



**AJASTHAN RAJYA VIDYUT PRASARAN NIGAM LIMITED**  
**(An ISO 9001: 2000 Certified Company)**  
OFFICE OF THE CHIEF ENGINEER (MP&S)  
CHAMBAL GSS PREMISES, HAWA SARAK, JAIPUR- 302019  
Tel. No. 0141-2291891; Fax No. 0141-2296755; Email: ce\_m&p @rvpn.co.in

No. RVPN/CE (MP&S) / Tech / F. /D. **156** Dated **21.07.2010**

**SUB: Call For Views / Comments / Suggestions And Expression of Interest for Outsourcing the Work of Routine Testing of Relays and Protection Schemes of RVPN**

Dear Sirs,

Rajasthan Rajya Vidyut Prasaran Nigam Ltd. (RVPN) Is the State Transmission Utility in Rajasthan. RVPN is responsible for the construction, operation and maintenance of 400 kV, 220 kV and 132 kV Sub Stations in the State.

As part of the maintenance work of the EHV Sub Stations, RVPN is carrying out routine testing of the various protection relays / schemes such as distance protection, differential protection, and auxiliary / secondary protection relays such as over-flux, over-voltage, under-voltage, neutral displacement, restricted earth-fault, circulating current differential relays, etc.

RVPN is considering outsourcing of this work of routine testing of protection relays / schemes to such eligible agency / agencies which fulfill the requirements of the qualifying criteria mentioned in these specifications.

RVPN is therefore interested in obtaining the views / comments/ suggestions of agencies which may be interested in taking up this work.

Since you have a long experience in the field of manufacturing/ installation / commissioning of Relays / Control & Relay Panels, we would like to have your views / comments/ suggestions on the above subject.

A copy of the draft specifications is enclosed.

A copy is being mailed to you at your e-mail address.

You may furnish your views / comments / suggestion to this office at the above address in writing and / or mail them to "ce\_m&p@rvpn.co.in" by **04 August, 2010**.

A pre – bid conference to discuss the views / comments / suggestions as received will be held on **09 August 2010** at **3.00 PM** in the Conference Hall of Vidyut Bhawan, Jan Path, Near Vidhan Sabha, Jaipur – 302005.

You are invited to attend this conference.

**Encl. As above**

Yours faithfully,

(D. S. Chauhan)  
Chief Engineer (MP&S)  
RVPN, Jaipur

Copy submitted to the following for kind information.

1. The Chairman & Managing Director, RVPN, Jaipur.
2. The Director (Technical / Operation), RVPN, Jaipur.

Chief Engineer (MP&S)  
RVPN, Jaipur

Copy forwarded to the following for information and necessary action. They are also requested to please make it convenient to attend the above pre – bid conference.

1. The Chief Engineer (PPM / MM / T&C-Jaipur Zone), RVPN, Jaipur.
2. The Chief Controller of Accounts, RVPN, Jaipur.
3. The Superintending Engineer (Prof.), RVPN, Jaipur / Jodhpur / Udaipur.
4. The Superintending Engineer (SSPC), RVPN, Jaipur.

Chief Engineer (MP&S)  
RVPN, Jaipur

**CALL FOR VIEWS / COMMENTS / SUGGESTIONS**  
**AND EXPRESSION OF INTEREST**  
**FOR OUTSOURCING THE WORK OF ROUTINE TESTING**  
**OF RELAYS AND PROTECTION SCHEMES OF RVPN**

1. Rajasthan Rajya Vidyut Prasaran Nigam Ltd. (RVPN) Is the State Transmission Utility in Rajasthan. RVPN is responsible for the construction, operation and maintenance of 400 kV, 220 kV and 132 kV Sub Stations in the State.
2. As part of the maintenance work of the EHV Sub Stations, RVPN is carrying out routine testing of the various protection relays / schemes such as distance protection, differential protection, and auxiliary / secondary protection relays such as over-flux, over-voltage, under-voltage, neutral displacement, restricted earth-fault, circulating current differential relays, etc.
3. RVPN is considering outsourcing of this work of routine testing of protection relays / schemes to such eligible agency / agencies which fulfill the requirements of the qualifying criteria mentioned in these specifications.
4. This notice is being issued for obtaining the views / comments/ suggestions of agencies which may be interested in taking up this work.
5. The interested agencies may furnish their views / comments / suggestion in writing to the Chief Engineer (MP&S), RVPN, Chambal GSS Premises, Hawa Sarak, Jaipur - 302019 or mail them at ce\_m&p@rvpn.co.in by **04 August, 2010**.
6. A pre – bid conference to discuss the views / comments / suggestions as received will be held on **09 August, 2010** at **3.00 PM** in the Conference Hall of Vidyut Bhawan, Jan Path, Near Vidhan Sabha, Jaipur – 302005.
7. Interested agencies are invited to attend this conference. A copy of the draft specifications is enclosed.

RAJASTHAN RAJYA VIDYUT PRASARAN NIGAM LTD.

Regd. Office: Vidyut Bhawan, Jan Path, Jyoti Nagar,  
Jaipur – 302005.

**DRAFT**  
**SPECIFICATIONS**  
**FOR THE WORK OF**  
**ROUTINE TESTING OF**  
**RELAYS**  
**AND**  
**PROTECTION**  
**SCHEMES**

## **SCOPE OF WORK**

1. The testing work of relays shall be carried out at the various 400 kV, 220 kV and 132 kV GSSs.
2. The total work involved and proposed to be outsourced shall cover the State of Rajasthan. The list showing the names of the various GSS, their voltage level and location is enclosed at Annexure–A1 to Annexure–A3.
3. A list indicating the general makes and types of relays is enclosed at Annexure – B.
3. The Contractor shall arrange his own testing equipments. The Contractor shall arrange the following minimum testing equipment:
  - a) Automatic Relay Test Kit.
  - b) Secondary Current Injection Test Set having sufficient burden capacity to test Electro – Mechanical over – current & earth – fault relays of 1 Amp and 5 Amp rating.
  - c) Multi meter (Digital & Analog).
  - d) Tong Testers: high range and low range.
  - e) Equipment for testing of auxiliary / secondary protection relays such as over-flux, over-voltage, under-voltage, neutral displacement, restricted earth-fault, circulating current differential relays, etc.
4. The testing equipments shall be got calibrated from a Govt. / Govt. approved / NABL accredited laboratory. The calibration certificates shall not be older than one year on the date of testing.
5. The Contractor shall make necessary arrangements for storage, handling and transportation of the equipments.
6. The transport vehicle shall be arranged by the Contractor.
7. The Contractor shall make all arrangements and bear the cost of all boarding and lodging charges of the testing team.
8. The Contractor shall pick up RVPN representative from the sub divisional headquarter / nearest place of stay near the Sub Station.

9. The testing work will be witnessed / authenticated by the representative of RVPN.
10. The Contractor shall be required to carry out the following works during routine testing.
  - a) Cleaning of relays and contacts of relays, as applicable.
  - b) Checking of the various parameters of the relays such as current, DC voltage, PT voltage, AC voltage, etc.
  - c) Tightening of various connections / circuits of the relays.
  - d) Testing of the relays as per procedure prescribed in Annexure–C.
  - e) Prepare the test report in the prescribed formats enclosed at Annexure – D to Annexure – F and as approved by the concerning Assistant Engineer (Protection) of RVPN.
  - f) Report the specific defects / non – operation / mal - operation in the relays, if any, observed during testing to the concerned Assistant Engineer (Prot.).

**Annexure - A1****List of GSS under the jurisdiction of Protection Circle, Jaipur**

<b>400 kV GSS</b>					
<b>No.</b>	<b>Name of GSS</b>	<b>No.</b>	<b>Name of GSS</b>	<b>No.</b>	<b>Name of GSS</b>
1	Heerapura, Jaipur City	2	Hindaun, Distt. Karauli		
<b>220 kV GSS</b>					
<b>No.</b>	<b>Name of GSS</b>	<b>No.</b>	<b>Name of GSS</b>	<b>No.</b>	<b>Name of GSS</b>
1	Heerapura, Jaipur City	2	Kukas, Jaipur City	3	Sanganer, Jaipur City
4	SEZ -I, Jaipur City	5	VKIA, Jaipur City	6	Bagru, Distt. Jaipur
7	Chomu, Distt. Jaipur	8	Kotputli, Distt. Jaipur	9	Phulera, Distt. Jaipur
10	Renwal, Distt. Jaipur	11	Dausa	12	Mandawar, Distt. Dausa
13	Hindaun, Distt. Karauli	14	Sawai Madhopur	15	Dooni, Distt. Tonk
16	Sakatpura, Kota City	17	Dahra, Distt. Kota	18	Modak, Distt. Kota
19	Jhalawar	20	Baran	21	Kawai, Distt. Baran
22	Alwar	23	Bhiwadi, Distt. Alwar	24	Khuskherda, Distt. Alwar
25	Nimrana, Distt. Alwar	26	Bharatpur	27	Dholpur
<b>132 kV GSS</b>					
<b>No.</b>	<b>Name of GSS</b>	<b>No.</b>	<b>Name of GSS</b>	<b>No.</b>	<b>Name of GSS</b>
1	Balawala, Jaipur City	2	Bhankrota, Jaipur City	3	Chambal, Jaipur City
4	Jawahar Nagar, Jaipur City	5	Kunda Ki Dhani, Jaipur City	6	Mansarowar, Jaipur City
7	Purana Ghat, Jaipur City	8	PWD Bungalow, Jaipur City	9	Sirsi, Jaipur City
10	Sitapura, Jaipur City	11	SMS Stadium, Jaipur City	12	Vaishali Nagar, Jaipur City
13	VKIA, Jaipur City	14	Bagru, Distt. Jaipur	15	Bassi, Distt. Jaipur
16	Chaksu, Distt. Jaipur	17	Govindgarh, Distt. Jaipur	18	Hingonia, Distt. Jaipur
19	Jamwa Ramgarh, Distt. Jaipur	20	Jobner, Distt. Jaipur	21	Kaladera, Distt. Jaipur
22	Lalsot, Distt. Jaipur	23	Manoharpur, Distt. Jaipur	24	Markhi, Distt. Jaipur
25	Newai, Distt. Jaipur	26	Rampura Dabri, Distt. Jaipur	27	Shahpura, Distt. Jaipur
28	Toonga, Distt. Jaipur	29	Bandikui, Distt. Dausa	30	Sikandra, Distt. Dausa
31	Todabheem, Distt. Dausa	32	Bhadoti, Distt. SWM	33	Gangapur City, Distt. SWM
34	Khandar, Distt. SWM	35	Karauli	36	Shree Mahaveer Ji, Distt. Karauli
37	Sapotara, Distt. Karauli	38	Tonk	39	Deoli, Distt. Tonk
40	Malpura, Distt. Tonk	41	Nainwa, Distt. Tonk	42	Thadoli, Distt. Tonk
43	Toda Raisingh, Distt. Tonk	44	Uniyara, Distt. Tonk	45	Baran
46	Anta, Distt. Baran	47	Chhipa Badod, Distt. Baran	48	Kelwara, Distt. Baran

No.	Name of GSS	No.	Name of GSS	No.	Name of GSS
49	Gopal Mill, Kota City	50	Kota I/A, Kota City	51	Mahaveer Nagar, Kota City
52	Deolimaji, Distt. Kota	53	Itawa, Distt. Kota	54	Jawahar Sagar, Hydro Power Station, Distt. Kota
55	Mayla, Distt. Kota	56	Sangod, Distt. Kota	57	Bundi
58	Lakheri, Distt. Bundi	59	Aklera, Distt. Jhalawar	60	Bakani, Distt. Jhalawar
61	Bhawani Mandi, Distt. Jhalawar	62	Dug, Distt. Jhalawar	63	Hemda, Distt. Jhalawar
64	Kanwadi, Distt. Jhalawar	65	Khanpur, Distt. Jhalawar	66	Manohar Thana, Distt. Jhalawar
67	MIA, Alwar City	68	Bansur, Distt. Alwar	69	Behror, Distt. Alwar
70	Bhiwadi, Distt. Alwar	71	Kherli, Distt. Alwar	72	Kishangarh Bas, Distt. Alwar
73	Laxmangarh, Distt. Alwar	74	Malakhera, Distt. Alwar	75	Mandan, Distt. Alwar
76	Mundawar, Distt. Alwar	77	Rajgarh, Distt. Alwar	78	Ramgarh, Distt. Alwar
79	Shahajahanpur, Distt. Alwar	80	Thana Gaji, Distt. Alwar	81	Tijara, Distt. Alwar
82	Bharatpur	83	Bayana, Distt. Bharatpur	84	Bhusawar, Distt. Bharatpur
85	Deeg, Distt. Bharatpur	86	Kaman, Distt. Bharatpur	87	Kumher, Distt. Bharatpur
88	Nadbai, Distt. Bharatpur	89	Nagar, Distt. Bharatpur	90	Weir, Distt. Bharatpur
91	Rajakhera, Distt. Dholpur	92	Baseri, Distt. Dholpur	93	RPS Hydro Power Station, Distt. Chittor

<b>Total No. of GSS in the jurisdiction of Protection Circle, Jaipur</b>					
No.	Voltage Level	Nos.			
<b>1</b>	<b>400 kV</b>	<b>2</b>			
<b>2</b>	<b>220 kV</b>	<b>27</b>			
<b>3</b>	<b>132 kV</b>	<b>93</b>			
	<b>Total</b>	<b>122</b>			

**Annexure - A2****List of GSS under the jurisdiction of Protection Circle, Jodhpur**

<b>400 kV GSS</b>					
<b>No.</b>	<b>Name of GSS</b>	<b>No.</b>	<b>Name of GSS</b>	<b>No.</b>	<b>Name of GSS</b>
1	Surpura, Jodhpur City	2	Bikaner, Bikaner City	3	Jaisalmer (Akal), Distt. Jaisalmer
4	Barmer (Gehun), Distt. Barmer	5	Ratangarh, Distt. Churu		
<b>220 kV GSS</b>					
<b>No.</b>	<b>Name of GSS</b>	<b>No.</b>	<b>Name of GSS</b>	<b>No.</b>	<b>Name of GSS</b>
1	Jodhpur, Jodhpur City	2	Boranada, Jodhpur City	3	Bilara, Distt. Jodhpur
4	Bhopalgarh, Distt. Jodhpur	5	Tinwari, Distt. Jodhpur	6	Phalodi, Distt. Jodhpur
7	Balotra, Distt. Barmer	8	Dhorimanna, Distt. Barmer	9	Amarsagar, Distt. Jaisalmer
10	Sirohi, Sirohi City	11	Pindawara, Distt. Sirohi	12	Pali, Pali City
13	Bali, Distt. Pali	14	Jalore, Jalore City	15	Bhinmal, Distt. Jalore
16	Sanchole, Distt. Jalore	17	RatanGarh, Distt. Churu	18	SujanGarh, Distt. Churu
19	Bikaner, Bikaner City	20	Dungargarh, Distt. Bikaner	21	Gajner, Distt. Bikaner
22	Kolayat, Distt. Bikaner	23	Suratgarh, Distt. Sri Ganganagar	24	UV SGNR, Distt. Sri Ganganagar
25	Padampur, Distt. Sri Ganganagar	26	Hanumangarh, Hanumangarh City	27	Bhadra, Distt. Hanumangarh
<b>132 kV GSS</b>					
<b>No.</b>	<b>Name of GSS</b>	<b>No.</b>	<b>Name of GSS</b>	<b>No.</b>	<b>Name of GSS</b>
1	Banar, Jodhpur City	2	C.H.B., Jodhpur City	3	N.P.H., Jodhpur City
4	Soorsagar, Jodhpur City	5	Soorpura, Jodhpur City	6	Balesar, Distt. Jodhpur
7	Baori, Distt. Jodhpur	8	Bhopalgarh, Distt. Jodhpur	9	Borunda, Distt. Jodhpur
10	Chamu, Distt. Jodhpur	11	Dechu, Distt. Jodhpur	12	Mathania, Distt. Jodhpur
13	Osian, Distt. Jodhpur	14	Pipar City, Distt. Jodhpur	15	PS-1 (BAP), Distt. Jodhpur
16	PS-5 (Phalodi), Distt. Jodhpur	17	PS-8 (Narwa), Distt. Jodhpur	18	Soyala, Distt. Jodhpur
19	Lohawat, Distt. Jodhpur	20	Aau, Distt. Jodhpur	21	Kalau, Distt. Jodhpur
22	Matora, Distt. Jodhpur	23	Barmer, Barmer City	24	Gadra Road, Distt. Barmer
25	Guda-Malani, Distt. Barmer	26	Samdari, Distt. Barmer	27	Sawa, Distt. Barmer
28	Shiv, Distt. Barmer	29	Sindhari, Distt. Barmer	30	Padru, Distt. Barmer
31	Mehloo, Distt. Barmer	32	Siwana, Distt. Barmer	33	Undoo, Distt. Barmer
34	Sata, Distt. Barmer	35	Ranasagar, Distt. Barmer	36	Jaisalmer, Jaisalmer City
37	Chandan, Distt. Jaisalmer	38	Pokran, Distt. Jaisalmer	39	Reodar, Distt. Sirohi

<b>No.</b>	<b>Name of GSS</b>	<b>No.</b>	<b>Name of GSS</b>	<b>No.</b>	<b>Name of GSS</b>
40	Abu Road, Distt. Sirohi	41	Umaidpur, Distt. Jalore	42	Sankad, Distt. Jalore
43	Raniwara, Distt. Jalore	44	Sanchore, Distt. Jalore	45	Bhadroona, Distt. Jalore
46	Daspan, Distt. Jalore	47	Poonasa, Distt. Jalore	48	Bagra, Distt. Jalore
49	Jalore, Distt. Jalore	50	Sayla, Distt. Jalore	51	Jeewana, Distt. Jalore
52	Ramseen, Distt. Jalore	53	Bagoda, Distt. Jalore	54	Mandawla, Distt. Jalore
55	Galifa, Distt. Jalore	56	Badgaon, Distt. Jalore	57	Pali, Pali City
58	Kharchi, Distt. Pali	59	Jojawar, Distt. Pali	60	Sojat, Distt. Pali
61	Pipaliya Kalan, Distt. Pali	62	Jaitaran, Distt. Pali	63	Falna, Distt. Pali
64	Rani, Distt. Pali	65	Sumerpur, Distt. Pali	66	Churu, Churu City
67	Bidasar, Distt. Churu	68	ChandGothi, Distt. Churu	69	Ladnun, Distt. Churu
70	RatanGarh, Distt. Churu	71	Sadulpur, Distt. Churu	72	Salasar, Distt. Churu
73	SardarSahar, Distt. Churu	74	SujanGarh, Distt. Churu	75	Taranagar, Distt. Churu
76	Tehandesar, Distt. Churu	77	Parewara, Distt. Churu	78	Patalisar Fanta, Distt. Churu
79	Dungargarh, Distt. Bikaner	80	Pugal Road, Distt. Bikaner	81	Bhinasar, Distt. Bikaner
82	Bajju, Distt. Bikaner	83	Nokha Daiya (PS-4), Distt. Bikaner	84	Kolayat, Distt. Bikaner
85	Nokha, Distt. Bikaner	86	Deshnoke, Distt. Bikaner	87	Loonkaransar, Distt. Bikaner
88	Napasar, Distt. Bikaner	89	Badnu, Distt. Bikaner	90	Momasar, Distt. Bikaner
91	Khajuwala, Distt. Bikaner	92	Dulhasar, Distt. Bikaner	93	Jasrasar, Distt. Bikaner
94	Riri, Distt. Bikaner	95	Sri Ganganagar, Sri Ganganagar City	96	Sri Karanpur, Distt. Sri Ganganagar
97	Padampur, Distt. Sri Ganganagar	98	Rai Singh Nagar, Distt. Sri Ganganagar	99	Sadulshahar, Distt. Sri Ganganagar
100	Anoopgarh, Distt. Sri Ganganagar	101	Gharsana, Distt. Sri Ganganagar	102	Rajiasar, Distt. Sri Ganganagar
103	Vijay Nagar, Distt. Sri Ganganagar	104	Kaminpura, Distt. Sri Ganganagar	105	Telewala, Distt. Sri Ganganagar
106	Hanumangarh, Hanumangarh City	107	Pilibanga, Distt. Hanumangarh	108	Sangria, Distt. Hanumangarh
109	Amarpura thedi, Distt. Hanumangarh	110	Nohar, Distt. Hanumangarh	111	Bhadra, Distt. Hanumangarh
112	Jokhasar, Distt. Hanumangarh	113	Rawatsar, Distt. Hanumangarh	114	Goluwala, Distt. Hanumangarh

<b>Total No. of GSS in the jurisdiction of Protection Circle, Jodhpur</b>					
<b>No.</b>	<b>Voltage Level</b>	<b>Nos.</b>			
<b>1</b>	<b>400 kV</b>	<b>5</b>			
<b>2</b>	<b>220 kV</b>	<b>27</b>			
<b>3</b>	<b>132 kV</b>	<b>115</b>			
	<b>Total</b>	<b>147</b>			

**Annexure – A3****List of GSS under the jurisdiction of Protection Circle, Udaipur**

<b>400 kV GSS</b>					
<b>No.</b>	<b>Name of GSS</b>	<b>No.</b>	<b>Name of GSS</b>	<b>No.</b>	<b>Name of GSS</b>
1	Bhilwara	2	MertaCity, Distt. Nagaur		
<b>220 kV GSS</b>					
<b>No.</b>	<b>Name of GSS</b>	<b>No.</b>	<b>Name of GSS</b>	<b>No.</b>	<b>Name of GSS</b>
1	Ajmer	2	Beawer Distt. Ajmer	3	Kishangarh, Distt. Ajmer
4	Banswara	5	Bhilwara	6	Gulabpura, Distt. Bhilwara
7	Chittorgarh	8	Nimbahera, Distt. Chittorgarh	9	Debari, Distt. Udaipur
10	Sikar, Sikar City	11	Dhod, Distt. Sikar	12	Reengus, Distt. Sikar
13	Kankroli, Distt.Rajsamand	14	Jhunjhunu, Distt. Jhunjhunu	15	Khetrinagar, Distt. Jhunjhunu
16	Nagaur	17	Khinswar, Distt. Nagaur	18	Kuchamancity, Distt. Nagaur
19	Makrana, Distt. Nagaur				
<b>132 kV GSS</b>					
1	Madri,Udaipur City	2	Pratapnagar, Udaipur City	3	Sisarma, Udaipur City
4	Sukher, Udaipur City	5	Bhatewar, Distt. Udaipur	6	Bhinder, Distt. Udaipur
7	Gogunda, Distt. Udaipur	8	Jhadol, Distt. Udaipur	9	Mavli, Distt. Udaipur
10	Rishabdeo, Distt. Udaipur	11	Salumber, Distt. Udaipur	12	Zawarmines, Distt. Udaipur
13	Amet, Distt. Rajsamand	14	Dariba, Distt. Rajsamand	15	Deogarh, Distt. Rajsamand
16	Kankroli, Distt. Rajsamand	17	Mokhampura, Distt. Rajsamand	18	Nathdwara, Distt. Rajsamand
19	Bagidora, Distt. Banswara	20	Paloda, Distt. Banswara	21	Dungarpur, Dungerpur City
22	Sagwara, Distt. Dungerpur	23	Suwana, Bhilwara City	24	Asind, Distt. Bhilwara
25	Gangapura, Distt. Bhilwara	26	Hameergarh, Distt. Bhilwara	27	Mandalgarh, Distt. Bhilwara
28	Raila, Distt. Bhilwara	29	Bigod, Distt. Bhilwara	30	Bijoliya, Distt. Bhilwara
31	Shahapura, Distt. Bhilwara	32	Ajoliya ka kheda, Distt. Chittorgarh	33	Bhadesar, Distt. Chittorgarh
34	Baroli (Rawatbhata), Distt. Chittorgarh	35	Begun, Distt. Chittorgarh	36	Kapasan, Distt. Chittorgarh
37	Mangalwar, Distt. Chittorgarh	38	RAPP, Distt. Chittorgarh	39	Senthi, Distt. Chittorgarh
40	Badi Sadri, Distt. Chittorgarh	41	Sawa, Distt. Chittorgarh	42	Pratapgarh

No.	Name of GSS	No.	Name of GSS	No.	Name of GSS
43	Dhariyawad, Distt. Pratapgarh	44	Chhoti sadri, Distt. Pratapgarh	45	Dalot, Distt. Pratapgarh
46	MDSU, Ajmer City	47	Kekri, Distt. Ajmer	48	Kishangarh, Distt. Ajmer
49	Nasirabad, Distt. Ajmer	50	Saradhana, Distt. Ajmer	51	Silora, Distt. Ajmer
52	Bidiyad, Distt. Nagaur	53	Chitawa, Distt. Nagaur	54	Molasar, Distt. Nagaur
55	Nawa, Distt. Nagaur	56	Bagot, Distt. Nagaur	57	Bherunda, Distt. Nagaur
58	Gotan, Distt. Nagaur	59	Hisaba, Distt. Nagaur	60	Jayal , Distt. Nagaur
61	Kuchera, Distt. Nagaur	62	Lamba Jatan, Distt. Nagaur	63	Merta Road, Distt. Nagaur
64	Mertacity, Distt. Nagaur	65	Mundawa, Distt. Nagaur	66	Roon, Distt. Nagaur
67	Deedwana, Distt. Nagaur	68	Sanju, Distt. Nagaur	69	Shrimadhampur, Distt. Sikar
70	KhooD, Distt. Sikar	71	Ajeetgarh, Distt. Sikar	72	Danta, Distt. Sikar
73	Fatehpur, Distt. Sikar	74	Kachhwa, Distt. Sikar	75	Khachariwas, Distt. Sikar
76	Khatu, Distt. Sikar	77	Kudan, Distt. Sikar	78	Laxmangarh, Distt. Sikar
79	Losal, Distt. Sikar	80	Neem Ka Thana, Distt. Sikar	81	Patan, Distt. Sikar
82	Piprali, Distt. Sikar	83	Nawalgarh, Distt. Sikar	84	Udaipurwati, Distt. Sikar
85	Ranoli, Distt. Sikar	86	Kumawas, Distt. Jhunjhunu	87	Baggar, Distt. Jhunjhunu
88	Bissau, Distt. Jhunjhunu	89	Buhana, Distt. Jhunjhunu	90	Chirawa, Distt. Jhunjhunu
91	Gudha, Distt. Jhunjhunu	92	Bherunda Kalan, Distt. Jhunjhunu	93	Jhunjhunu, Jhunjhunu City
94	Mandawa, Distt. Jhunjhunu	95	Mandrella, Distt. Jhunjhunu	96	Pilani, Distt. Jhunjhunu
97	Sultana, Distt. Jhunjhunu	98	Surajgarh, Distt. Jhunjhunu		

**Total No. of GSS in the jurisdiction of Protection Circle, Udaipur**

No.	Voltage Level	Nos.			
1	400 kV	2			
2	220 kV	19			
3	132 kV	98			
	<b>Total</b>	<b>119</b>			

**Total No. of GSS in RVPN**

No.	Voltage Level	Jaipur Circle	Jodhpur Circle	Udaipur Circle	Total
1	400 kV	2	5	2	9
2	220 kV	27	27	19	73
3	132 kV	93	115	98	306
	<b>TOTAL</b>	<b>122</b>	<b>147</b>	<b>119</b>	<b>388</b>

**GENERAL MAKES AND TYPES OF RELAYS**

No.	Scheme	Make	Types
1.	Distance Protection	AREVA (EE, Alsthom, Alstom)	Micom P442, Micom P437, EPAC 3100, Micro MHO, PYTS 104, QuadraMHO, MM3V, MM3T, SSRR3V, PD521
		ABB	RAZOA, REL 670, REL 100, LZ96
		GE	D60, D30
		SIEMENS	Siprotec 7SA52/611
		ER	THR
		TOSHIBA	GRZ 100
		SEL	311-C
2.	Differential Protection	AREVA (EE, Alsthom, Alstom)	DTH 31, DTH32, MICOM P632, KBCH130, MBCH, DMH, DDTM
		ABB	RADSB, RET 670
		GE	T60
		ALIND	TDTA33
		ER	DuoBias M, 4C21
3.	Back up Protection	AREVA (EE, Alsthom, Alstom)	CDG, CDD, MCTGM, Micom P127, Micom P141, KCEG
		ABB	ICM 21KP, REC 670, REX 521
		GE	F650
		SIEMENS	7SJ62
		ER	Argus, 2TJM10/12, TJM10, MIT 114, MIT 131
		JVS	JRP 011, JRP 021, JRC 053, JRC 066
		ALIND	TSRA111, TAMS 101
		ASHIDA	Apr-31
4.	Other Relays (O/V, U/V, NDR, REF, U/F, dF/dT, etc.)	AREVA, ABB, GE, ER, ALIND, ASHIDA, JVS	Assorted

**PROCEDURE OF TESTING OF RELAYS / PROTECTION SCHEMES**

**1. DISTANCE PROTECTION SCHEME:**

The following tests shall be carried out for testing and verifying the various features of the relays.

- i) Reach & time of operation of Zone-1, Zone-II & Zone-III / Reverse Zone for each relay in the following modes:
  - a) Phase to phase fault.
  - b) Phase to Earth fault.
- ii) Fuse fail feature.
- iii) Carrier Inter Trip.
- iv) Power Swing Blocking.
- v) Broken Conductor.
- vi) Auto Reclose.

The report will be prepared in the prescribed format enclosed at Annexure-C.

**2. DIFFERENTIAL RELAY:**

Testing shall be carried out by secondary current injection for

- i) Pick up
- ii) Bias
- iii) Harmonic restraint / bypass for each phase.

The report will be prepared in the prescribed format enclosed at Annexure-D.

**3. OVER CURRENT & EARTH FAULT RELAY:**

The testing of the relay shall be carried out by the secondary current injection Test Set for the following features:

- i) Checking of starting / stopping of the relay.
- ii) Verification of IDMT characteristics of the relay.
- iii) Relay operation at service setting.
- iv) Operation of high set feature.

The report will be prepared in the prescribed format enclosed at Annexure-E.

**4. AUXILIARY PROTECTION RELAYS:**

The testing of these relays shall be carried out as per the instructions given in the operation and maintenance manual of the manufacturer.

The report will be prepared for each type of relay in a format based on the tests carried out and as approved by the concerning Assistant Engineer (Protection) of RVPN.





**FORMAT FOR ROUTINE TESTING OF RELAYS**

**DOCUMENT NO. :RVPNL/PROTECTION/F/01/02**  
**ISSUE NO. : 01**  
**PAGE NO. : 02 OF 02**  
**PAGE REV. NO : 00**  
**DATE:**

Out of step FORWARD										A-B				
Blocking relay REVERSE										A-B				

Carrier Protection Checked (end to end):

Other Protection :

<b>Load Current:</b>	<b>D.C. Supply</b> _____ V	
R Phase	<b>V.T. Supply</b>	
Y Phase	Ph to Ph _____ V	
B Phase	Ph to Neutral _____ V	
Neutral		

**Formula:**

**TESTING ENGINEER**



**FORMAT FOR TEST REPORT OF OVER CURENT AND  
EARTH FAULT RELAYS**

Annexure – E

**DOCUMENT NO. :RVPNL/PROTECTION/F/01/03**

**ISSUE NO. : 01**

**PAGE NO. : 01 OF 01**

**PAGE REV. NO : 00**

**DATE:**

**TEST REPORT OF OVER CURENT AND EARTH FAULT RELAYS**

Name of GSS \_\_\_\_\_

Date of Testing \_\_\_\_\_

Name of Feeder \_\_\_\_\_

Tested by \_\_\_\_\_

Assisted by \_\_\_\_\_

S.No.	Panel, CT & Relay Particulars	P.S.	Starting current (A)	Pick up current (A)	TMS	Current injected (A)	Operating time (in secs.)	Time observed in seconds		Remarks	
								Before adjustment	After adjustment		
	Panel/Feeder	5									
	CT Ratio O/C R	5									
		2.5									
		2.5									
		2.5									
	Type of relay O/C Y	5									
		5									
		2.5									
		2.5									
	Service Setting O/C B	5									
		5									
		2.5									
		2.5									
	P.S.T.M.S.I.S. O/C	5									
		5									
		2.5									
2.5											
E/F	E/F	1									
		1									
		1									
		1									
		0.5									

**TESTING ENGINEER**



**FORMAT FOR TEST REPORT OF  
DIFFERENTIAL RELAYS**

Annexure – F

**DOCUMENT NO. :RVPNL/PROTECTION/F/01/04**

**ISSUE NO. : 01**

**PAGE NO. : 01 OF 02**

**PAGE REV. NO : 00**

**DATE:**

**RAJASTHAN RAJYA VIDYUT PRASARAN NIGAM LTD**

**TEST REPORT OF DIFFERENTIAL RELAYS**

Name of GSS \_\_\_\_\_

Date of Testing \_\_\_\_\_

Sl.No. \_\_\_\_\_ Setting of Relay

Type and make of Differential

Relay \_\_\_\_\_

Capacity and rating of transformer \_\_\_\_\_

C.T. Details HV: M.C.T. \_\_\_\_\_

I.C.T. \_\_\_\_\_

LV: M.C.T. \_\_\_\_\_

I.C.T. \_\_\_\_\_

**Pick Up Ttest**

**Range For Id**

Phase	Operating Current			Instt. Unit	Remark
	Diff. Unit				
	HV	LV I	LV II		
A					
B					
C					

(1) For MBCH		(2) For MBCH Ib=2 In	
	1 A Relay	5 A Relay	1 A Relay
	5 A Relay		5 A Relay
Ib=0.6In			
Ib=0.7In			
(1) For RADSB			
Ib=1.5In			
Ib=0.8In			

**Second Harmonic Test**

**Restraint Bias Setting Test**

Phase	11 (AC) Amp.	12 (DC) Amp.	Range of DC current for each case I1=In

Phase	Setting on Relay			
	Ist slope		100 Id	Ist slope
	Ib	Id	Ib-0.4Id	Ib



**FORMAT FOR TEST REPORT OF  
DIFFERENTIAL RELAYS**

**DOCUMENT NO. :RVPNL/PROTECTION/F/01/04**  
**ISSUE NO. : 01**  
**PAGE NO. : 02 OF 02**  
**PAGE REV. NO : 00**  
**DATE:**

**Through Current Stability Test**

Phase	Through current			Diff. current
	HV	LV I	LV II	
A				
B				
C				

**Alarm and tripping test:**  
**Auxiliary Supply:**  
**DC Drain:**

**TESTING ENGINEER**

**'G – SCHEDULE'**

**DETAILS OF RELAYS INSTALLED AT VARIOUS SUB STATIONS OF RVPN**

S. No.	Scope of Work	No. of Relays	Testing frequency	Unit Rate	Total Cost
1.	<b>Routine Testing of Distance Protection Schemes</b> (of various makes & types such as ABB, AREVA, Siemens, GE, ER etc. The relays may be Numerical / Static / Electro Mechanical type).	1230	Once in a year		
2.	<b>Routine Testing of Differential Relays</b> (of various makes & types such as ABB, AREVA, Siemens, GE, ER etc. The relays may be Numerical / Static / Electro Mechanical type).	951	Once in a year		
3.	<b>Routine Testing of Over Current &amp; Earth Fault Relays</b> (of various makes & types such as ABB, AREVA, Siemens, GE, ER etc. The relays may be Numerical / Static / Electro Mechanical type).	19424	Once in a year		
4.	<b>Routine Testing of Auxiliary Protection Relays</b> (of various makes & types such as ABB, AREVA, Siemens, GE, ER etc. The relays may be Numerical / Static / Electro Mechanical type).	3892	Once in a year		

**General Terms & Conditions:**

1. The rates shall be quoted inclusive of the transportation, boarding and lodging charges of his testing staff and equipments as well as the night halt charges, etc.
2. Each phase / earth – fault element of a combined over – current and earth – fault relay shall be considered as one over – current or earth – fault relay as the case may be.
3. The payment shall be made monthly on the basis of number of relays tested during the month for which the Contractor shall submit the bill in the prescribed format and the same shall be verified by the concerning Assistant Engineer (Protection) of RVPN.

**ANNEXURE TO 'G – SCHEDULE'**

**DETAILS OF RELAYS INSTALLED AT VARIOUS SUB STATIONS UNDER THE  
JURISDICTION OF EACH PROTECTION CIRCLE**

S. No.	Scope of Work	No. of Relays			
		JAIPUR	UDAIPUR	JODHPUR	TOTAL
1.	<b>Routine Testing of Distance Protection Schemes</b> (of various makes & types such as ABB, AREVA, Siemens, GE, ER etc. The relays may be Numerical / Static / Electro Mechanical type).	432	375	423	1230
2.	<b>Routine Testing of Differential Relays</b> (of various makes & types such as ABB, AREVA, Siemens, GE, ER etc. The relays may be Numerical / Static / Electro Mechanical type).	428	244	279	951
3.	<b>Routine Testing of Over Current &amp; Earth Fault Relays</b> (of various makes & types such as ABB, AREVA, Siemens, GE, ER etc. The relays may be Numerical / Static / Electro Mechanical type).	7923	4558	6943	19424
4.	<b>Routine Testing of Auxiliary Protection Relays</b> (of various makes & types such as ABB, AREVA, Siemens, GE, ER etc. The relays may be Numerical / Static / Electro Mechanical type).	1493	1263	1136	3892

## **QUALIFICATION REQUIREMENTS**

1. The bidder should have experienced staff who have adequate knowledge and are well versed in installation, testing and commissioning of relays and protection schemes. The details of such experience shall be indicated in the bid.
2. The bidder shall have sufficient number of testing team(s) comprising of one Engineer and suitable skilled staff in his employment and have sufficient number of testing equipments to carry out the testing of the quantity of relays given in the G – Schedule within the specified period of one year.
3. The Contractor shall be equipped with the following testing equipments. The details of the make, model and quantity shall be indicated in the bid.
  - a) Automatic Relay Test Kit.
  - b) Secondary Current Injection Test Set having sufficient burden capacity to test Electro – Mechanical over – current & earth – fault relays of 1 Amp and 5 Amp rating.
  - c) Multi meters (Digital & Analog).
  - d) Tong Testers: High Range and Low Range.
  - e) Equipments for testing of auxiliary / secondary protection relays such as over-flux, over-voltage, under-voltage, neutral displacement, restricted earth-fault, circulating current differential relays, etc.
4. The testing equipments shall be got calibrated from a Govt. / Govt. approved / NABL accredited laboratory. The calibration certificates shall not be older than one year on the date of testing.
5. The testing team(s) shall make their own arrangements for transportation and handling of the testing equipments.
6. The bidders shall be required to demonstrate their capability of testing of relays and protection schemes at the time of techno – commercial evaluation of the tenders.