

Amendment - XII dated 15.10.2020 on the Request for Proposal and Transmission Service Agreement issued for selection of bidder as Transmission Service Provider to establish "Transmission System Strengthening Scheme for Evacuation of power from Solar Energy Zones in Rajasthan (8.1 GW) under Phase II (Part C)" through tariff based competitive bidding process

Sl. No.	Clause No.	Existing Clause	New / Revised Clause																
1.	Scope of Work	<table border="1"> <thead> <tr> <th>S.No</th> <th>Transmission System for Transmission Scheme for Solar Transmission System for Transmission System Strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II (Part C)</th> <th>Name of Transmission Element</th> <th>Scheduled COD in months from Effective Date</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Establishment of 765/400 kV, 2x1500 MVA at Sikar - II with 400kV (1x125 MVAR) and 765 kV (2x330 MVAR) bus reactor. 765/400 kV, 1500 MVA ICT - 2 765/400 kV, 500 MVA spare single phase ICT-1 765 kV ICT bays - 2 400 kV ICT bays - 2 765 kV line bays -2 400 kV line bays- 2 125 MVAR, 420 kV bus reactor-1 420 kV reactor bay -1 330 MVAR, 765 kV bus reactor- 2(6x110 MVAR) 765 kV reactor bay- 2 110 MVAR, 765 kV, 1 ph Reactor (spare unit) -1 (common spare unit for banks of</td> <td></td> <td>18 months</td> </tr> </tbody> </table>	S.No	Transmission System for Transmission Scheme for Solar Transmission System for Transmission System Strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II (Part C)	Name of Transmission Element	Scheduled COD in months from Effective Date	1.	Establishment of 765/400 kV, 2x1500 MVA at Sikar - II with 400kV (1x125 MVAR) and 765 kV (2x330 MVAR) bus reactor. 765/400 kV, 1500 MVA ICT - 2 765/400 kV, 500 MVA spare single phase ICT-1 765 kV ICT bays - 2 400 kV ICT bays - 2 765 kV line bays -2 400 kV line bays- 2 125 MVAR, 420 kV bus reactor-1 420 kV reactor bay -1 330 MVAR, 765 kV bus reactor- 2(6x110 MVAR) 765 kV reactor bay- 2 110 MVAR, 765 kV, 1 ph Reactor (spare unit) -1 (common spare unit for banks of		18 months	<table border="1"> <thead> <tr> <th>S.No</th> <th>Transmission System for Transmission Scheme for Solar Transmission System for Transmission System Strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II (Part C)</th> <th>Name of Transmission Element</th> <th>Scheduled COD in months from Effective Date</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Establishment of 765/400 kV, 2x1500 MVA at Sikar - II with 400kV (1x125 MVAR) and 765 kV (2x330 MVAR) bus reactor. 765/400 kV, 1500 MVA ICT - 2 765/400 kV, 500 MVA spare single phase ICT-1 765 kV ICT bays - 2 400 kV ICT bays - 2 765 kV line bays -2 400 kV line bays- 2 125 MVAR, 420 kV bus reactor-1 420 kV reactor bay -1 330 MVAR, 765 kV bus reactor- 2(6x110 MVAR) 765 kV reactor bay- 2 110 MVAR, 765 kV, 1 ph Reactor (spare unit) -1 (common spare unit for banks of</td> <td></td> <td>18 months</td> </tr> </tbody> </table>	S.No	Transmission System for Transmission Scheme for Solar Transmission System for Transmission System Strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II (Part C)	Name of Transmission Element	Scheduled COD in months from Effective Date	1.	Establishment of 765/400 kV, 2x1500 MVA at Sikar - II with 400kV (1x125 MVAR) and 765 kV (2x330 MVAR) bus reactor. 765/400 kV, 1500 MVA ICT - 2 765/400 kV, 500 MVA spare single phase ICT-1 765 kV ICT bays - 2 400 kV ICT bays - 2 765 kV line bays -2 400 kV line bays- 2 125 MVAR, 420 kV bus reactor-1 420 kV reactor bay -1 330 MVAR, 765 kV bus reactor- 2(6x110 MVAR) 765 kV reactor bay- 2 110 MVAR, 765 kV, 1 ph Reactor (spare unit) -1 (common spare unit for banks of		18 months
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			Bus Reactor & Line Reactor) Future Provision Space for- 765/400kV ICT along with bays-2 765kV line bays along with switchable line reactors- 10 400kV line bays along with switchable line reactor- 6 400/220kV ICT along with bays- 4 220kV bays- 8 400kV bus reactor- 2		Bus Reactor & Line Reactor) Future Provision Space for- 765/400kV ICT along with bays-2 765kV line bays along with switchable line reactors- 10 400kV line bays along with switchable line reactor- 6 400kV bus reactor- 2
		2.	Bhadla-II PS – Sikar-II 765kV D/c line	2.	Bhadla-II PS – Sikar-II 765kV D/c line
		3.	2 no. of 765 kV line bays at Bhadla- II for Bhadla-II PS – Sikar-II 765kV D/c line -765 kV line bays -2	3.	2 no. of 765 kV line bays at Bhadla- II for Bhadla-II PS – Sikar-II 765kV D/c line -765 kV line bays -2
		4.	1x330 MVar switchable line reactor for each circuit at Sikar-II end of Bhadla-II PS – Sikar-II 765kV D/c line. -330MVar, 765 kV reactor- 2 -Switching equipment for 765 kV reactor - 2	4.	1x330 MVar switchable line reactor for each circuit at Sikar-II end of Bhadla-II PS – Sikar-II 765kV D/c line. -330MVar, 765 kV reactor- 2 -Switching equipment for 765 kV reactor - 2
		5.	1x240MVar switchable line reactor for each circuit at Bhadla-II end of Bhadla-II PS – Sikar-II 765kV D/c line -240 MVar, 765 kV reactor-2 -Switching equipment for 765 kV reactor - 2	5.	1x240MVar switchable line reactor for each circuit at Bhadla-II end of Bhadla-II PS – Sikar-II 765kV D/c line -240 MVar, 765 kV reactor-2 -Switching equipment for 765 kV reactor - 2
		6.	Sikar-II – Neemrana 400kV D/c line (Twin HTLS*)	6.	Sikar-II – Neemrana 400kV D/c line (Twin HTLS*)
		7.	2 no. of 400 kV line bays at Neemrana for Sikar-II – Neemrana 400kV D/c line (Twin HTLS*) - 400 kV line bays - 2	7.	2 no. of 400 kV line bays at Neemrana for Sikar-II – Neemrana 400kV D/c line (Twin HTLS*) - 400 kV line bays - 2
		*with minimum capacity of 2100 MVA on each circuit at nominal		*with minimum capacity of 2100 MVA on each circuit at nominal voltage	

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		<p>voltage</p> <p>Note:</p> <p>i. POWERGRID to provide space for 2 no of 765 kV bays at Bhadla-II and space for 2 no of switchable line reactors at Bhadla-II substation.</p> <p>ii. POWERGRID to provide space for 2 no of 400 kV bays at Neemrana.</p> <p>iii. TSP shall install the 765kV Line Reactor banks at Bhadla II PS under each of the schemes (Part-B, Part-C and Part-E) and all the associated equipment required for switching arrangement viz isolators, circuit breakers, 765kV & 145kV (neutral) auxiliary buses etc., so that spare 1-ph unit, whenever provided in future, is able to replace any of the faulty unit without its physical movement. Respective TSP shall provide the equipment/facilities at Bhadla II PS such that only supply & installation of 1x80 MVAR spare unit of Reactor, associated LA, 1-Ph Circuit Breaker and extension of 765kV & 145kV buses will be required for completion of switching arrangement in future.</p> <p>iv. The spare unit of 765kV, 1x110 MVAR Reactor being provided at Sikar-II PS under ‘Transmission system strengthening for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II –Part C’ shall be utilized as common spare for 6x110 MVAR Switchable Line Reactors to be provided at Sikar-II PS each under ‘Transmission system strengthening for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II –Part D’ and ‘Transmission system strengthening for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II –Part E’.</p>	<p>Note:</p> <p>i. POWERGRID to provide space for 2 no of 765 kV bays at Bhadla-II and space for 2 no of switchable line reactors at Bhadla-II substation.</p> <p>ii. POWERGRID to provide space for 2 no of 400 kV bays at Neemrana.</p> <p>iii. TSP shall install the 765kV Line Reactor banks at Bhadla II PS under each of the schemes (Part-B, Part-C and Part-E) and all the associated equipment required for switching arrangement viz isolators, circuit breakers, 765kV & 145kV (neutral) auxiliary buses etc., so that spare 1-ph unit, whenever provided in future, is able to replace any of the faulty unit without its physical movement. Respective TSP shall provide the equipment/facilities at Bhadla II PS such that only supply & installation of 1x80 MVAR spare unit of Reactor, associated LA, 1-Ph Circuit Breaker and extension of 765kV & 145kV buses will be required for completion of switching arrangement in future.</p> <p>iv. The spare unit of 765kV, 1x110 MVAR Reactor being provided at Sikar-II PS under ‘Transmission system strengthening for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II –Part C’ shall be utilized as common spare for 6x110 MVAR Switchable Line Reactors to be provided at Sikar-II PS each under ‘Transmission system strengthening for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II –Part D’ and ‘Transmission system strengthening for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under Phase II –Part E’.</p> <p>v. TSP to keep space provision for 1 no. Transfer Bus coupler bay & 1 no. Bus Coupler bay at 220kV level at Sikar-II S/s.</p>

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		v. TSP to keep space provision for 1 no. Transfer Bus coupler bay & 1 no. Bus Coupler bay at 220kV level at Sikar-II S/s.	
<u>SPECIFIC TECHNICAL REQUIREMENTS FOR TRANSMISSION LINE</u>			
2.	Specification for Transmission Line	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.	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.
<u>SPECIFIC TECHNICAL REQUIREMENTS FOR SUBSTATION</u>			
3.	Specification for Substation	2.1 (765/ $\sqrt{3}$) / (400/ $\sqrt{3}$) / 33 kV Single Phase Autotransformer HV, and IV bushing shall be OIP (Oil Impregnated Paper) / RIP (Resin Impregnated Paper) / RIS (Resin Impregnated Synthetic) with composite insulator type. LV bushing shall be OIP/RIP/RIS. 36kV Neutral bushing shall be solid porcelain or oil communicating type. 	2.1 (765/ $\sqrt{3}$) / (400/ $\sqrt{3}$) / 33 kV Single Phase Autotransformer 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.