

PROPOSAL OF CREATION OF 220 KV GSS AT PADAMPUR (UPGRADATION)

1.0 PRESENT SCENARIO

Normal feeding arrangement of 132 kV GSS Padampur (50 MVA Capacity), Raisingnagar(37.5 MVA Capacity) & Srikanpur (25 MVA Capacity) is from 220 kV GSS Suratgarh via 50 km long 132 kV S/C Suratgarh-Padampur line. 54 MW Peak load has been recorded on 132 kV S/C Suratgarh-Padampur line during 2009-10. Load of 132 kV GSS Sri Ganganagar is also fed from 132 kV GSS Padampur under some contingency conditions & under such system conditions, 80 MW Peak load has been recorded on 132 kV S/C Suratgarh-Padampur line. Furthermore, 132 kV GSS at Telewala & Kaminpura have been approved with LILO of 132 kV S/C Padampur-Sri Ganganagar line and a new 132 kV S/C Srikanpur-Kaminpura line respectively, which would further increase the loading on 132 kV S/C Suratgarh-Padampur line.

Following are the recorded peak loads during 2009-10:

Particulars	Transformation Capacity	Peak Load
220 kV GSS at Suratgarh	150 MVA	139 MW
220 kV GSS at Udyog Vihar	150 MVA	120 MW
132 kV GSS Padampur	50 MVA	35 MW
132 kV GSS Srikanpur	25 MVA	13 MW
132 kV GSS Raisingnagar	37.5 MVA	20 MW
132 kV S/C Suratgarh-Padampur line	-	54 MW

2.0 NEW PROPOSAL

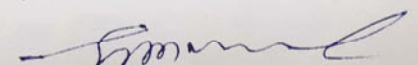
SE(TCC-IX), RVPN, Bikaner vide letter no. 346 dated 2-6-09 (Appendix-1) has intimated that sufficient land is available at existing 132 kV GSS Padampur to upgrade it on 220 kV voltage level and has also proposed following interconnections for proposed 220 kV GSS Padampur:

- 1x100 MVA, 220/132 kV GSS at Padampur (Upgradation)
- 55 km 220 kV S/C Suratgarh-Padampur line.

SE(TCC-IX), RVPN, Bikaner has also intimated that the old 220 kV D/C Suratgarh-Ratangarh line which was LILO to STPS is presently spare upto LILO point and same could be utilized for feeding the proposed 220 kV GSS as there would be a R.O.W. problem for construction of any new line from 220 kV GSS Suratgarh.

Presently 220 kV GSS Hanumangarh & Udyogvihar are radially connected from 220 kV GSS Suratgarh. Under schedule & unscheduled outage of feeding 220 kV lines, these 220 kV GSS's remain without supply. Therefore to connect existing 220 kV GSS Hanumangarh & Udyogvihar and proposed 220 kV GSS Padampur in the 220 kV ring main system, following 220 kV lines would also be required:

- 40 km 220 kV S/C Padampur-Udyogvihar line
- 60 km 220 kV S/C Udyogvihar-Hanumangarh line


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3.0 LOAD FLOW STUDY

Load flow studies have been carried out for the conditions corresponding to 2010-11 for total system load 7723 MW to evaluate the benefits of creation of 220 kV GSS at Padampur (Upgradation). Generation schedule for the condition corresponding to 2010-11 is placed at **Appendix-2**.

Following cases have been considered to conduct the load flow studies:

1. **Base Case:** System corresponding to 2010-11 conditions without 220 kV GSS at Padampur (Upgradation) and the associated interconnections. Power flows has been plotted at **Exhibit-1**.
2. **Proposed Case:** Base Case and with 220 kV GSS at Padampur (Upgradation) alongwith following transmission system:
 - 1x100 MVA, 220/132 kV GSS at Padampur (Upgradation)
 - 55 km 220 kV S/C Suratgarh-Padampur line.
 - 40 km 220 kV S/C Padampur-Udyogvihar line
 - 60 km 220 kV S/C Udyogvihar-Hanumangarh line

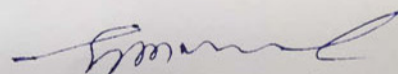
Power flows of proposed case has been plotted at **Exhibit-2**.

Results of load flow study for aforesaid proposal have been plotted in respective Exhibits and tabulated at here under:

Particulars	Base Case (Exhibit-1)	Proposed Case (Exhibit-2)
220 kV STPS-Suratgarh line (2 Circuits)	290 MW	288 MW
220 kV S/C Suratgarh-Udyogvihar line	77 MW	58 MW
220 kV S/C Suratgarh-Hanumangarh line	81 MW	67 MW
220 kV S/C Suratgarh-Padampur line (Proposed)	-	58 MW
220 kV S/C Padampur-Udyogvihar line (Proposed)	-	07 MW
220 kV S/C Udyogvihar-Hanumangarh line (Proposed)	-	08 MW
220 kV GSS at Suratgarh (150 MVA)	131 MW	104 MW
220 kV GSS at Udyogvihar (150 MVA)	76 MW	56 MW
220 kV GSS at Hanumangarh (200 MVA)	80 MW	74 MW
220 kV GSS at Padampur (Upgradation) (100 MVA) (Proposed)	-	51 MW
132 kV S/C Suratgarh-Padampur line	39 MW	06 MW
132 kV S/C Padampur-Srikaranpur-Kaminpura line	19 MW	19 MW
132 kV S/C Padampur-Raisingnagar line	14 MW	14 MW
132 kV S/C Padampur-Telewala-Sriganganagar line	17 MW	02 MW
Total System Losses	262.34 MW	260.70 MW

From the tabulated results following points are observed:

- In proposed case total system losses would be reduced from 262.34 MW to 260.70 MW, thus saving of 1.64 MW has been envisaged in proposed case as compared to base case.
- After the execution of the proposal, loading on the 132 kV S/C Suratgarh-Padampur line would be reduced from 39 MW to 05 MW.
- Creation of 220 kV sub-station at Padampur would reduce the loading on 220/132 kV transformers at Suratgarh & Udyogvihar. Spare capacity available at these 220/132 kV GSS's would be used to meet out future load growth in the respective areas.

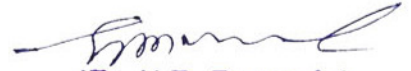

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- After the execution of 220 kV S/C Padampur-Udyogvihar-Hanumangarh line, 220 kV GSS Udyogvihar, Hanumangarh & Padampur (P) would be connected in the 220 kV ring main system
- No overloading is observed under the Proposed Case.

4.0 CONCLUSION

In view of above benefits, which would accrue with the creation of 220 kV GSS at Padampur (Upgradation) & associated 220 kV lines, the following transmission system is proposed for the conditions corresponding to 2010-11:

- 1x100 MVA, 220/132 kV GSS at Padampur (Upgradation)
- 55 km 220 kV S/C Suratgarh-Padampur line.
- 40 km 220 kV S/C Padampur-Udyogvihar line
- 60 km 220 kV S/C Udyogvihar-Hanumangarh line



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ABSTRACT COST ESTIMATE

SCHEME: 220/132kV, 1x100 MVA GSS at Padampur (Upgradation) (Distt. Sri Ganganagar)

Associated Lines:

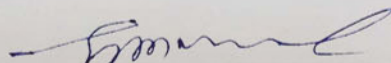
(i) 220 kV S/C Suratgarh-Padampur line.	55	kM S/C
(ii) 220 kV S/C Padampur-Udyogvihar line	40	kM S/C
(iii) 220 kV S/C Udyogvihar-Hanumangarh line	60	kM S/C

S.No.	Particulars	Amount (Rs. in lacs)
1	Preliminary expenses	18.60
2	Land	31.00
3	PLCC & Telephones	113.44
4	Office Equipments	3.00
5	Social Infrastructure & Community Services	7.00
6	Civil Works	480.50
7	Sub-station equipments	1699.18
8	Transmission lines	2749.70
9	Workshop & Laboratory Test equipments	15.00
		20.00
1	Vehicle	5137.42
	GRAND TOTAL	

Capital cost of scheme (excluding IDC)= Rs. 5137.42 lacs.

Capital cost of scheme (including IDC)= Rs. 5658.46 lacs.

Note: The provision for items at Sr. no. 3 and 7 to 8 above are inclusive of overhead charges as per order no RVPN/CCOA/Estt.-Cont./F.51/D. 455 dt. 22.2.2008 (Control-139), whereas, for other items; lump sum provision have been shown.


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Jaipur, Dt. 13/4/10

No. RVPN/SE(P&P)/XEN(Proj.)/AE-1/F. ID. 59

The Chief Engineer (T&C/Civil/MM/LD),
Rajasthan Rajya Vidyut Prasaran Nigam Ltd.,
JAIPUR/JODHPUR/AJMER.

Sub: Approval of of new 220kV schemes.

The Board of Directors of RVPN in its 178th meeting held on 23rd March, 10 have accorded its administrative and financial approval for the construction of 8 Nos., 220kV Grid Substations at Bundi (New), Gajner (New), Manoharpur (up-gradation), Padampur (Up-gradation), Sawa (Up-gradation), Gangapurcity (New), Kuchera (New) and Aspur (New) alongwith associated 220kV and 132kV Interconnecting lines and allied works for execution at an aggregated estimated cost of Rs. 374.82 Crores (including IDC amount) as per individual cost estimates indicated as under:

S. No.	Name of Sub-Station	Associated line(s)	Line Length (in km)		(Rs. in lacs.)	
					Estimated Cost (including IDC)	Saving# (in LUs per annum)
1	220/132kV, 1x100 MVA & 132/33kV, 1x20/25 MVA GSS at Bundi (New location) (Distt. Bundi)	(i) LILO of existing 220 kV S/C KTPS-Heerapura line at proposed 220 kV GSS Bundi	12	km D/C	3735.76	10.97
		(ii) LILO of existing 132 kV S/C Talera-Bundi line at proposed 220 kV GSS Bundi	5	km D/C		
		(iii) 132 kV S/C Bundi (220 kV GSS)-Bundi (132 kV GSS) line	7	km S/C		
2	220/132kV, 1x100 MVA & 132/33kV, 1x20/25 MVA GSS at Gajner (New location) (Distt. Bikaner)	(i) 220 kV D/C Bikaner (400kV GSS)-Gajner line	50	km D/C	5512.08	50.71
		(ii) LILO of existing 132 kV S/C Pugal Road-Gajner (PS-4) line at proposed 220 kV GSS Gajner.	10	km D/C		
		(iii) LILO of existing 132 kV S/C Bhinasar-Kolayat line at proposed 220 kV GSS Gajner.	10	km D/C		
3	220/132kV, 1x100 MVA GSS at Manoharpur (Upgradation) (Distt. Jaipur)	(i) 220 kV D/C Kotputli-Manoharpur line	60	km D/C	5310.49	132.82
		(ii) 132 kV S/C Manoharpur-Shahpura line (Second circuit)	15	km S/C		
		(iii) 132 kV S/C Manoharpur-Ajeetgarh line.	30	km S/C		
4	220/132kV, 1x100 MVA GSS at Padampur (Upgradation) (Distt. Sri Ganganagar)	(i) 220 kV S/C Suratgarh-Padampur line.	55	km S/C	5658.46	62.06
		(ii) 220 kV S/C Padampur-Udyogvihar line	40	km S/C		
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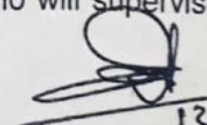
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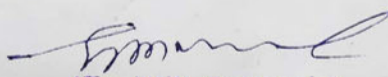
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5	220/132kV, 1x100 MVA GSS at Sawa (Upgradation) (Distt. Chittorgarh)	(i) LILO of existing 220 kV S/C RAPP(A)-Debari line at proposed 220 kV GSS Sawa.	6	kM D/C	2806.29	152.87
		(ii) LILO of existing 220 kV S/C Chittorgarh-Nimbahera line at proposed 220 kV GSS Sawa.	1	kM D/C		
6	220/132kV, 1x100 MVA & 132/33kV, 1x20/25 MVA GSS at Gangapurcity (New location) (Distt. Sawai Madhopur)	(i) 220 kV D/C Hindaun (400 kV GSS) - Gangapurcity line	50	kM D/C	6116.11	140.76
		(ii) 132 kV D/C Gangapurcity (220 kV GSS)-Gangapurcity(132 kV GSS) line	5	kM D/C		
		(iii) 132 kV S/C Gangapurcity (220 kV GSS)-Sapotra line	25	kM S/C		
		(iv) 132 kV S/C Gangapurcity (220 kV GSS)- Shrimahavir ji line	35	kM S/C		
7	220/132kV, 1x100 MVA & 132/33kV, 1x20/25 MVA GSS at Kuchera (New location) (Distt. Nagaur)	(i) LILO of 220 kV Nagaur - Merta line at proposed 220 kV GSS Kuchera	12	kM D/C	3630.92	32.92
		(ii) LILO of existing 132 kV Kuchera - Mundwa line at proposed 220 kV GSS Kuchera	3	kM D/C		
		(iii) LILO of existing 132 kV Kuchera - Sanjoo line at proposed 220 kV GSS Kuchera	1	kM D/C		
8	220/132kV, 1x100 MVA & 132/33kV, 1x20/25 MVA GSS at Aspur (New location) (Distt. Dungarpur)	(i) Stringing of IInd circuit of 220kV D/C Banswara-Debari line from Debari to Salumber	77	kM S/C	4712.12	67.73
		(ii) LILO of IInd circuit of 220kV D/C Banswara-Debari line at proposed 220 kV GSS at Aspur	5	kM D/C		
		(iii) LILO of existing 132 kV Salumber - Sagwara line at proposed 220 kV GSS Aspur	10	kM D/C		
		(iv) LILO of existing 132 kV Salumber - Dhariyawad line at proposed 220 kV GSS Aspur	10	kM D/C		
TOTAL					37482.21	650.85
			Say Rs.		374.82	Crores

A copy of the Consolidated Project Estimate Report of the above Schemes, is enclosed herewith for your kind information and needful. The execution of the above scheme is to be done as per individual plan provisions made for each of the scheme in Annual Plan(s) sent to you from time to time. You are requested to kindly endorse the above to all concerned field officers who will supervise/under take the execution of the above scheme.

Enc: As above.


13.4.10
(B.N. Saini)
Chief Engineer (PPM)


(Er. H.R. Bamania)
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Letter for conveying Board's approval

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No. RVPN/SE(P&P)/XEN(Proj.)/AE-1/F. /D. 59

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