No.	Parameters	Definition
1	<b>Coverage Ratio</b>	$\frac{\text{(Revenue realized from sale of power + Other income + Subsidy received)}}{\text{(Total Expenditure booked)}}$ <p>Where;  Revenue realized from sale of power = Opening receivables (power sale) – Closing receivables (power sale) + revenue from sale of power booked during the year</p>
2.	<b>AT&amp;C Losses (%) for SEBs/PDs/ Discoms</b>	as defined in MoP Letter No.CEA-GO-17(11)/1/2018/DP&R Div/408-530 dated 08.08.2018 on “Addendum to methodology for calculation AT&C Losses and ACS – ACR Gap” (annexed)
3.	<b>Billing Efficiency</b>	$\frac{\text{Net sale of energy}}{\text{Net input energy}}$
4.	<b>Fixed Assets to Total Debt Ratio</b>	$\frac{\text{Net Fixed Assets}}{\text{Total Debt}}$
5.	<b>Interest Coverage Ratio</b>	$\frac{\text{(PAT + Depreciation, Amortisation + Interest charged to operation)}}{\text{Interest charged to operation}}$
6.	<b>Debt Equity Ratio</b>	$\frac{\text{Total Borrowings}}{\text{Total Network}}$ <p>Where;  Total Borrowings = Long term debt + Short term Debt  Total Network = Equity including share application money pending allotment + General Reserves + Retained earnings as per Balance Sheet – Miscellaneous expenses not written off</p>
7.	<b>Receivables (no. of days)</b>	$\frac{\text{Debtors for sale of power} \times 365}{\text{Revenue from sale of power}}$
8.	<b>Payables (no. of days)</b>	$\frac{\text{Creditors for purchase of power} \times 365}{\text{Cost of purchase of power}}$

*Clarification : Electricity Duty/Cess should be included in the revenue / receivables while calculating Cost Coverage Ratio*



भारत सरकार  
Government of India  
विद्युत मंत्रालय  
Ministry of Power  
केन्द्रीय विद्युत प्राधिकरण  
Central Electricity Authority  
वितरण आयोजन एवं विकास प्रभाग

Distribution Policy & Regulations Division

No. CEA-GO-17(11)/1/2018/DP&R Div/408-530

Dated 08.08.2018

सेवा में,

1. सभी राज्यों/केंद्र शासित प्रदेशों के प्रधान सचिव/ सचिव (ऊर्जा/पावर) Principal Secretaries/ Secretaries (Energy/ Power) of all States/UTs
2. सभी डिस्कॉम के सीएमडी / एमडी CMD/MDs of all Discoms
3. सचिव, फोरम ऑफ़ रेगुलेटर Secretary, Forum of Regulators

विषय: ए टी एंड सी हानि और एसीएस-एआरआर गैप की गणना के लिए पद्धति में  
अनुपूरक।

Subject: Addendum to methodology for calculation AT&C losses and ACS – ARR  
Gap.

- Ref.: i) This office letter No. CEA/DPD/AT&C losses/2017/758-818 dated 02.06.2017  
ii) This office letter No. CEA/DPD/AT&C losses/2017/1169-1291 dated 02.08.2017

Sir/Madam,

CEA had circulated the Revised methodology for calculation of AT&C losses and for calculation of ACS – ARR Gap vide letters referred to above.

In order to address treatment of various sub-parameters used for calculation of AT&C losses and ACS – ARR Gap, a workshop was organized by PFC on 16<sup>th</sup> May, 2018, so as to ensure uniformity in calculation across the utilities. On the basis of feedback received from various Discoms during the workshop and further discussions held at Ministry of Power under the Chairmanship of Secretary(Power), addendums to the revised methodologies have been finalized.

The Revised methodology for calculation of AT&C losses and ACS – ARR Gap along with the proposed addendums are placed below at **Annexure-A** and **Annexure-B** respectively. This is for your kind information and necessary action.

संलग्नक: यथोपरि

भवदीया,



(वन्दना सिंघल)

मुख्य अभियंता

**प्रतिलिपि:**

1. Joint Secretary (Distribution), Ministry of Power, Shram Shakti Bhawan, Rafi marg, New Delhi-110001
2. CMD, Power Finance Corporation Ltd., 'Urjanidhi', 1, Barakhamba Lane, Connaught Place, New Delhi-110 001
3. CMD, Rural Electrification Corporation, Corporate Office, Core- 4, SCOPE Complex, 7, Lodhi Road, New Delhi - 110003

## Annexure - A

**Revised methodology for AT&C losses circulated by CEA in June, 2017:**

<b>A</b>	Input Energy (MU)	Energy Generated – Auxiliary Consumption + Energy Purchased (Gross) – Energy Traded/ Inter State Sales
<b>B</b>	Transmission Losses (MU)	
<b>C</b>	Net Input Energy (MU)	A-B
<b>D</b>	Energy Sold (MU)	Energy Sold to all categories of consumers excluding units of Energy Traded/Inter-State Sales
<b>E</b>	Revenue from Sale of Energy (Rs crore)	Revenue from Sale of Energy to all categories of consumers (including Subsidy Booked) but excluding Revenue from Energy Traded /Inter-State Sales
<b>F</b>	Adjusted Revenue from Sale of Energy on Subsidy Received basis (Rs crore)	Revenue from Sale of Energy (same as E above) minus Subsidy Booked plus Subsidy Received against subsidy booked during the year
<b>G</b>	Opening Debtors for Sale of Energy (Rs crore)	Opening debtors for sale of Energy as shown in Receivable Schedule (Without deducting provisions for doubtful debtors). Unbilled Revenue shall not be considered as Debtors.
<b>H</b>	Closing Debtors for Sale of Energy (Rs crore)	i) Closing debtors for Sale of Energy as shown in Receivable Schedule (Without deducting provisions for doubtful debts). Unbilled Revenue shall not be considered as Debtors. ii) Any amount written off during the year directly from (i)
<b>I</b>	Adjusted Closing Debtors for sale of Energy (Rs crore)	H (i+ii)
<b>J</b>	Collection Efficiency (%)	$(F+G-I)/E*100$
<b>K</b>	Units Realized (MU) = [Energy Sold*Collection Efficiency]	$D*J/100$
<b>L</b>	Units Unrealized (MU) = [Net Input Energy - Units Realized]	C-K
<b>M</b>	AT&C Loss (%) = [(Units Unrealized/Net Input Energy)*100]	$L/C *100$

**Addendum to AT&C loss calculation methodology**

Parameter	Sub - parameter	Treatment of parameters for computation of AT&C loss as discussed and agreed in the workshop
Net Input Energy/ Energy Sold (MU)	Open Access / Wheeling	Open access/ wheeling units shall not be included in Net Input Energy and Energy Sold while calculating Billing Efficiency.
Revenue from Sale of Energy (Rs. Crores)	Unbilled Revenue	No adjustment shall be made in revenue from sale of energy on account of unbilled revenue.
Adjusted Revenue from Sale of Energy on Subsidy Received basis (Rs crore)	Subsidy Received against subsidy booked during the year	Total Tariff Subsidy received during the year including arrears (if any) shall also be included while calculating Adjusted Revenue from Sale of Energy on Subsidy Received basis
<b>Collection Efficiency (%)</b>		<b>Collection Efficiency of subsidy received and realization from sale of power together will be restricted at 100%</b>

**Annexure-B****Revised methodology for calculation of ACS-ARR gap circulated by CEA in August, 2017:**

Revenue GAP (Rs/kWh)	Average Cost of supply - Average Realisable Revenue (Subsidy received basis) (ACS – ARR)
Particulars	Formula
ACS --> Average Cost of Supply (in Rs/ kWh)	Total Expenditure (Amount)/ Total Input Energy (units)*
ARR --> Average Realisable Revenue (Subsidy received basis) (in Rs/ kWh)	Revenue from Sale of Power (on Subsidy Received basis)** + Other income/ Total Input Energy (units)
Note: *Total Input Energy here means Input Energy before making any adjustments like Transmission Loss, Inter-state sale or Energy Traded **Revenue from sale of power excluding subsidy booked plus subsidy received	

**Addendum to ACS-ARR Gap calculation methodology**

- Average Cost of Supply (ACS) and Average Realizable Revenue (ARR) terms may be differentiated from similar terms used by Regulatory Commissions such as Aggregate Cost of Supply and Annual Revenue Requirement.
- The ACS-ARR Gap is to be calculated on the basis of the annual accounts.
- Further, ACS –ARR Gap (in case of "Gap-Subsidy Received Basis") calculation will be based on total revenue subsidy received during the year including arrears, if any, without any restrictions.

**(iii) Scoring Methodology**

S.No.	Parameters	Score
<b>1</b>	<b>Operational &amp; Reform Parameters</b>	<b>43</b>
<b>I.</b>	<b>Operational related</b>	<b>37</b>
<b>i)</b>	<b>AT&amp;C Losses</b>	<b>28</b>
<b>a</b>	<b>AT&amp;C Loss Levels</b>	<b>15</b>
	<b>Marks for absolute levels</b>	
	Less than or equal to 15%	15
	Between 15 to 30%	Proportionate
	More than 30%	0
	if more than 30%	-1
	(0.05 mark is reduced for every increase in ratio by 1% subject to a limit of -1)	
	<b>Marks for Improvement (applicable when AT&amp;C Losses is less than 35%)</b>	
<b>A)</b>	<b>Improvement in AT&amp;C Loss levels</b>	
	$\{\text{AT\&C in FY(T-2)} - \text{AT\&C in FY(T-1)}\} / \{\text{AT\&C in FY(T-2)} - \text{Benchmark AT\&C}\}$	
	Where, AT&C = AT&C Losses in %, Benchmark AT&C = 25%, T = Current Year	
	If the above ratio $\geq 1$	6
	If the above ratio is between 0 to 1	Proportionate
	If the above ratio $\leq 0$	0
<b>B)</b>	<b>Improvement in AT&amp;C Loss Levels (consistently)</b>	
	Yearly variation (on absolute basis) in AT&C Losses for the past 3 years is calculated	
	If all the variations are positive i.e. consistently improving	2
	If any variation is negative	0
	<b>Marks for deterioration (applicable when AT&amp;C Losses is more than 30%)</b>	
	Increase by 20% or more	-3
	Increase by 10% up to 20%	-2
	Increase by 5% up to 10%	-1
	<i>Note 1 : Higher of the two marks (either Absolute Marks or Marks for Improvement ) shall be assigned</i>	
	<i>Note 2 : if Absolute Marks <math>&lt; 0</math> and Marks for Improvement = 0, then Absolute marks shall be assigned</i>	
<b>b</b>	<b>Billing Efficiency</b>	<b>8</b>
	<b>Marks for absolute level</b>	
	More than or equal to 90%	8
	Between 82 to 90%	Proportionate
	Equal to 82%	0
	<b>Marks for Improvement</b>	
	$\{\text{BE in FY(T-2)} - \text{BE in FY(T-1)}\} / \{\text{BE in FY(T-2)} - \text{Benchmark BE}\}$	
	Where, BE = Billing Efficiency, Benchmark BE = 90%, T = Current Year	
	If the above ratio $\geq 1$	8
	If the above ratio is between 0 to 1	Proportionate
	If the above ratio $\leq 0$	0
	<i>Note : Higher of the two marks (either Absolute Marks or Marks for Improvement ) shall be assigned</i>	
<b>c</b>	<b>Collection Efficiency</b>	<b>5</b>
	<b>Marks for absolute level</b>	
	More than or equal to 100%	5
	Between 90 to 100%	Proportionate
<b>ii)</b>	<b>Power Purchase</b>	<b>3</b>





S.No.	Parameters	Score
<b>1</b>	<b>Operational &amp; Reform Parameters</b>	<b>43</b>
<b>a</b>	<b>Power purchase planning &amp; procurement</b>	<b>1</b>
	More than 90% power purchase through long term PPA	1
	Between 85% to 90% power purchase through long term PPA	0.5
<b>b</b>	<b>Cost Competitiveness of Power Purchase</b>	<b>2</b>
	$\{\text{ACP in FY(T-2)} - \text{ACP in FY(T-1)}\} / \{\text{ACP in FY(T-2)} - \text{Benchmark ACP}\}$	
	Where, ACP= Average Cost of Power Purchase, Benchmark ACP= Rs 4.71/unit, T = Current Year	
	If the above ratio $\geq 1$	2
	If the above ratio is between 0 to 1	Proportionate
	If the above ratio $\leq 0$	0
<b>Notes:</b> *In all cases where ACP in FY T-1 $\leq$ Rs. 4.71/unit, full marks awarded regardless of any improvement or deterioration vis-à-vis the previous year.		
**In all cases except * above, any deterioration in ACP in FY T-1 vis-à-vis the previous year, zero marks are awarded		
***In all cases except * and ** above, marks awarded as per formula		
@ wherever power purchases are managed centrally, ACP of the centralized purchases would be evaluated and applicable marks be assigned uniformly to the respective state utilities		
<b>iii)</b>	<b>Cost Efficiency</b>	<b>6</b>
<b>a</b>	<b>O&amp;M &amp; Adm. costs (Excl. Employee cost) / Revenue (Sale of Power+Revenue subsidy)</b>	<b>3</b>
	Between 1% to 2%	3
	Between 2% to 3%	2
	Between 3% to 4%	1
	More than 4%	0
<b>b</b>	<b>Employee cost / Revenue (Sale of Power+Revenue subsidy)</b>	<b>3</b>
	<i>For Discoms</i>	
	Between 0% to 5%	3
	Between 5% to 7.5%	2
	Between 7.5% to 10%	1
	More than 10%	0
	<i>For Gedcos</i>	
	Between 0% to 7%	3
	Between 7% to 9%	2
	Between 9% to 12%	1
	More than 12%	0
<b>II.</b>	<b>Reform related</b>	<b>6</b>
<b>iv)</b>	<b>RPO Compliance</b>	<b>2</b>
	If target achieved for RPO (sourced from SERC/MNRE/Utilities)	2
	If target partially achieved	Proportionate
<b>v)</b>	<b>Corporate Governance</b>	<b>4</b>
<b>a</b>	Board of Unlisted Discoms to have 1/3 of Members as Independent Directors	1
<b>b</b>	Operational Audit Committee	1
<b>c</b>	Exclusive MD and DF	1
<b>d</b>	Unqualified Statutory Auditor's report on Internal Financial Control*	1
<b>e</b>	Availability of quarterly accounts duly approved by BoD*	
<b>f</b>	Internal Audit Reporting to Audit Committee/Board- In Subsequent quarter from date of Internal Audit report*	
*1 Mark for complying with atleast one of the parameters d to f.		