Amendment – IX dated 29.10.2020 on the Request for Proposal and Transmission Service Agreement issued for selection of bidder as Transmission Service Provider to establish "Transmission system strengthening for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II –Part A" through tariff based competitive bidding process

<table>
<tr><th>Sl. No.</th><th>Ref. Clause</th><th>Existing Clause</th><th>New/Revised Clause</th></tr>
<tr><td>1.</td><td>Point No. 2, Clause 1.2 of RFP & Schedule -2 of TSA</td><td>
Scope of Work
<table>
<tr><th>S.No</th><th colspan="2">Transmission System for Transmission System Strengthening Scheme for Evacuation of power from solar energy zones in Rajasthan (8.1 GW) under phase II – Part A</th></tr>
<tr><th></th><th>Name of Transmission Element</th><th>Scheduled COD in months from Effective Date</th></tr>
<tr><td>1.</td><td>Establishment of 400/220 kV, 4x500 MVA at Ramgarh – II (Fatehgarh-III) PS with 420kV (2x125 MVAR) bus reactor
400/220kV, 500 MVA ICT – 4
400kV ICT bays -4
220kV ICT bays – 4
400kV line bays – 4
220kV line bays – 7
125 MVAr, 420 kV bus reactor-2
420kV reactor bay – 2
Future provisions:
Space for
765/400kV ICTs along with bays: 8 nos.
765kV line bay along with switchable line reactor: 8 nos.
765kV Bus Reactor along with bays: 3 nos.
400/220 kV ICTs along with bays: 8 nos.
400 kV line bays along with switchable line reactor: 10 nos.
400kV Bus Reactor along with bays: 2 nos.
400kV Sectionalizer bay: 2 nos.
220 kV line bays: 15 nos.</td><td>18 months</td></tr>
</table>
</td><td>
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</table>

	220kV sectionalizer bay: 2 nos	
2.	Ramgarh-II (Fatehgarh-III) PS – Fatehgarh- II PS 400kV D/c line (Twin HTLS*)	18 months
3.	2 no. of 400 kV line bays at Fatehgarh- II for Ramgarh – II (Fatehgarh-III) PS– Fatehgarh- II PS 400kV D/c line	18 months
4.	Ramgarh –II (Fatehgarh-III) PS– Jaisalmer-II (RVPN) 400 kV D/c line (Twin HTLS*)	18 months
5.	2 no. of 400 kV line bays each at Jaisalmer- II for Ramgarh – II (Fatehgarh-III) - Jaisalmer-II 400kV D/c line	18 months

*with minimum capacity of 2100 MVA on each circuit at nominal voltage

Note:

(i) Powergrid to provide space for 2 no of 400 kV bays at Fatehgarh-II PS

(ii) M/s RVPNL to provide space for 2 no of 400 kV bays at Jaisalmer-II S/s (Existing Substation inputs enclosed at Appendix A)

(iii) TSP shall maintain provision & space for Bus Sectionalizer bays such that:

a. 220kV bays **for 3 nos.** of 500 MVA, 400/220kV Transformers (Present+ Future) are on each Bus Section.

b. 6 nos. of 220kV line bays (Present + Future) are one Bus Section and 5 nos. of 220kV line bays (Present + Future) are on another Bus Section.

c. 1 no. of 220kV Transfer Bus Coupler Bay & 1 no. of 220kV Bus Coupler Bay are on each bus section.

	220kV sectionalizer bay: 4 nos (each for main bus-I & main bus –II in each section)	
2.	Ramgarh-II (Fatehgarh-III) PS – Fatehgarh- II PS 400kV D/c line (Twin HTLS*)	18 months
3.	2 no. of 400 kV line bays at Fatehgarh- II for Ramgarh – II (Fatehgarh-III) PS– Fatehgarh- II PS 400kV D/c line	18 months
4.	Ramgarh –II (Fatehgarh-III) PS– Jaisalmer-II (RVPN) 400 kV D/c line (Twin HTLS*)	18 months
5.	2 no. of 400 kV line bays each at Jaisalmer- II for Ramgarh – II (Fatehgarh-III) - Jaisalmer-II 400kV D/c line	18 months

*with minimum capacity of 2100 MVA on each circuit at nominal voltage

Note:

(i) Powergrid to provide space for 2 no of 400 kV bays at Fatehgarh-II PS

(ii) M/s RVPNL to provide space for 2 no of 400 kV bays at Jaisalmer-II S/s (Existing Substation inputs enclosed at Appendix A)

(iii) TSP shall maintain provision & space for Bus Sectionalizer bays such that:

a. 220kV bays for **4 nos.** of 500 MVA, 400/220kV Transformers are on each Bus Section.

b. **8 nos. of 220kV line bays (Present + Future) are Bus Section-I and 7 nos. each of 220kV line bays (Future) are on another Bus Section-II & III**.

c. 1 no. of 220kV Transfer Bus Coupler Bay & 1 no. of 220kV Bus Coupler Bay are on each bus section.

<table>
<tr>
<td>2.</td>
<td>Clause 2.6.1 of RFP & Schedule -3 of TSA</td>
<td>……..
<table>
<tr><th>Sr. No</th><th>Name of the Transmission Element</th><th>Scheduled COD in months from Effective Date</th><th>Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project</th><th>Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element</th></tr>
<tr><td>1.</td><td>Establishment of 400/220 kV, 4x500 MVA at Ramgarh – II (Fatehgarh-III) PS with 420kV (2x125 MVAR) bus reactor</td><td rowspan="3">18 months</td><td rowspan="3">100%</td><td rowspan="3">Elements marked at Sl. No. 1 to 5 are required to be commissioned simultaneously as their utilization is dependent on commissioning of each other.</td></tr>
<tr><td>2.</td><td>Ramgarh-II (Fatehgarh-III) PS – Fatehgarh- II PS 400kV D/c line (Twin HTLS*)</td></tr>
<tr><td>3.</td><td>2 no. of 400 kV line bays at Fatehgarh- II for Ramgarh – II (Fatehgarh-III) PS– Fatehgarh- II</td></tr>
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<tr><td>3.</td><td>2 no. of 400 kV line bays at Fatehgarh- II for Ramgarh – II (Fatehgarh-III) PS–</td></tr>
</table>
</td>
</tr>
</table>

			PS 400kV D/c line					Fatehgarh- II PS 400kV D/c line		
		4.	Ramgarh –II (Fatehgarh-III) PS– Jaisalmer-II (RVPN) 400 kV D/c line (Twin HTLS*)				4.	Ramgarh –II (Fatehgarh-III) PS– Jaisalmer-II (RVPN) 400 kV D/c line (Twin HTLS*)		
		5.	2 no. of 400 kV line bays each at Jaisalmer- II for Ramgarh – II (Fatehgarh-III) - Jaisalmer-II 400kV D/c line				5.	2 no. of 400 kV line bays each at Jaisalmer- II for Ramgarh – II (Fatehgarh-III) - Jaisalmer-II 400kV D/c line		
		*with minimum capacity of 2100 MVA on each circuit at nominal voltage The payment of Transmission Charges for any Element irrespective of its successful commissioning on or before its Scheduled COD shall only be considered after successful commissioning of the Element(s) which are pre-required for declaring the commercial operation of such Element as mentioned in the above table. Scheduled COD for overall Project: 18 months from Effective Date.				*with minimum capacity of 2100 MVA on each circuit at nominal voltage The payment of Transmission Charges for any Element irrespective of its successful commissioning on or before its Scheduled COD shall only be considered after successful commissioning of the Element(s) which are pre-required for declaring the commercial operation of such Element as mentioned in the above table. Scheduled COD for overall Project: 18 months from Effective Date.				

3. Point No. 8 of Annexure 8 of RFP

……..

Sr. No	Name of the Transmission Element	Scheduled COD in months from Effective Date	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element
1.	Establishment of 400/220 kV, 4x500 MVA at Ramgarh – II (Fatehgarh-III) PS with 420kV (2x125 MVAR) bus reactor	18 months	100%	Elements marked at Sl. No. 1 to 5 are required to be commissioned simultaneously as their utilization is dependent on commissioning of each other.
2.	Ramgarh-II (Fatehgarh-III) PS – Fatehgarh- II PS 400kV D/c line (Twin HTLS*)			
3.	2 no. of 400 kV line bays at Fatehgarh- II for Ramgarh – II (Fatehgarh-III) PS– Fatehgarh- II			

……..

Sr. No	Name of the Transmission Element	Scheduled COD in months from Effective Date	Percentage of Quoted Transmission Charges recoverable on Scheduled COD of the Element of the Project	Element(s) which are pre-required for declaring the commercial operation (COD) of the respective Element
1.	Establishment of 400/220 kV, 4x500 MVA at Ramgarh – II (Fatehgarh-III) PS with 420kV (2x125 MVAR) bus reactor	18 months	100%	Elements marked at Sl. No. 1 to 5 are required to be commissioned simultaneously as their utilization is dependent on commissioning of each other.
2.	Ramgarh-II (Fatehgarh-III) PS – Fatehgarh- II PS 400kV D/c line (Twin HTLS*)			
3.	2 no. of 400 kV line bays at Fatehgarh- II for Ramgarh – II (Fatehgarh-III) PS–			

			PS 400kV D/c line					Fatehgarh- II PS 400kV D/c line		
		4.	Ramgarh –II (Fatehgarh-III) PS– Jaisalmer-II (RVPN) 400 kV D/c line (Twin HTLS*)				4.	Ramgarh –II (Fatehgarh-III) PS– Jaisalmer-II (RVPN) 400 kV D/c line (Twin HTLS*)		
		5.	2 no. of 400 kV line bays each at Jaisalmer- II for Ramgarh – II (Fatehgarh-III) - Jaisalmer-II 400kV D/c line				5.	2 no. of 400 kV line bays each at Jaisalmer- II for Ramgarh – II (Fatehgarh-III) - Jaisalmer-II 400kV D/c line		
		*with minimum capacity of 2100 MVA on each circuit at nominal voltage We agree that the payment of Transmission Charges for any Element irrespective of its successful commissioning on or before its Scheduled COD shall only be considered after the successful commissioning of Element(s) which are pre - required for declaring the commercial operation of such Element as mentioned in the above table. Scheduled COD for the Project: 18 months from the Effective Date					*with minimum capacity of 2100 MVA on each circuit at nominal voltage We agree that the payment of Transmission Charges for any Element irrespective of its successful commissioning on or before its Scheduled COD shall only be considered after the successful commissioning of Element(s) which are pre - required for declaring the commercial operation of such Element as mentioned in the above table. Scheduled COD for the Project: 18 months from the Effective Date		

<table>
<tr><td>4.</td><td>Specification for Transmission Line</td><td>Pile foundation shall be used for towers located in the river bed, or on river banks or in areas where river flow or river course is anticipated to change based on previous years' hydrology data.</td><td>Pile type foundation shall be used for towers located in river or creek bed or on bank of river having scourable strata or in areas where river flow or change in river course is anticipated, based on detailed soil investigation and previous years' maximum flood discharge of the river, maximum velocity of water, highest flood level, scour depth & anticipated change in course of river based on river morphology data of at least past 20 years to ensure availability and reliability of the transmission line.</td></tr>
<tr><td>5.</td><td>Specific technical requirements for Substation</td><td>2.1. 400/220kV, 3-Phase Transformer
……
For 765/400/33kV Transformers: HV bushing shall be OIP (Oil Impregnated Paper) type, IV & LV bushing shall be OIP (Oil Impregnated Paper)/RIP (Resin Impregnated Paper)/ RIS (Resin Impregnated Synthetic). For transformer other than 765/400/33kV transformers: the 400kV bushing shall be RIP (Resin Impregnated Paper)/ RIS (Resin Impregnated Synthetic).
……</td><td>2.1. 400/220kV, 3-Phase Transformer
……
HV bushings shall be condenser Oil Impregnated Paper (OIP) type. IV and LV bushings shall be of OIP/RIP (resin impregnated paper condenser) / RIS (Resin Impregnated Synthetic) oil communicating type with porcelain housing.
……</td></tr>
<tr><td>6.</td><td>Specific technical requirements for Substation</td><td>2.2 420 kV, 3-Phase Shunt reactor
……
<table><tr><th>Sl. No.</th><th>Description</th><th>Unit</th><th>Technical Parameters</th></tr><tr><td>22 vi)</td><td>Minimum creepage distance</td><td></td><td>(Specific Creepage Distance: of 25mm/kV corresponding to highest line to line voltage)</td></tr><tr><td></td><td>Line bushing</td><td>mm</td><td>10500</td></tr><tr><td></td><td>Neutral bushing</td><td>mm</td><td>3625</td></tr></table>……</td><td>2.2 420 kV, 3-Phase Shunt reactor
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<tr><td>7.</td><td>Content</td><td>Schedule: 9 Appendix III to V of Central Electricity Regulatory</td><td><u>Schedule: 9 Appendix II & III of Central Electricity Regulatory</u></td></tr>
</table>

Amendment – IX dated 29.10.2020 on the Request for Proposal and Transmission Service Agreement issued for selection of bidder as Transmission Service Provider to establish "Transmission system strengthening for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II –Part A" through tariff based competitive bidding process

	s Table of TSA	**Commission (Terms and Conditions of Tariff) Regulations, 2014**	**Commission (Terms and Conditions of Tariff) Regulations, 2019**
8.	**Article:1 of TSA Definition**	"Availability" in relation to the Project or in relation to any Element of the Project, for a given period shall mean the time in hours during that period the Project is capable to transmit electricity at its Rated Voltage and shall be expressed in percentage of total hours in the given period and shall be calculated as per the procedure contained in **Appendix –III to Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014** attached herewith in Schedule 9;	**"Availability"** in relation to the Project or in relation to any Element of the Project, for a given period shall mean the time in hours during that period the Project is capable to transmit electricity at its Rated Voltage and shall be expressed in percentage of total hours in the given period and shall be calculated as per the procedure contained in **Appendix –II to Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019** attached herewith in Schedule 9;
9.	**Article:8 of TSA Availability**	8.1 Calculation of Availability for the Elements and for the Project, as the case may be, shall be as per **Appendix III of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014**, as applicable seven (7) days prior to the Bid Deadline and as appended in Schedule 9	8.1 Calculation of Availability for the Elements and for the Project, as the case may be, shall be as per **Appendix –II of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019**, as applicable seven (7) days prior to the Bid Deadline and as appended in Schedule 9
10	**Article:11 of TSA Force Majeure**	**11.7 Available Relief for a Force Majeure Event** **a…….** **b……..** **c.** For the avoidance of doubt, it is clarified that the computation of Availability of the Element(s) under outage due to Force Majeure Event, as per Article 11.3 affecting the TSP shall be as per **Appendix III to the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations 2014,** as on seven (7) days prior to the Bid Deadline. For the event(s) for which the Element(s) is/are deemed to be available as per **Appendix III to the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations 2014,** then only the Non Escalable Transmission Charges, as applicable to such Element(s) in the relevant Contract Year, shall be paid by the Long Term Transmission Customers as per Schedule 5, for the duration of such event(s).	**11.7 Available Relief for a Force Majeure Event** **a…….** **b……..** **c.** For the avoidance of doubt, it is clarified that the computation of Availability of the Element(s) under outage due to Force Majeure Event, as per Article 11.3 affecting the TSP shall be as per **Appendix II to the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations 2019**, as on seven (7) days prior to the Bid Deadline. For the event(s) for which the Element(s) is/are deemed to be available as per **Appendix II to the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations 2019,** then only the Non Escalable Transmission Charges, as applicable to such Element(s) in the relevant Contract Year, shall be paid by the Long Term Transmission Customers as per Schedule 5, for the duration of such event(s).

Amendment – IX dated 29.10.2020 on the Request for Proposal and Transmission Service Agreement issued for selection of bidder as Transmission Service Provider to establish "Transmission system strengthening for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II –Part A" through tariff based competitive bidding process

11	**Schedule:5 of TSA Computation of Transmission Charges**	**1.1 g)** The Availability shall be calculated as per the procedure specified in **Appendix III of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014** as notified by CERC and as attached herewith.	**1.1 g)** The Availability shall be calculated as per the procedure specified in **Appendix II of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations 2019** as notified by CERC and as attached herewith.
12	**Schedule:9 of TSA**	**Appendix III of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014**	**Appendix II of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations 2019 as Attached at Annex-A herewith.**

Annex-A

Appendix II of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations 2019

Procedure for Calculation of Transmission System Availability Factor for a Month

1. Transmission system availability factor for nth calendar month ("TAFPn") shall be calculated by the respective transmission licensee, got verified by the concerned Regional Load Dispatch Centre (RLDC) and certified by the Member-Secretary, Regional Power Committee of the region concerned, separately for each AC and HVDC transmission system and grouped according to sharing of transmission charges. In case of AC system, transmission System Availability shall be calculated separately for each Regional Transmission System and inter-regional transmission system. In case of HVDC system, transmission System Availability shall be calculated on consolidate basis for all inter-state HVDC system.

2. Transmission system availability factor for nth calendar month ("TAFPn") shall be calculated by consider following:

   i) **AC transmission lines:** Each circuit of AC transmission line shall be considered as one element;
   ii) **Inter-Connecting Transformers (ICTs):** Each ICT bank (three single phase transformer together) shall form one element;
   iii) **Static VAR Compensator (SVC):** SVC along with SVC transformer shall form one element;
   iv) **Bus Reactors or Switchable line reactors:** Each Bus Reactors or Switchable line reactors shall be considered as one element;
   v) **HVDC Bi-pole links:** Each pole of HVDC link along with associated equipment at both ends shall be considered as one element;
   vi) **HVDC back-to-back station:** Each block of HVDC back-to-back station shall be considered as one element. If associated AC line (necessary for transfer of inter-regional power through HVDC back-to-back station) is not available, the HVDC back-to-back station block shall also be considered as unavailable;
   vii) **Static Synchronous Compensation ("STATCOM"):** Each STATCOM shall be considered as separate element.

3. The Availability of AC and HVDC portion of Transmission system shall be calculated by considering each category of transmission elements as under:

TAFMn (in %) for AC system:

$$= \frac{o \text{ X } AVo)+(p \text{ X } AVp) + (q \text{ X } AVq) + (r \text{ X } AVr)+(u \text{ X } AVu)}{(o + p + q + r+u)} \text{x}100$$

Where,

o	=	Total number of AC lines.
AVo	=	Availability of o number of AC lines.
p	=	Total number of bus reactors/switchable line reactors
AVp	=	Availability of p number of bus reactors/switchable line reactors
q	=	Total number of ICTs.
AVq	=	Availability of q number of ICTs.
r	=	Total number of SVCs.
AVr	=	Availability of r number of SVCs
u	=	Total number of STATCOM.
AVu	=	Availability of u number of STATCOMs

TAFMn (in %) for HVDC System:

$$= \frac{\sum_{x=1}^{s} Cxbp(act) \text{ X } AVxbp + \sum_{y=1}^{t} Cy(act)btb \text{ X } AVybtb}{\sum_{x=1}^{s} Cxbp + \sum_{y=1}^{t} Cybtb} \text{ x } 100$$

Where

Cxbp(act)	=	Total actual operated capacity of x^{th} HVDC pole
Cxbp	=	Total rated capacity of x^{th} HVDC pole

AVxbp	=	Availability of x^{th} HVDC pole
Cybtb(act)	=	Total actual operated capacity of y^{th} HVDC back-to-back station block
Cybtb	=	Total rated capacity of y^{th} HVDC back-to-back station block
AVybtb	=	Availability of y^{th} HVDC back-to-back station block
s	=	Total no of HVDC poles
t	=	Total no of HVDC Back to Back blocks

3. The availability for each category of transmission elements shall be calculated based on the weightage factor, total hours under consideration and non-available hours for each element of that category. The formulae for calculation of Availability of each category of the transmission elements are as per **Appendix-III**. The weightage factor for each category of transmission elements shall be considered asunder:

(a) For each circuit of AC line – Number of sub-conductors in the line multiplied by ckt-km;
(b) For each HVDC pole- The rated MW capacity x ckt-km;
(c) For each ICT bank – The rated MVA capacity;
(d) For SVC- The rated MVAR capacity (inductive and capacitive);
(e) For Bus Reactor/switchable line reactors – The rated MVAR capacity;
(f) For HVDC back-to-back station connecting two Regional grids- Rated MW capacity of each block; and
(g) For STATCOM – Total rated MVAR Capacity.

4. The transmission elements under outage due to following reasons shall be deemed to be available:

i. Shut down availed for maintenance of another transmission scheme or construction of new element or renovation/upgradation/additional capitalization in existing system approved by the Commission. If the other transmission scheme belongs to the transmission licensee, the Member Secretary, RPC may restrict the deemed availability period to that considered reasonable by him for the work involved. In case of dispute regarding deemed availability, the matter may be referred to Chairperson, CEA within 30 days.

ii. Switching off of a transmission line to restrict over voltage and manual tripping of switched reactors as per the directions of concerned RLDC.

5. For the following contingencies, outage period of transmission elements, as certified by the Member Secretary, RPC, shall be excluded from the total time of the element under period of consideration for the following contingencies:

i) Outage of elements due to acts of God and force majeure events beyond the control of the transmission licensee. However, whether the same outage is due to force majeure (not design failure) will be verified by the Member Secretary, RPC.A reasonable restoration time for the element shall be considered by Member Secretary, RPC and any additional time taken by the transmission licensee for restoration of the element beyond the reasonable time shall be treated as outage time attributable to the transmission licensee. Member Secretary, RPC may consult the transmission licensee or any expert for estimation of reasonable restoration time. Circuits restored through ERS (Emergency Restoration System) shall be considered as available;

ii) Outage caused by grid incident/disturbance not attributable to the transmission licensee, e.g. faults in substation or bays owned by other agency causing outage of the transmission licensee's elements, and tripping of lines, ICTs, HVDC, etc. due to grid disturbance. However, if the element is not restored on receipt of direction from RLDC while normalizing the system following grid incident/disturbance within reasonable time, the element will be considered not available for the period of outage after issuance of RLDC's direction for restoration;

Provided that in case of any disagreement with the transmission licensee regarding reason for outage, same may be referred to Chairperson, CEA within 30 days. The above need to be resolved within two months:

Provided further that where there is a difficulty or delay beyond sixty days, from the incidence in finalizing the recommendation, the Member Secretary of concerned RPC shall allow the outage hours on provisional basis till the final view.

6. Time frame for certification of transmission system availability: (1) Following schedule shall be followed for certification of availability by Member Secretary of concerned RPC:

- Submission of outage data by Transmission Licensees to RLDC/ constituents
  - By 5th of the following month;
- Review of the outage data by RLDC / constituents and forward the same to respective RPC – by 20th of the month;
- Issue of availability certificate by respective RPC – by 3rd of the next month.

Appendix-III

FORMULAE FOR CALCULATION OF AVAILABILITY OF EACH CATEGORY OF TRANSMISSION ELEMENTS

For AC transmission system

AVo(Availability of o no. of AC lines) = $\frac{\sum_{i=1}^{o} Wi(Ti - TNAi)/Ti}{\sum_{i=1}^{o} Wi}$

AVq(Availability of q no. of ICTs) = $\frac{\sum_{k=1}^{q} Wk(Tk - TNAk)/Tk}{\sum_{k=1}^{q} Wk}$

AVr(Availability of r no. of SVCs) = $\frac{\sum_{l=1}^{r} Wl(Tl - TNAl)/Tl}{\sum_{l=1}^{r} Wl}$

AVp(Availability of p no. of Switched Bus reactors) = $\frac{\sum_{m=1}^{p} Wm(Tm - TNAm)/Tm}{\sum_{m=1}^{p} Wm}$

AVu(Availability of u no. of STATCOMs) = $\frac{\sum_{n=1}^{u} Wn(Tn - TNAn)/Tn}{\sum_{n=1}^{u} Wn}$

AV_{xbp}(Availability of an individual HVDC pole) = $\frac{(Tx - TN\quad)}{Tx}$

AV_{ybtb} (Availability of an individualHVDC Back-to-back Blocks) $= \frac{(Ty - TNAy)}{Ty}$

For HVDC transmission system

For the new HVDC commissioned but not completed twelve months;

For first 12 months: [(AV_{xbp} or AV_{ybtb})x95%/85%], subject to ceiling of 95%.

Where,

o	=	Total number of AC lines;
AVo	=	Availability of o number of AC lines;
p	=	Total number of bus reactors/switchable line reactors;
AVp	=	Availability of p number of bus reactors/switchable line reactors;
q	=	Total number of ICTs;
AVq	=	Availability of q number of ICTs;
r	=	Total number of SVCs;
AVr	=	Availability of r number of SVCs;.
U	=	Total number of STATCOM;

AVu	=	Availability of u number of STATCOMs;
W*i*	=	Weightage factor for *i*th transmission line;
W*k*	=	Weightage factor for *k*th ICT;
W*l*	=	Weightage factors for inductive & capacitive operation of *l*th SVC;
Wm	=	Weightage factor for mth bus reactor;
Wn	=	Weightage factor for nth STATCOM.

T*i*, , T*k*, T*l*, , - T*m*, T*n*, T*x*, T*y*	The total hours of ith AC line, kth ICT, lth SVC, *m*th Switched Bus Reactor & nth STATCOM, xth HVDC pole, yth HVDC back-to-back blocks during the period under consideration (excluding time period for outages not attributable to transmission licensee for reasons given in Para 5of the procedure)
$T_{NA}i$, $T_{NA}k$ - $T_{NA}l$, $T_{NA}m$, $T_{NA}n$, T_{NAx}, $T_{NA}y$	The non-availability hours (excluding the time period for outages not attributable to transmission licensee taken as deemed availability as per Para 5 of the procedure) for ith AC line, *k*th ICT, lth SVC , *m*th Switched Bus Reactor, nth STATCOM, xth HVDC pole and ythHVDC back-to-back block .