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भारत सरकार

उत्तर क्षेत्रीय विद्युत समिति

18-ए, शहीद जीत सिंह मार्ग, कटवारिया सराय नई दिल्ली - 110016

1. *Government of India*

2. **Northern Regional Power Committee**

18-A, Shaheed Jeet Singh Marg, Katwaria Sarai, New Delhi-110016

उ. क्षे. वि. स./अधीक्षण अभियंता (प्रचालन)/insulators/2009-11

दिनांक 8.03.2010

No. NRPC/SE(O)/Insulators/2009-10/

Dated: 8.03 2010

To

- CMD, POWERGRID, Gurgaon,
- CMD, DTL, New Delhi Fax No 011 23234640
- CED, North Central Railway, Allahabad, 0532-2223211, 2230204
- Director (Electrical), Railway Board, New Delhi, 011- 23387045,
- MD, HVPNL, Panchkula Fax No 0172-2560640
- CMD, RRPVNL, Jaipur Fax No 0141- 2740168
- MD, UPPTCL, Lucknow Fax No 0522- 2287880/ED UPPTCL, Lucknow
- Chairman, BBMB, Chandigarh, Fax No 0172- 2549186, 2652820
- Chief Engineer (SO&C), PSEB, Ablawal, Patiala
- ED & CEO, Powerlinks Transmission Limited, New Delhi, Fax-01166306375
- GM (O&M), POWERGRID, NR-I/ NR-II
- GM (OS), NTPC, NCR, Noida; AGM (OS), NTPC NR, Lucknow,

**Subject: Minutes of meeting on replacement and cleaning of insulators in NR**

Sir,

A meeting was held on 05-02-2010 with the constituents to review the progress of cleaning and replacement of porcelain insulators by polymer/antifog insulators in high pollution areas of Northern Region.

Minutes of the meeting are available on website of NRPC ([www.nrpc.gov.in](http://www.nrpc.gov.in)).

**Yours faithfully**

**SE (Operations)**

**Minutes of the meeting taken by Member Secretary, NRPC on 5<sup>Th</sup> Feb, 2010 regarding cleaning/ replacement of porcelain insulators by polymer/antifog insulators of transmission lines**

List of participants is enclosed at Annexure-I.

**WELCOME:**

MS, NRPC welcomed the participants in the meeting to review the progress of replacement of porcelain insulators by polymer/antifog in the NCR and cleaning of insulators in view of prevailing fog and pollution in the northern region. He stated that there was a need for regular cleaning of insulators even though the fog related impact on the Northern Region is almost over. He emphasized that constituents might identify the new lines on which tripping and auto-reclosure were observed and should replace the insulators on these lines.

He requested all the utilities to update the current status and schedule of completion for the remaining work.

**PUNJAB**

PSEB stated that the deposition on the insulators was such that they could not be removed by ordinary soap solution. So they had to apply mild HCL on the surface to clean the layers of pollution deposits on the insulators. PSEB opined that acid cleaning would deteriorate the life of the insulators. He stated that cases of insulator failure were observed at Sewa which was very near to National Fertilizers Limited (NFL).

PSEB stated that they had replaced over 275 strings comprising 2484 discs of porcelain insulators by anti fog. MS, NRPC requested PSEB to submit details of locations and lines where replacement had been done to NRPC Secretariat through e-mail. The information provided by the PSEB had been included in the annexure-II.

**Delhi**

DTL stated that they had received full lot of 8212 polymer strings required for replacement on their lines. They had replaced porcelain insulators at 75 towers and plan to replace at all locations on their 400 kV lines. DTL stated they want to provide the polymer insulators of 400 kV Mandola-Bawana line immediately but due to constraints of shutdown, the progress is slow.

On hot-line washing of insulators, DTL intimated that they had employed two gangs for this purpose and had completed the work on 21<sup>st</sup> Jan, 2010. They would also repeat cleaning of critical locations after one week. DTL was advised to continue repeat cleaning till 15<sup>th</sup> March 2010 to avoid any fog related tripping. MS, NRPC requested DTL to submit details of replacement and cleaning as per the required format to DTL by NRPC. The information received is placed at Annexure- III.

### **Rajasthan**

RVPNL had submitted that they had completed the replacement of insulators on 220 kV BTPS-Alwar line and had replaced 408 nos. (at 136 locations) insulators with polymer insulators with polymer and 174 nos. (at 58 locations) by anti-fog insulators.

### **Haryana**

HVPNL stated that they had completed Phase I of replacement. Phase -II would be completed by June 2010. In Phase I of critical lines emanating from PTPS stage I and Bahadurgarh (POWERGRID) had been completed. The detail is enclosed at Annex. IV

### **BBMB**

BBMB had submitted that they had initiated proposal to procure polymer insulator through POWERGRID and a purchase order has been issued on dated 2<sup>nd</sup> Feb.2010. The status submitted by BBMB is placed at Annexure- V.

### **POWERGRID**

The status submitted by POWERGRID NR I/II is enclosed at Annex VI. POWERGRID NR I stated that in 400 kV Malerkotla line they had completed replacement in their section and no tripping was reported in the replaced stretches. The remaining portions of the line under NR-II would be completed by 20<sup>th</sup> Feb.2010.

Regarding tripping of HVDC Rihand –Dadri bipolar on 2<sup>nd</sup> Jan 10 POWERGRID intimated that the line so running on RVU mode due to fog and was improperly taken on normal from Dadri end which caused tripping.

POWERGRID also clarified that tripping of 400 kV Dadri-Panipat line during foggy conditions was not because of line fault but because of fault in wave trap at Dadri end.

MS, NRPC enquired about tripping of 400 kV Bhiwadi-Bassi line. POWERGRID intimated the line has tripped due to failure of tension insulator, as these insulators were of conventional type. MS, NRPC advised POWERGRID to replace the tension insulators also.

### **Hot line washing of insulator by helicopter**

POWERGRID stated that the schedule was given for 3-3 ½ hours daily due to inclement weather conditions. The cleaning would continue till the expiry of 350 hours of flying of helicopter. (Annexure-VII)

MS, NRPC requested that phase wise target of schedule for lines in Allahabad, Kanpur, Panki, Muradnagar areas where high pollution had been reported and lines tripped during foggy weather. POWERGRID may identify additional lines locations and polymer requirements and procurement schedule for the same so that work is completed before onset of next winter.

MS, NRPC advised of the constituents to undertake analysis of pollutant in their respective jurisdiction as done by the POWERGRID.

He also emphasized that notified of shifting of brick kilns should also be issued by all other constituents as notified by Haryana. On forecasting mechanism MS, NRPC stated that SLDC may assure availability of competent and experienced staff during foggy conditions. He requested all the constituents to submit the information in the proper format available at NRPC website.

Meeting ended with thanks to the chair.

List of participants during the meeting of polymer issue in NR on 5<sup>th</sup> Feb  
2010

In chair Shri A K Agarwal, MS, NRPC

S.No	Name Sh/SS	Designation	Organiza tion	Tel no./mobile no.	E mail id
1	AK Agarwal	MS	NRPC	26868681	<a href="mailto:msnrpc@gmail.com">msnrpc@gmail.com</a>
2	KK Arya	SE	NRPC	26868681	<a href="mailto:nrebops@yahoo.com">nrebops@yahoo.com</a>
3	Vikram Singh	EE	NRPC	9868893051	<a href="mailto:vikramsinghfms@gmail.com">vikramsinghfms@gmail.com</a>
4	RK Singh	Manager	POWER GRID NR	9873918545	
5	SK Sharma	DGM(OEM)	DTL	9540040640	<a href="mailto:sksharma2462@homail.com">sksharma2462@homail.com</a>
6	PP Singh	MGR Lines	DTL	9540046643	
7	Sanjay Arora	Power Controller	HVPN	9356273746	<a href="mailto:pchvpnl@gmail.com">pchvpnl@gmail.com</a>
8	NK Sharma	SE	PSEB	9646118204	<a href="mailto:ninnysharma2006@yahoo.com">ninnysharma2006@yahoo.com</a>
9	Alok Kumar	Dy. Manager	NRLDC, POWER GRID	09999039321	<a href="mailto:alokwaghela@hotmail.com">alokwaghela@hotmail.com</a>

Summary of Status of Replacement of Porcelain Insulators with Polymer/Antifog Insulators (As reported by constituents) as on 08.03.10						
Name of the constituent	Voltage level	Lines where insulators to be replaced			Type of insulator (polymer/antifog)	Remarks
		Total Insulator Strings (Nos)	Insulator Strings replaced (Nos)	Scheduled completion date for replacement of balance insulators \$		
DTL	400kV	7433	1296	NA	Polymer	Work in progress. Whole lot has been procured (8212) through POWERGRID. Status as on 5.2.10
	220kV	8231	nil	NA	Antifog	Taking action for procurement of Antifog insulators
HVPNL	220kV	11834	5751	March/April 2010.	Antifog	Work of Phase –I (PTPS stage-I and Bahadurgarh area) completed . Phase –II would be completed by June 2010
UPPTCL	400kV	1000	684	NA	Polymer	1682 insulator strings replaced out of 2000 received so far,
	220kV	2241	998	NA	Polymer	
PGCIL NR-I	400kV	31392	22941		Polymer	After receipt of insulators
	220kV	831	-		Polymer	After receipt of insulators
	HVDC Rihand-Dadri	4608	3136	—	Polymer	Insulators not available. Would be completed in 3 <sup>rd</sup> phase, i.e. in Feb./March 2010.
	HVDC Balia-Bhiwadi	2080	400	-	Polymer	HVDC Balia-Bhiwadi line would be provided with polymer insulators. Pole-I expected in 31 <sup>st</sup> March, 2010. Replacement work shall be taken up in third phase commencing from Feb/ Mar, 2010.
PGCIL NR-II	400kV	19620	7532	-	Polymer	Procurement order for insulator strings required for phase-II (12,615 No.) and phase-III (10,000 No.) had been placed. Delivery of material expected in Dec/Jan'2010. 400 kV Moga-Bhiwadi line (expected in Dec 2009) would also be provided with polymer insulators.
	220kV	380	380	Completed	Polymer	

BBMB	400kV	2016		June, 2010	Polymer	BBMB has initiated proposal for procurement of 400 kV polymer insulators through POWERGRID.
	220kV	3599		06/10	Polymer	
	400kV	264	264	Completed	Antifog	
	220kV	3392	3176	04/2010	Antifog	work would be complted by April 10; majority of work pending due to crops in the fields.
POWERLINKS	400kV	1956	1956	04/09	Polymer	Work Completed
PSEB	220 & 132 kV	275	275	completed	Antifog	More lines / stretches will be identified for further replacement
RVPNL	220 kV	136+58	408+174	Completed	Polymer/antifog	408 strings of polymer and 174 antifog strings
Note: \$ The original schedule was 31-03-2009 as per decision of 10 <sup>th</sup> NRPC meeting held on 30-09-2008.						

## Annexure –VI A

<b>Status of erection of polymer insulators POWERGRID NR-I as on 8-3-10</b>								
<b>Sl. No</b>	<b>Name of line</b>	<b>Total Locations (No)</b>	<b>Total Polymer Strings Required (No)</b>	<b>Location Replaced(No)</b>	<b>Polymer Insulator strings replaced</b>	<b>% Complete</b>	<b>Schedule for replacement of balance</b>	
<b>In Phase- I</b>							<b>Date of commencement</b>	<b>Date of completion</b>
1	400 KV Meerut-Mandola-I	166	1284	166	1284	100%		
2	400 KV Meerut-Mandola-II	166	1284	166	1284			
3	400 KV Dadri Mandola-I	124	1338	124	1338			
4	400 KV Dadri Mandola-II	124	1338	124	1338			
5	400 KV Dadri-Panipat-I	301	1515	301	1515			
6	400 KV Dadri-Panipat-II	328	1731	328	1731			
7	400 KV Dadri-M'Kotla	282	1374	282	1374			
8	400 KV Dadri-G. NOIDA	37	429	37	429			
9	400 KV G.NOIDA-Ballabgarh	107.5	1270	107.5	1270			
10	400 KV Dadri - Maharaniabagh	67.5	730	67.5	730			
11	400 KV Maharaniabagh-Ballabgarh	89	1122	80	1122			
12	400 KV S/C Hissar-Bhiwadi (up to LILO point)	360	2556	305	1920	85% complete	Mar-10	Mar-10



13	400 KV Mainpuri-Ballabgarh-I	354	1377	283	1146	83% complete	Mar-10	Mar-10
14	400 KV Mainpuri-Ballabgarh-II	362	1473	279	1229	83% complete	Mar-10	Mar-10
15	400 KV S/C Kanpur-Ballabgarh	579	2259	282	1221	55% complete	Mar-10	Mar-10
16	± 500 KV HVDC Rh-Dadri P-I	885	2304	588	1568	68% complete	Mar-10	Mar-10
17	± 500 KV HVDC Rh-Dadri P-II	885	2304	610	1568	68% complete	Mar-10	Mar-10
<b>In Phase- II</b>								
1	400 KV S/C Ballabgarh-Bhiwadi	132	508	132	508	100%		
2	400 KV S/C Agra-Ballabgarh	283	1348	283	1348	100%		
3	400 KV Dadri-Muradnagar	90	548	79.5	441	80% complete	Mar-10	Mar-10
4	400 KV S/C Bhiwadi-Bassi	353	1374	205	678	50% complete	Mar-10	Mar-10
5	400 KV M'nagar-Muradabad	470	1743	174	717	41 % complete	Mar-10	Mar-10
6	400 KV D/C Meerut-Muzaffarnagar	106	534	0	0	NIL	Mar-10	Mar-10

7	220 KV FGPP-Palla I&II	64	480	0	0	NIL	Mar-10	Mar-10
8	220 KV FGPP-Samaypur I & II	54	351	0	0	NIL	Mar-10	Mar-10
In Phase-III								
1	400 KV S/C Bhiwadi - Bassi-II (LILO of Old Bassi-Hissar)	35	240	35	240	100 % Complete		
2	400 KV Agra-Bhiwadi-I	198	702	0	0	NIL	Shall be taken up after receiving Insulators under PCK-C	
3	400 KV Agra-Bhiwadi-II	205	786	0	0	NIL		
4	LILO of 400 KV Bly-Mandola at Meerut	22	102	0	0	NIL		
5	LILO of 400 KV Ballabgarh-Bhiwadi at G'Gaon	175	678	0	0	NIL		
6	LILO of 400 KV Lko-Mbd at Bly.	22	84	0	0	NIL		
7	400 KV Bly-Mbd	108	756	0	0	NIL		
8	± 500 KV HVDC Ballia-Bhiwadi Pole-I	400	1040	70	200	20% complete ( Under progress)		
9	± 500 KV HVDC Ballia-Bhiwadi Pole-II	400	1040	70	200	20% complete ( Under progress)		
Other than Phase								
1	400 KV S/C Allahabad-Kanpur-I	13	39	13	39	100 % Complete		

2	400 KV S/C Allahabad-Kanpur-II	13	39	13	39	100 % Complete		
	<b>TOTAL FOR AC LINES:</b>	<b>5790</b>	<b>31392</b>	<b>3867</b>	<b>22941</b>			
	<b>TOTAL FOR DC LINES</b>	<b>2570</b>	<b>6688</b>	<b>1338</b>	<b>3536</b>			
	<b>TOTAL FOR AC &amp; DC LINES</b>	<b>8360</b>	<b>38080</b>	<b>5205</b>	<b>26477</b>			

## Annexure –VI B

Status of Replacement of porcelain insulators with polymer/antifog insulators As on 08.03.2010									
POWERGRID NR-II					NR-II				
S.No.	Name of line	Line Length		Length where insulators to be replaced				Cleaning Status for Balance Strings	
		Kms	Total Insulator Strings (No.s)	Kms	Total Insulator Strings (No.s)	Insulator Strings replaced (No.s)	Status		
	Phase-I ( To be replaced Complete)						Completed	Balance	
1	400 KV Bawana-Bahadurgarh Line	48.94	500	48.94	500	500	Work completed	0	
2	220 KV Hisar- Hisar Link Line Ckt- I	13.77	193	13.77	193	193	Work completed	0	
3	220 KV Hisar- Hisar Link Line Ckt- II	13.77	187	13.77	187	187	Work completed	0	
4	400 KV Hisar- Bhiwani Line	35.33	387	35.33	387	387	Work completed	0	
5	400 KV Bahadurgarh-Bhiwani line	84.37	839	84.37	839	839	Work completed	0	
6	400 KV Hisar- Bawana line	131.85	1295	131.85	1295	1295	Work completed	0	
7	400 KV Hisar- Fatehabad Line	83.60	828	84.00	828	828	Work completed	0	
	Phase-I (Partial Replacement )								
8	400 KV Dadri-	193.48	1932	24.50	716	716	Work	0	

	Malerkotla Line						completed		
9	400 KV Moga-Fatehabad Line	183.99	1755	30.00	615	615	Work completed	0	
10	400 KV Moga- Hisar Line	209.17	1971	36.00	655	655	Work completed	0	
11	400 KV Abdullapur-Bawana Line Ckt-I	167.00	1553	22.50	636	636	Work completed	0	
12	400 KV Abdullapur-Bawana Line Ckt-II	167.00	1553	22.50	635	635	Work completed	0	
	Phase-II (Partial Replacement )								
8a	400 KV Dadri-Malerkotla Line			24.50	264	20		244	Work Completed
9a	400 KV Moga-Fatehabad Line			30.00	528	0		528	Work Completed
10a	400 KV Moga- Hisar Line			36.00	761	0		761	Work Completed
11a	400 KV Abdullapur-Bawana Line Ckt-I			22.50	202	0		202	Work Completed
12a	400 KV Abdullapur-Bawana Line Ckt-II			22.50	202	0		202	Work Completed
	Phase-II ( To be replaced Complete)								
13	400 KV Hisar- Patiala Line	128.17	1710	64.09	650	13		637	Work Completed
14	400 KV Hisar- Kaithal Line	113.12	1032	56.56	480	13		467	Work Completed
15	400 KV Kaithal-Nalagarh line	199.85	2052	99.92	880	0		880	
16	400 KV Nalagarh-Patiala Line	93.39	1083	46.70	460	0		460	
17	400 KV Jalandhar-Ludhiana Line	84.77	939	39.36	436	0		436	

18	400 KV Ludhiana-Malerkotla Line	35.74	387	20.31	220	0		<b>220</b>	
19	400 KV Nathpa Jhakri-Abdullapur Line Ckt- I	180.00	2421	25.72	346	0		<b>346</b>	
20	400 KV Nathpa Jhakri-Abdullapur Line Ckt-II	180.00	2421	25.80	347	0		<b>347</b>	
	<b>Tr. Lines under O&amp;M</b>	<b>2347.28</b>	<b>25037.00</b>	<b>1061.48</b>	<b>13262</b>	<b>7532</b>	<b>0</b>	<b>5730</b>	
	<b>Phase-III ( To be replaced Complete)</b>								
21	400 KV Moga - Bhiwadi Line Ckt- I	350.00	3369	350.00	3369	0		<b>3369</b>	
22	400 KV Moga - Bhiwadi Line Ckt- II	350.00	3369	350.00	3369	0		<b>3369</b>	
	<b>Total</b>	<b>3047.28</b>	<b>31775</b>	<b>1761.48</b>	<b>20000</b>	<b>7532</b>	<b>0</b>	<b>12468</b>	

**Polymer Replacement in lines  
under O&M**

**56.79%**

**Status & Tentative Schedule for cleaning of insulators by Helicopter as on 07.02.10by**

Annexure -VII

<b>Under Kanpur jurisdiction.</b>					
<b>SL. No.</b>	<b>NAME OF LINE</b>	<b>LOCATION NO</b>		<b>NO OF TOWERS</b>	<b>Tentative Schedule</b>
		<b>FROM</b>	<b>TO</b>		
1	400 kV S/C Allahabad-Kanpur-I	1098	1188	91	Complete
2	400 kV S/C Allahabad-Kanpur-II	1044	1129	86	Complete
3	400 kV S/C Singrauli-Kanpur	1068	1158	91	Complete
4	400 kV S/C Kanpur-Agra	1	99	99	Complete
5	400 kV S/C Kanpur-Ballabgarh	1	83	83	Complete
6	400 kV S/C Kanpur-Panki-I	1	21	21	Complete
7	400 kV S/C Kanpur-Panki-II	1	18	18	Complete
8	400 kV D/C Kanpur-Auraiya	122	212	91	07.02.10 – 11.02.10
9	400 kV D/C Allahabad-Mainpuri	526	690	165	12.02.10-17.02.10 & 02.03.10 – 10.03.10
			<b>TOTAL</b>	<b>403</b>	
<b>Helicopter will be under maintenance from 18.02.10 to 21.02.10</b>					
<b>Under Mainpuri jurisdiction.</b>					
1	500 kV HVDC Rihand-Dadri , Pole-I & II	1701	1800	100	12.03.10 – 18.03.10
			<b>TOTAL</b>	<b>100</b>	
<b>Under Allahabad jurisdiction.</b>					
1	500 kV HVDC Rihand-Dadri, Pole-I & II	709	808	100	23.02.10 – 28.02.10
			<b>TOTAL</b>	<b>100</b>	

Progress of replacement of Normal Disc Insulators by Polymer Strings- UP as on 5<sup>th</sup>  
Feb 2010

SI No.	Name of Line	Total Received	No. of String Changed(Nos.)	Remark
1	400kV Murad Nagar-Muzaffarnagar	144	126	
2	400kV Murad Nagar-Panki Line	606	558	
3	400kV Unnao-Agra	250		
4	400kV Panki-Unnao			
	<b>Total</b>	<b>1000</b>	<b>684</b>	
1	220kV Murad Nagar-Shamli	234	234	
2	220kV Murad Nagar-Khurja	120	120	
3	220kV Murad Nagar-Sikandrabad	102	102	
4	220kV Interconnector No.2	24	24	
5	220kV Sahibabad-Muradnagar	216	215	
6	Modipuram-Mataur Ist Ckt	33	33	
7	220kV NAPP-Khurja	69	69	
8	220kV G.Noida-Noida IInd CkT	202	201	
	Total	1000	998	
	<b>Grand Total</b>	<b>2000</b>	<b>1682</b>	



## Annexure -DTL

Status of replacement of porcelain insulators with polymer/antifog insulators  
Polymer insulators as on 04.02.10

(A)

Name of the organization: Delhi Transco Limited

Line Code	Name of line,voltage,S/C or D/C	Line Length			Length where insulators to be replaced						%age-wise work completed in Kms	%age-wise work completed in Location	Remarks	
		Kms	No. of locations	Total Insulator Strings(Nos)	Kms	No.of locations	Total Insulators Strings required (Nos)	No. of locations	Insulators Strings replaced(Nos)*	Schedule replacement for of balance				
										Start Date	End Date			
1	400kV Bamnauli-Ballabhgarh D/C line	52.8	149	3488	52.8	149	3488	37	496	19.11.09	work in progress	30%	25%	
2	400kV Bawana-Bamnauli D/C Line	37	103	2049	37	103	2049	36	696	19.11.09	work in progress		35%	
3	400kV Manduala-Bawana D/C Line	23.801	68	1896	23.801	68	1896	2	104	19.11.09	work in progress		3%	
(B) Antifog insulators														
Name of the organization: Delhi Transco Limited													Status as on: 04.02.2010	

[illegible]

**Status of Replacement of porcelain insulators with polymer/antifog insulators Annexure-IV**

**Name of the organization: HVPN**

**Status as on:03.03.10**

Priority No.	Name of line	Line Length		Length where insulators to be replaced						Insulator Strings replaced per day per gang	Other maintenance work	Line shutdown (no. of days)	Remarks
		Kms/Towers	Total Insulator Strings (No.s)	Kms/Towers	Total Insulator Strings (No.s)	Insulator Strings replaced (No.s)	Schedule for replacement of balance	Start Date	End Date				
1	220KV Sewah-PTPS Ckt-I	12	198	12	198	198		Completed					
2	220KV Sewah-PTPS Ckt-II	12	198	12	198	198		Completed					
3	220KV Sewah-PTPS Ckt-III	12.5	213	12.5	213	213		Completed					
4	220KV Sewah-PTPS Ckt-IV	12.5	213	12.5	213	213		Completed					
5	220KV PTPS-Sonepat Ckt-I	51.5	634	51.5	634	600		Completed					
	220KV PTPS-Sonepat Ckt-II	51.5	634	51.5	634	600		Completed					
6	220KV Nuna-Majra-B/garh(400KV) Ckt-I	2.9	42	2.9	42	42		Completed					
	220KV Nuna-Majra-B/garh(400KV) Ckt-II	2.9	42	2.9	42	42		Completed					
7	220KV Rohtak-B/garh Ckt-I	46	576	46	576	567							
	220KV Rohtak-B/garh Ckt-II	46	576	46	576	567							
8	220KV Rohtak-PTPS Ckt-I	63	726	63	726	NIL							
	220KV Rohtak-PTPS Ckt-II	63	726	63	726	NIL							
9	220KV Pali-Samaypur Ckt-I	10.5	342	10.5	342	63							
	220KV Pali-Samaypur Ckt-II	10.5	342	10.5	342	63							
10	220KV Pali-Palla Ckt-I	13.9	414	13.9	414	72							
	220KV Pali-Palla Ckt-II	13.9	414	13.9	414	74							
11	220KV Samaypur-Palwal Ckt-I	18.91	288	18.91	288	288		Completed					
	220KV Samaypur-Palwal Ckt-II	18.91	288	18.91	288	156							
12	220KV Badshahpur-Rewari D/C line	70.3	1410	70.3	1410	100							
13	220KV D/C Sec-52-A-Pali line	23/89	690	23/89	690	NIL							
14	220KV Badshahpur-Samaypur D/C	24/86	642	24/86	642	309							
15	220KV Badshahpur-Pali D/C	24/86	726	24/86	726	210							
16	220KV S/C Badshahpur-IMT Manesar	11.772	240	11.772	240	24							
17	220KV D/C Daultabad-IMT Manesar	17.996	594	17.996	594	486							
18	220KV D/C Nuna-Majra-Daultabad	29.898	666	29.898	666	666		Completed					
	Total		11834		11834	5751							

Status of replacement of porcelain insulators with polymer/antifog insulators														
(A)	Polymer insulators								Annexure-V					
Name of the organization: Bhakra Beas Management Board										Status as on: 08.03.2010				
Line Code	Name of line, voltage,S/C or D/C	Line Length			Length where insulators to be replaced						%age-wise work completed in Kms	%age-wise work completed in Location	Remarks	
		Kms	No. of locations	Total Insulator Strings (Nos)	Kms	No. of locations	Total Insulator Strings required (Nos)	No of locations	Insulator Strings replaced (Nos)	Schedule for replacement of balance				
										Start Date	End Date			
	400KV S/C Dehar-Panipat Line	261.8	772	4314	...	206	771	..	..	...	..	..	..	P.O. has been issued vide P.O. No. 1655/P&D(TS)/PNT-425 dated 02.02.2010 & 1656/P&D(TS)/PNT-425 dated 02.02.2010.
	400KV S/C Dehar-Bhiwani Line	312.15	943	4791	..	331	1245	..	..	...	..	..	..	
	220KV Rohtak Road-Narela ckt-I	22	81	426	...	81	426	..	..	...	..	..	..	
	220KV Rohtak Road-Narela ckt-II	22	81	426	..	81	426	..	..	...	..	..	..	
	220KV Panipat-Narela ckt-I	56.8	197	811	..	73	263	..	..	...	..	..	..	
	220KV Panipat-Narela ckt-II	56.8	197	811	..	73	263	..	..	...	..	..	..	
	220KV Panipat-Narela ckt-III	58	171	588	..	81	273	..	..	...	..	..	..	
	220KV Ballabhgarh-BTPS-I	24.73	90	321	24.73	90	321							
	220KV Ballabhgarh-BTPS-II	24.73	90	321	24.73	90	321							
	220KV Samaypur-Ch. Dadri S/C	118	400	1323	118	154	518							
	220KV Ballabhgarh-Ch. Dadri S/C	119.7	407	1378	119.7	169	569							
	220KV Ballabhgarh-Samaypur-I	4.23	20	84	4.23	20	84							
	220KV Ballabhgarh-Samaypur-II	4.23	20	84	4.23	20	84							
	220KV Ballabhgarh-Samaypur-III	5.5	23	87	5.5	15	51							
	Note:	The requirement of 400KV Polymer insulators has been submitted to Powergrid. The matter was discussed in 47th OCC meeting where Powergrid had generally agreed for procurment of the insulators.												

(B) Antifog insulators															
Name of the organization: Bhakra Beas Management Board									Status as on: 08.03.2010						
Line Code	Name of line, voltage,S/C or D/C	Line Length			Length where insulators to be replaced						%age-wise work completed in Kms	%age-wise work completed in Location	Remarks		
		Kms	No. of locations	Total Insulator Strings (Nos)	Kms	No. of locations	Total Insulator Strings required (Nos)	No. of locations	Insulator Strings replaced (Nos)	Schedule for replacement of balance					
										Start Date	End Date				
	220KV Dhulkot-Panipat ckt-I	130	433	1669	..	29	117	29	117	..	...	..	100%	Detail of length in Kms can not be worked out due to different locations.	
	220KV Dhulkot-Panipat ckt-II	130	433	1669	..	29	117	29	117	..	...	..	100%		
	220KV S/C Panipat Ch. Dadri Line	115	342	1173	..	21	81	21	81	..	..	..	100%		
	220KV S/C Kurukshetra-Panipat Line	77.08	233	786	..	28	105	28	105			..	100%		
	220KV BUSES at 400KV S/S Panipat	...	...	240		...	240	...	240			..	100%		
	220KV Bhakra-Jamalpur ckt -I	86.4	1-276	1034	11	32	204	31	198			96%	97%	Disc of T. No. 276 could not be replaced due to 120KN 16/32 mm antifog disc received from Bhiwani are poor quality	
	220KV Bhakra-Jamalpur ckt - II	86.4	1-276	1034	11	32	204	31	198			96%	97%		
	220KV Jamalpur-Jalandhar ckt-I	64	1-214	960	9	27	87	27	87	..	...	100%	100%		
	220KV Jamalpur-Jalandhar ckt- II	64	1-214	960	9	27	87	27	87	..	..	100%	100%		
	220KV Pong-Jalandhar ckt- I	97.5	1-328	1204	4	12	36	12	36			100%	100%		
	220KV Pong-Jalandhar ckt- II	97.5	1-328	1204	4	12	36	12	36			100%	100%		
	220KV Jamalpur-Sangrur ckt- I	78	1-268	970	15	40	313	39	307			98%	98%	Disc of T. No. 89 could not be replaced due to 120KN 16/32 mm antifog disc received from Bhiwani are poor quality	
	220KV Jamalpur-Sangrur ckt- II	78	1-268	970	15	40	313	39	307			98%	98%		
	220KV Hisar-Sangrur-I	139	477	1431	139	62	186	62	186			100%	100%	Standing of water & crops in fields	
	220KV Hisar-Sangrur-II	139	477	1431	139	62	186	62	186			100%	100%		
	220KV Bhiwani-Hisar-I	57.95	199	654	30	102	345	85	255	21.04.2010	21.04.2010	74%	83%	Standing of water & crops in fields	
	220KV Bhiwani-Hisar-II	57.95	199	654	30	102	345	84	252	24.04.2010	24.04.2010	73%	82%		
	220KV Bhiwani-Ch. Dadri-I	36.45	124	420	7.6	26	81	25	75	09.03.2010	09.03.2010	96%	96%	Standing of water & crops in fields	
	220KV Bhiwani-Ch. Dadri-II	36.45	124	420	7.6	26	81	26	78	11.03.2010	11.03.2010	98%	98%	Standing of water & crops in fields	
	220KV Bhiwani-Ch. Dadri-III	34.7	127	444	9.5	35	114	35	114			100%	100%		
	220KV Bhiwani-Ch. Dadri-IV	34.7	127	444	9.5	35	114	35	114			100%	100%		

Sl No	Name of line, voltage, S/C or D/C	Line Length			Length where insulators to be replaced							%age-wise work completed in Kms	%age-wise work completed in Location	Remarks
		Kms	No. of locations	Total Insulator Strings (Nos)	Kms	No of locations	Total Insulator Strings to be replaced (Nos)	No. of locations	Insulator Strings replaced (Nos)	Schedule for replacement of Insulator	Start	End		
1	220KV BTI.-MKT.	50	154	540	20	15	7	15	7	20.10.09 to 11.12.09	100%	100%		
2	220KV Barnala-Maler Kotla	56	125	609	—	—	—	—	—	—	—	—	—	
3	220KV Lehra-Barnala	38	114	414	—	—	—	—	—	—	—	—	—	
4	220KV Lehra-Bajakhana	28.645	84	284	10	12	1	12	1	19.5.09 to 19.5.09	100%	100%		
5	220KV Lehra-Bathinda	25	60	285	15	16	1	16	1	12.7.09 to 12.7.09	100%	100%		
6	220KV FZR-Botiencuda	17	141	441	7	4 to 7	6	4,7	6	24.10.09 to 30.11.09	100%	100%		
7	220KV Moga-FZR.	55	278	601	35	20 to 21	6	21	6	5.11.09 to 12.11.09	100%	100%		
8	132KV Moga-JML CKT-11	80	253	795	50	10 to 31	10	10 to 31	10	6.4.09 to 31.12.09	100%	100%		
9	132KV Moga-JML CKT-1	80	229	795	10	8	2	8	2	12.12.09 to 12.12.09	100%	100%		
10	132KV Moga-MUKTSAN	72.730	253	876	—	—	—	—	—	—	—	—	—	
11	132KV I/L MUKTSAN	1.6	9	348	—	—	—	—	—	—	—	—	—	
12	132KV Sadig-MUKTSAN	31	143	474	15	10	1	10	1	14.4.09 to 14.4.09	100%	100%		
13	132KV MES	11.230	46	174	9	7	4	7	4	11.4.09 to 4.12.09	100%	100%		
14	132KV MUKTSAN-Maler Kotla	37.5	311	670	7.6	88	I	88	I	23/11/09 to 23/11/10	—	—		
15	132KV MKT. Saranaga	47.3	—	876	10	8	2	8	2	26.12.09 to 26.12.09	100%	100%		
16	132KV Moga-Baghapur	10.00	32	173	16	14	2	12	1	22.7.09 to 22.7.09	50%	50%		
17	132KV Giddarbaha-Maler Kotla	18.700	64	198	15	27 to 50	47	27 to 50	47	17.10.09 to 19.11.09	100%	100%		



# Replacement of Porcelain insulators and/or insulators 1.4.2009 to 31.1.2010

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	Name of line, voltage, SAC or DVC	Line Length			Length where insulators to be changed							%age-wise work completed in Kms	%age-wise work completed in location	Remarks	
		Kms	No. of locations	Total Insulator Strings (Nos)	Kms	No. of locations	Total Insulator Strings to be replaced (Nos)	No. of locations	Insulator Strings replaced (Nos)	Schedule for replacement of balance					
										Start	End Date				
18	132KV Malout-Abohan	29.6		328	10	9	1	9	1	20 <sup>10</sup> / <sub>09</sub>	20 <sup>10</sup> / <sub>09</sub>	100%	100%		
19	132KV F2R-Mana Singh wala	28		120	7	527	6	547	6	15 <sup>10</sup> / <sub>09</sub>	15 <sup>10</sup> / <sub>09</sub>	100%	100%		
20	132KV Kotkarsore - Fergesha	18.6		141	10	9	6	9	6	20 <sup>10</sup> / <sub>09</sub>	20 <sup>10</sup> / <sub>09</sub>	100%	100%		
21	132KV Muktsar - Kotkapura	28.400		345	9	8	19	8	19	23 <sup>10</sup> / <sub>09</sub>	24 <sup>10</sup> / <sub>09</sub>	100%	100%		
22	132KV Sadliq - Fergapur	80		795	12	11	3	11	3	5 <sup>11</sup> / <sub>09</sub>	5 <sup>11</sup> / <sub>09</sub>	100%	100%		
23	132KV Gidderbaha - Badali	15.316		198	14	13	37	13	3	7 <sup>11</sup> / <sub>09</sub>	7 <sup>11</sup> / <sub>09</sub>	100%	100%		
24	132KV Bathinda - Balluana	14.300		197	17	15	12	15	12	19 <sup>12</sup> / <sub>09</sub>	19 <sup>12</sup> / <sub>09</sub>	100%	100%		
25	132KV Muktsar - Jalalabad	33		387	20	15	1	15	1	11 <sup>11</sup> / <sub>09</sub>	11 <sup>11</sup> / <sub>09</sub>	100%	100%		
26	66KV MES - Bathinda	11	45	141	15	14	15	14	15	11 <sup>11</sup> / <sub>09</sub>	15 <sup>11</sup> / <sub>09</sub>	100%	100%		
27	66KV Malout Road	30		321	13	10	4	10	3	29 <sup>9</sup> / <sub>09</sub>	29 <sup>9</sup> / <sub>09</sub>	100%	100%		
28	66KV - Jhoktehal singh	13		228	4.5	4	1	4	1	3.6.09	3 <sup>6</sup> / <sub>09</sub>	100%	100%		
29	66KV - Lehra - Baliyawali	12.285	50	81	14	19	10	12	10	15 <sup>11</sup> / <sub>09</sub>	15 <sup>11</sup> / <sub>09</sub>	100%	100%		
30	66KV Jodhpur - Refinery	26	117	357	7	8	12	8	12	8 <sup>11</sup> / <sub>09</sub>	8 <sup>11</sup> / <sub>09</sub>	100%	100%		
31	66KV Bhuch - Chack F singh	6.430	27	87	10	7	10	7	10	12 <sup>11</sup> / <sub>09</sub>	12 <sup>11</sup> / <sub>09</sub>	100%	100%		
32	132KV BTI - NFL	2.4	11	57	2	9	1	9	1	2 <sup>1</sup> / <sub>09</sub>	2 <sup>1</sup> / <sub>09</sub>	100%	100%		
निगरान इंसुलेटर श्री. अडे. ओम. उलवा. पी. व. वि. वे., प्रतिष्ठ															

निगरान् विभाग

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