

# List of Important Grid Elements in Eastern Region

In compliance to IEGC 5.2©

May -2017



Eastern Regional Load Despatch Centre  
Power System Operation Corporation Ltd  
14 Golf Club Road,  
Kolkata 700033

# Table of Contents

SI No	Chapter	Page No
1	Introduction	1
2	List of Important Transmission line	2
3	List of Important Transformers & ICTs Tap Position	6
4	List of Rectors and Harmonic Filters	9
5	List of Important Generators	13

# **1.0 Introduction**

**Important Grid Elements of Eastern regional Grid has been issued in compliance with IEGC 5.2 (c).**

1. The criterion that has been adopted for including a transmission line in this list is as follows:
  - a) All HVDC Transmission Line & HVDC Back-to-back
  - b) All 765 kV & 400kV EHVAC Transmission Lines
  - c) Important 220kV Transmission line belonging to Central Transmission Utility & Regional Entities Generating Station
  - d) Important 220kV transmission line from the territory of one State control area to other state control areas (Tie lines)
  - e) 220kV Lines affecting system security or forming part of Islanding Scheme
  - f) 220kV Lines feeding loads of a strategic/sensitive nature
2. The transmission lines in the above context means a grid element from bus-bar to bus bar and includes all equipment such as associated circuit breakers, Line reactors , isolators, CVT's , CT's etc.
3. The criteria that has been adopted for including a generating unit is as follows:
  - a) All Regional entities
  - b) All thermal unit of 200 MW and above
  - c) All Hydro unit of 10 MW and above
4. Outage or the intention to take under outage, of any major component/sub-system, which would reduce security/ redundancy level of the above element, shall be precisely intimated to ERLDC along with the likely time and status regarding revival.
5. Any 400kV bus shutdown at substations needs the approval of ERLDC.
6. In respect of two main and transfer bus switching scheme at 400kV substations, ERLDC shall be informed whenever the 400kV transfer breakers at any substation is utilized for switching any line/ICT.
7. In respect of 400kV substation/Power station switchyard having breaker and a half switching scheme, outage within the substation (say main or tie circuit breaker) not affecting power flow on any line/ICT can be availed by the constituents under intimation to ERLDC. However, while availing such shutdowns or carrying out switching operations it must be ensured by the substation that at least two Dias are complete even after such outage from the view point of network reliability. Any outage not fulfilling the above condition needs the approval of ERLDC.

## 2.0 List of Important Transmission Lines

### 2.1 Tie lines:-

<b>LIST OF IMPORTANT LINES</b>								
SL.NO	TIE-LINE	OWNED BY	CONNECTED SYSTEMS		LENGTH (KM)	COND. (TYPE)	VOLTS (KV)	NO.OF CKTS.
			END-1	END-2				
<b>A) 765 KV LINES</b>								
1	GA YA-VARANASI	POWERGRID	POWERGRID(ER)	POWERGRID(NR)	272	QUAD BERSIMIS	765	D/C
2	GA YA-BALIA	POWERGRID	POWERGRID(ER)	POWERGRID(NR)	237	QUAD BERSIMIS	765	S/C
3	PUSAULI-FATEHPUR	POWERGRID	POWERGRID(ER)	POWERGRID(NR)	356	QUAD BERSIMIS	765	S/C
4	RANCHI(NEW)-DHARAMJAYGARH	POWERGRID	POWERGRID(ER)	POWERGRID(WR)	303	QUAD BERSIMIS	765	D/C
5	JHARSUGUDA-DHRAMJAYGARH	POWERGRID	POWERGRID(ER)	POWERGRID(WR)	149	HEXA-ZEBRA	765	D/C
6	ANGUL-SRIKAKULAM	POWERGRID	POWERGRID(ER)	POWERGRID(SR)	276.5	HEXA-ZEBRA	765	D/C
<b>B) 400 KV LINES</b>								
7	MUZZFARPUR-GOROKHPUR	POWERLINKS	POWERGRID(ER)	POWERGRID(NR)	261	QUAD-MOOSE	400	D/C
8	PATNA-BALIA	POWERGRID	POWERGRID(ER)	POWERGRID(NR)	195	QUAD-MOOSE	400	Q/C
9	BIHARSHARIFF-BALIA	POWERGRID	POWERGRID(ER)	POWERGRID(NR)	242	QUAD-MOOSE	400	D/C
10	BIHARSHARIFF-VARANASI	POWERGRID	POWERGRID(ER)	POWERGRID(NR)	321	TW.MOOSE	400	D/C
11	BARH-GOROKHPUR	POWERGRID	POWERGRID(ER)	POWERGRID(NR)	353	QUAD-MOOSE	400	D/C
12	SASARAM(N)-SARNATH	POWERGRID	POWERGRID(ER)	POWERGRID(NR)	76	TW.MOOSE	400	S/C
13	SASARAM(E)-NABINAGAR	POWERGRID	POWERGRID	BRBCL	81	TW.MOOSE	400	D/C
14	SASARAM(N)-ALLAHABAD	POWERGRID	POWERGRID(ER)	POWERGRID(NR)	271	TW.MOOSE	400	S/C
15	BINAGURI-BONGAIGAON	POWERGRID	POWERGRID(ER)	POWERGRID(NER)	217	TW.MOOSE	400	D/C
16	AILPURDUAR-BONGAIGAON	POWERGRID	POWERGRID(ER)	POWERGRID(NER)	105.69	QUAD-MOOSE	400	D/C
17	BINAGURI-TALA I & II	POWERGRID	POWERGRID	THEP	115*	TW.MOOSE	400	D/C
18	BINAGURI-TALA IV	POWERGRID	POWERGRID	THEP	98*	TW.MOOSE	400	S/C
19	BINAGURI-MALBASE	POWERGRID	POWERGRID	THEP	121*	TW.MOOSE	400	S/C
20	TEESTA V-RANGPO	POWERGRID	NHPC	POWERGRID	11	TW.MOOSE	400	D/C
21	SEL-RAIGARH	POWERGRID & SEL	SEL	POWERGRID(WR)	147	TW.MOOSE	400	S/C
22	JHRASUGUDA-IBEUL	POWERGRID & IBEUL	POWERGRID	IBEUL	64	TW.MOOSE	400	D/C
23	JHRASUGUDA-RAIGARH	POWERGRID & IBEUL	POWERGRID(ER)	POWERGRID(WR)	110	TW.MOOSE	400	D/C
24	ROURKELA-RAIGARH	POWERGRID	POWERGRID(ER)	POWERGRID(WR)	212	TW.MOOSE	400	S/C
25	ROURKELA-SEL	POWERGRID & SEL	POWERGRID	SEL	113	TW.MOOSE	400	S/C
26	RANCHI-SIPAT	POWERGRID	POWERGRID(ER)	POWERGRID(WR)	405	TW.MOOSE	400	D/C
27	BEHRAMPUR-BEHRAMARA	POWERGRID	POWERGRID	BANGLADESH	71*	TW.MOOSE	400	D/C
28	FARAKKA-BEHRAMPUR	POWERGRID	NTPC	POWERGRID	73	TW.MOOSE	400	S/C
29	FARAKKA-SAGARDIGHI	POWERGRID	NTPC	WBPDCL	67	TW.MOOSE	400	S/C
30	FARAKKA - MALDA	POWERGRID	NTPC	POWERGRID	40	TW HTLS	400	D/C
31	FARAKKA - PARULIA	POWERGRID	NTPC	POWERGRID	150	TW.MOOSE	400	S/C
32	KAHALGAON-BANKA	POWERGRID	NTPC	POWERGRID	48	TW.MOOSE	400	D/C
33	MAITHON - KAHALGAON	POWERGRID	POWERGRID	NTPC	172	TW.MOOSE	400	D/C
34	SAGARDIGHI-BEHRAMPUR	POWERGRID	WBPDCL	POWERGRID	26	TW HTLS	400	D/C
35	SAGARDIGHI-SUBHASGRAM	POWERGRID	WBPDCL	POWERGRID	246	TW.MOOSE	400	S/C
36	SAGARDIGHI-PARULIA	WBSETCL	WBPDCL	POWERGRID(ER)	171	TW.MOOSE	400	D/C
37	BEHRAMPUR-JEERAT	POWERGRID	POWERGRID	WBSETCL	200	TW.MOOSE	400	S/C
38	JEERAT-SUBHASGRAM	POWERGRID	WBSETCL	POWERGRID	80	TW.MOOSE	400	S/C
39	SUBHASGRAM(PG)-HALDIA	HEL	POWERGRID	HEL	90	TW.MOOSE	400	D/C
40	PARULIA-BIDHANAGAR	WBSETCL	POWERGRID	WBSETCL	11	TW.MOOSE	400	D/C
41	KHARAGPUR-BARIPADA	WBSETCL & OPTCL	WBSETCL	POWERGRID(ER)	98	TW.MOOSE	400	S/C
42	JAMSHEDPUR-MEJIA-B	POWERGRID	POWERGRID	DVC	168	TW.MOOSE	400	S/C
43	MAITHON - MEJIA B	POWERGRID	POWERGRID	DVC	84	TW.MOOSE	400	D/C
44	MAITHON - MEJIA B	POWERGRID	POWERGRID	DVC	97	TW.MOOSE	400	S/C
45	DSTPS - JAMSHEDPUR	POWERGRID	DVC	POWERGRID	156	TW.MOOSE	400	D/C
46	KODERMA-BIHARSARIFF	POWERGRID	DVC	POWERGRID	111	QUAD-MOOSE	400	D/C
47	GA YA-KODERMA	POWERGRID	POWERGRID	DVC	82	QUAD-MOOSE	400	D/C
48	MAITHON-MAITHON RIGHT BANK	POWERGRID	POWERGRID	MPL	31	TW.MOOSE	400	D/C
49	RANCHI-MAITHON RIGHT BANK	POWERGRID	POWERGRID	MPL	188	TW.MOOSE	400	D/C
50	RANCHI-RAGUNATHPUR	POWERGRID	POWERGRID	DVC	169.17	TW.MOOSE	400	S/C
51	RAGUNATHPUR-MAITHON	POWERGRID	DVC	POWERGRID	52.9	TW.MOOSE	400	S/C
52	JAMSEDPUR-AHUNIK	APNRL	POWERGRID	APNRL	0.3	QUAD-MOOSE	400	D/C
53	JAMSHEDPUR-TISCO	POWERGRID	DVC	POWERGRID	39	TW.MOOSE	400	S/C
54	BARIPADA-TISCO	POWERGRID	POWERGRID	DVC	116	TW.MOOSE	400	S/C
55	JEYPORE-GAZUWAKA	POWERGRID	POWERGRID(ER)	POWERGRID(SR)	220	TW.MOOSE	400	D/C
56	ANGUL-MERAMANDALI-I	POWERGRID	POWERGRID	OPTCL	25	TW.MOOSE	400	S/C
57	ANGUL-MERAMANDALI-II	POWERGRID	POWERGRID	OPTCL	18	TW.MOOSE	400	S/C
58	INDRAVATI-INDRAVATI	OPTCL	POWERGRID(ER)	OPTCL	3	TW.MOOSE	400	S/C
59	TSTPP-MERAMUNDALI	POWERGRID	NTPC	OPTCL	51	TW.MOOSE	400	S/C
60	GMR-MERAMUNDALI	GMR	GMR	OPTCL	8	TW.MOOSE	400	S/C
61	BARIPADA-NEW DUBURI	POWERGRID	POWERGRID(ER)	OPTCL	190	TW.MOOSE	400	S/C
62	MENDHASAL-NEW DUBURI	OPTCL	POWERGRID(ER)	OPTCL	115	TW.MOOSE	400	S/C
63	JITPL-ANGUL	JINDAL	JINDAL	POWERGRID	85	TW.MOOSE	400	D/C
64	TSTPP - RENGALI	POWERGRID	NTPC	POWERGRID	24	TW.MOOSE	400	D/C
65	KHARAGPUR-CHAIBASA	PKTCL	WBSETCL	POWERGRID	162	TW.MOOSE	400	D/C
66	MENDHASAL-PANDIABILI	POWERGRID	OPTCL	POWERGRID	28	TW.MOOSE	400	D/C
67	BARIPADA - PANDIABILI	POWERGRID	WBSETCL	POWERGRID	302	TW.MOOSE	400	S/C
68	PANDIABILI-NEW DUBURI	POWERGRID	POWERGRID	OPTCL	142	TW.MOOSE	400	S/C
69	NEW RANCHI-ARAMBAGH	PKTCL+WBSEDL	POWERGRID	WBSETCL	320	TW.MOOSE	400	S/C
70	NEW RANCHI-PPSP	PKTCL	POWERGRID	WBSETCL	117	TW.MOOSE	400	S/C
71	FARAKKA-GOKARNO	POWERGRID	NTPC	WBSETCL	119.7	TRIPLE SNOWBIRD	400	D/C
72	DIKCHU-TEESTA-III	SKPPL+TUL+TPTL	DIKCHU	TEESTA-III	15.1	QUAD-MOOSE	400	S/C
73	RANGPO-TEESTA-III	POWERGRID+TUL+TPTL	POWERGRID	TEESTA-III	49.5	QUAD-MOOSE	400	S/C

(2)

Tie Lines (Cont....)

C) 220 KV LINES								
74	PATNA-SIPARA	BSPHCL	POWERGRID	BSPHCL	0.5	ZEBRA	220	D/C
75	DEHRI-PUSUALI	BSPHCL	BSPHCL	POWERGRID	64	ZEBRA	220	S/C
76	PUSUALI-SAHUPURI	BSPHCL & UPPCL	POWERGRID	UPPCL	72	ZEBRA	220	S/C
77	ARRAH-KHAGUAL	POWERGRID	POWERGRID	BSPHCL	50	ZEBRA	220	D/C
78	PATNA-KHAGUAL	BSPHCL	POWERGRID	BSPHCL	25	ZEBRA	220	S/C
79	SASARAM- NEW SASARAM	POWERGRID	POWERGRID	BSPHCL	0.2	ZEBRA	220	S/C
80	NEW SASARAM- ARRAH	POWERGRID	BSPHCL	POWERGRID	112	ZEBRA	220	S/C
81	BODHGAYA-GA YA (PG)	BSPHCL & PG	BSPHCL	POWERGRID	96	ZEBRA	220	D/C
82	DEHRI-GA YA (PG)	BSPHCL & PG	BSPHCL	POWERGRID	16	ZEBRA	220	D/C
83	MUZZAFARPUR-KANTI	POWERLINKS	POWERGRID	BSPHCL	22	ZEBRA	220	D/C
84	MUZZAFFARPUR-HAZIPUR-I & II	BSPTCL	POWERGRID	BSPTCL	56	ZEBRA	220	D/C
85	N.PURNEA - MADHEPURA	POWERGRID	POWERGRID	BSPTCL	100	ZEBRA	220	D/C
86	N.PURNEA - PURNEA	POWERGRID	POWERGRID	BSPTCL	2	ZEBRA	220	D/C
87	BALIMELA-U.SILLERU	OPTCL & APTRANSCO	OPTCL	APTRANSCO	24	ZEBRA	220	S/C
88	JINDAL-JAMSHEDPUR	OPTCL & DVC	OPTCL	DVC	130	ZEBRA	220	S/C
89	JODA-RAMCHANDRAPUR	OPTCL & JUSNL	OPTCL	JUSNL	127	ZEBRA	220	S/C
90	BUDHIPADAR-KORBA II & III	OPTCL & CSEB	OPTCL	CHATTISGARH	180	ZEBRA	220	D/C
91	BUDHIPADAR-RAIGARH I	POWERGRID	OPTCL	CHATTISGARH	81	ZEBRA	220	S/C
92	TSTPP-MERAMUNDALI	OPTCL	NTPC	OPTCL	40	ZEBRA	220	D/C
93	TSTPP-RENGALI HPS	OPTCL	NTPC	OPTCL	40	ZEBRA	220	S/C
94	BISRA (PG)-TARKERA (OPTCL)	OPTCL	POWERGRID	OPTCL	15	MOOSE	220	D/C
95	JEYPORE (PG)-JAYNAGAR (OPTCL)	OPTCL	POWERGRID	OPTCL	6	ZEBRA	220	D/C
96	TSTPP-TALCHER	OPTCL	NTPC	OPTCL	30	ZEBRA	220	S/C
97	FARAKKA-LALMATIA	ECL	NTPC	NTPC	79	ZEBRA	220	S/C
98	RENGALI-RENGALI	OPTCL	POWERGRID	OPTCL	1	ZEBRA	220	D/C
99	BARIPADA-BALASORE	OPTCL	POWERGRID	OPTCL	77	ZEBRA	220	D/C
100	MAITHON (PG)-K'SWARI (DVC)	DVC	POWERGRID	DVC	7	ZEBRA	220	D/C
101	MAITHON- DUMKA	POWERGRID	POWERGRID	JUSNL	73	ZEBRA	220	D/C
102	CHANDIL-SANTALDIH	WBSETCL & JUSNL	JUSNL	WBSETCL	105	ZEBRA	220	S/C
103	RANCHI-HATIA	JUSNL	POWERGRID	JUSNL	34	ZEBRA	220	D/C
104	CHANDIL-RANCHI	JUSNL	JUSNL	POWERGRID	42	ZEBRA	220	S/C
105	TENUGHAT-BIHARSHARIF	BSPHCL & JUSNL	JUSNL	BSPHCL	182	TW.MOOSE	220	S/C
106	JAMSHEDPUR-RAMCHANDRAPUR	-POWERGRID	POWERGRID	JUSNL	0.5	ZEBRA	220	D/C
107	MAITHON (PG)-DHANBAD (DVC)	DVC	POWERGRID	DVC	28	ZEBRA	220	D/C
108	PARULIA (PG)-PARULIA (DVC)	DVC	POWERGRID	DVC	1	ZEBRA	220	D/C
109	WARIA-BIDHANNAGAR	DVC & WBSETCL	DVC	WBSETCL	17	ZEBRA	220	D/C
110	DHALKHOLA (PG)-DHALKHOLA (WB)	POWERGRID	POWERGRID	WBSETCL	3	ZEBRA & CABLE	220	S/C
111	SUBH'GRM (PG) - NEW TOWN	WBSETCL	POWERGRID	WBSETCL	26	ZEBRA	220	S/C
112	SUBH'GRM (PG) - SUBH'GRM (WB)	WBSETCL	POWERGRID	WBSETCL	0.5	MOOSE	220	D/C
113	SUBH'GRM (PG) - EMSS (CESC)	CESC	POWERGRID	CESC	23.2	GAP TYPE ACSR	220	D/C
114	SUBH'GRM (PG) - BANTALA	WBSETCL	POWERGRID	WBSETCL	19	ZEBRA	220	S/C
115	BINAGURI-NJP	POWERGRID	POWERGRID	WBSETCL	0.2	ZEBRA	220	D/C
116	BIRPARA- CHUKHA	POWERGRID	POWERGRID	POWERGRID	38	ZEBRA	220	D/C
117	BIRPARA-MALBASE	POWERGRID	POWERGRID	POWERGRID	40	ZEBRA	220	S/C
118	ALIPURDUAR-SALAKATI	POWERGRID	POWERGRID (ER)	POWERGRID (NER)	100.6	ZEBRA	220	D/C
119	NEW MELLI- JIHEP	DANS	POWERGRID	DANS	21	ZEBRA	220	D/C
120	GA YA-SONENAGAR	POWERGRID	POWERGRID	BSPHCL	91.59	ZEBRA	220	D/C
121	DARBHANGA-MOTIPUR	BSPTCL	DMTCL	BSPTCL	109	ZEBRA	220	D/C
122	DARBHANGA-SAMASTIPUR (UJIYARPUR)	BSPTCL	DMTCL	BSPTCL	50	ZEBRA	220	S/C
123	KISHANGANJ (PG)-KISHANGANJ_NEW (BSPTCL)	POWERGRID	POWERGRID	BSPHCL	4.49	ZEBRA	220	Q/C
124	BOLANGIR-KATAPALLI	OPTCL	POWERGRID	OPTCL	116.7	ZEBRA	220	S/C
125	BOLANGIR-SADHEPALLI	OPTCL	POWERGRID	OPTCL	2.8	ZEBRA	220	S/C
126	PANDIABILI-ATRI	OPTCL	POWERGRID	OPTCL	23	ZEBRA	220	S/C
127	PANDIABILI-SAMANGARA	OPTCL	POWERGRID	OPTCL	47	ZEBRA	220	S/C
C) 132 KV LINES								
128	MUZZAFARPUR- DHALKEBAR	Cross Border Power Trans. Ltd.	POWERGRID	NEPAL	129	TW. MOOSE	132	S/C
129	BARHI - B'SHARIFF	BSPHCL & DVC	DVC	BSPHCL	170	LARK	132	S/C
130	BARHI-RAJGIR	BSPHCL & DVC	DVC	BSPHCL	125	LARK	132	S/C
131	DEOGHAR-SULTANGANJ	BSPTCL & JUSNL	JUSNL	BSPHCL	93	PANTHER	132	S/C
132	KAHALGAON-KAHALGAON	POWERGRID	BSPHCL	NTPC	2	PANTHER	132	S/C
133	ARRAH-ARRAH	POWERGRID	BSPHCL	POWERGRID	3	PANTHER	132	S/C
134	DUMRAON-ARRAH	POWERGRID	BSPHCL	POWERGRID	61	PANTHER	132	S/C
135	PURNEA (PG)-PURNEA (BS)	BSPHCL	BSPHCL	POWERGRID	1	HTLS ACCC	132	T/C
136	PURNEA (PG)-KISANGANJ	BSPHCL	BSPHCL	POWERGRID	70	PANTHER	132	S/C
137	DEHRI-PUSUALI	POWERGRID	BSPHCL	POWERGRID	63	PANTHER	132	S/C
138	KARMANASA-PUSUALI	POWERGRID	BSPHCL	POWERGRID	29	PANTHER	132	S/C
139	KARMANASA-SAHUPURI	BSPHCL & UPPCL	BSPHCL	UPPCL	27	PANTHER	132	S/C
140	KARMANASA-CHANDAULI	BSPHCL & UPPCL	BSPHCL	UPPCL	25	PANTHER	132	S/C
141	SONENAGAR - RIHAND	BSPHCL & UPPCL	BSPHCL	UPPCL	139	PANTHER	132	S/C
142	MAITHON-JAMTARA	DVC & JUSNL	DVC	JUSNL	100	PANTHER	132	S/C
143	KHARAGPUR-KHARAGPUR	DVC	DVC	WBSETCL	1	PANTHER	132	S/C
144	KOLAGHAT-KOLAGHAT	DVC	DVC	WBSETCL	1	PANTHER	132	S/C
145	MACHKUND-VIZAG	OPTCL & APTRANSCO	OPTCL	APTRANSCO	160	LARK	132	S/C
146	JODA-KENDPOSI	OPTCL & JUSNL	OPTCL	JUSNL	48	PANTHER	132	S/C
147	BARIPADA-BANGIRIPOSI	OPTCL	POWERGRID	OPTCL	31.2	PANTHER	132	S/C
148	BARIPADA-BARIPADA	OPTCL	POWERGRID	OPTCL	11	PANTHER	132	S/C
149	GARWA-SONENAGAR	BSPHCL & JUSNL	JUSNL	BSPHCL	104	PANTHER	132	S/C
150	LALMATIA-SABOUR	BSPHCL & JUSNL	JUSNL	BSPHCL	72	PANTHER	132	S/C

(3)

Tie Lines (Cont....)

151	CHANDIL-MANIQUE	JUSNL & DVC	JUSNL	DVC	1	PANTHER	132	D/C
152	PATRATU-PATRATU	JUSNL & DVC	JUSNL	DVC	3	LARK	132	S/C
153	GARWA-RIHAND	JUSNL & UPPCL	JUSNL	UPPCL	30	PANTHER	132	S/C
154	RANGIT-RAMMAM	POWERGRID	NHPC	WBSETCL	27	PANTHER	132	S/C
155	KAHALGAON-SABOUR	POWERGRID	NTPC	BSPHCL	37	PANTHER	132	S/C
156	KAHALGAON-LALMATIA	POWERGRID	NTPC	JUSNL	34	PANTHER	132	S/C
157	BIRPARA-BIRPARA	WBSETCL	POWERGRID	WBSETCL	1	PANTHER	132	D/C
158	MALDA-MALDA	WBSETCL	POWERGRID	WBSETCL	6	PANTHER	132	D/C
159	SILIGURI-NBU	WBSETCL	POWERGRID	WBSETCL	8	PANTHER	132	S/C
160	SILIGURI - NJP	WBSETCL	POWERGRID	WBSETCL	15	PANTHER	132	S/C
161	RANGIT -SAGBARI	SIKKIM	NHPC	SIKKIM	32.5	PANTHER	132	D/C
162	ARHA-JAGDISHPUR	BSPHCL	POWERGRID	BSPHCL	30	PANTHER	132	S/C
163	RANGIT-RANGPO	POWERGRID	NHPC	POWERGRID	54	PANTHER	132	S/C
164	RANGIT-KURSEONG	POWERGRID	NHPC	WBSETCL	61	PANTHER	132	S/C
165	RANGIT-SAGBARI	SIKKIM	NHPC	SIKKIM	25	PANTHER	132	S/C
166	CHUJACHEN-GANGTOK	POWERGRID & GATI	GATI INFRA	POWERGRID	16	PANTHER+ ZEBRA	132	S/C
167	BANKA-SABOUR	BSPTCL	POWERGRID	BSPTCL	45	PANTHER	132	D/C
168	BANKA-BANKA	BSPTCL	POWERGRID	BSPTCL	11	PANTHER	132	D/C
169	RANGPO-CHUJACHEN	GATI INFRA	POWERGRID	GATI INFRA	20	ZEBRA	132	S/C
170	NJP-MELLI	POWERGRID	POWERGRID	SIKKIM	90	PANTHER	132	S/C
171	RANGPO- MELLI	POWERGRID+GATI INFRA	POWERGRID	SIKKIM	17	PANTHER	132	S/C
172	NJP-MELLI	POWERGRID	POWERGRID	SIKKIM	90	PANTHER	132	S/C
173	LAKHISARAI - JAMAUI	BSPHCL	POWERGRID	BSPHCL	25	PANTHER	132	D/C
174	RANGIT - RABANGLA	POWERGRID	NHPC	SIKKIM	25	LARK	66	S/C
175	KALINGPONG-MELLI	WBSETCL & SIKKIM	WBSETCL	SIKKIM	15	DOG	66	D/C
176	BANKA-SULTANGUNJ	BSPTCL	POWERGRID	BSPTCL	46.5	PANTHER	132	D/C
177	KATAIYYA - KUSAHA	BSPTCL & NEA	BSPTCL	NEPAL	59	PANTHER	132	D/C

## 2.2 Other Important lines:-

<b>OTHER IMPORTANT LINES</b>								
S.NO	LINE	OWNED BY	CONNECTED SYSTEMS		LENGTH (KM)	COND. (TYPE)	VOLTS (KV)	NO.OF CKTS.
			END-1	END-2				
<b>A) 765 KV LINES</b>								
1	ANGUL-JHARSUGUDA	POWERGRID	POWERGRID	POWERGRID	272	Qd. BERSIMIS	765	D/C
<b>B) 400 KV LINES</b>								
2	BANKA-BIHARSARIFF	POWERGRID	POWERGRID	POWERGRID	184	TW. MOOSE	400	D/C
3	LAKHISARAI-BIHARSARIFF	POWERGRID	POWERGRID	POWERGRID	89	TW. MOOSE	400	D/C
4	KAHALGAON-LAKHISARAI	POWERGRID	NTPC	POWERGRID	145	TW. MOOSE	400	D/C
5	BIHARSHARIFF-PURNEA	ENICL	POWERGRID	POWERGRID	231	QD. MOOSE	400	D/C
6	MAITHON-GAYA	POWERGRID	POWERGRID	POWERGRID	277	QD. MOOSE	400	D/C
7	KAHALGAON-BARH	POWERGRID	NTPC	NTPC	217	QUAD-MOOSE	400	D/C
8	BARH-PATNA	POWERGRID	NTPC	POWERGRID	94	QUAD-MOOSE	400	Q/C
9	PATNA - KISHANGANJ	POWERGRID	POWERGRID	POWERGRID	196	QUAD-MOOSE	400	D/C
10	PURNEA - BINAGURI I & II	POWERGRID	POWERGRID	POWERGRID	168	TWIN HTLS	400	D/C
11	PURNEA-KISHANGANJ	POWERGRID	POWERGRID	POWERGRID	71	QUAD-MOOSE	400	D/C
12	BINAGURI-KISHANGANJ	POWERGRID	POWERGRID	POWERGRID	98	QUAD-MOOSE	400	D/C
13	PURNEA - MUZAFFARPUR	POWERLINKS	POWERGRID	POWERGRID	240	QUAD-MOOSE	400	D/C
14	BIHARSHARIFF-MUZAFFARPUR	POWERGRID	POWERGRID	POWERGRID	130	TW. MOOSE	400	D/C
15	BIHARSHARIFF- PUSAULI	POWERGRID	POWERGRID	POWERGRID	195	TW. MOOSE	400	D/C
16	FARAKKA - KAHALGAON I & II	POWERGRID	NTPC	NTPC	95	TW. MOOSE	400	D/C
17	FARAKKA-KAHALGAON III & IV	POWERGRID	NTPC	NTPC	95	TW. MOOSE	400	D/C
18	BOKARO-KODERMA	POWERGRID	DVC	DVC	99	TW. MOOSE	400	D/C
19	MALDA - PURNEA	POWERGRID	POWERGRID	POWERGRID	167	TW. MOOSE	400	D/C
20	MERAMUNDALI - MENDASAL	OPTCL	OPTCL	OPTCL	99	TW. MOOSE	400	S/C
21	RENGALI-KEONJHAR	OPTCL	POWERGRID	OPTCL	100	TW. MOOSE	400	S/C
22	KEONJHAR- BARIPADA	OPTCL	POWERGRID	POWERGRID	156	TW. MOOSE	400	S/C
23	JEYPORE - INDRAVATI	POWERGRID	POWERGRID	POWERGRID	72	TW. MOOSE	400	S/C
24	INDRAVATI - RENGALI	POWERGRID	POWERGRID	POWERGRID	356	TW. MOOSE	400	S/C
25	TSTPP - ROURKELA	POWERGRID	NTPC	POWERGRID	171	TW. MOOSE	400	D/C
26	ROURKELA- JHARSIGUDA	POWERGRID	POWERGRID	POWERGRID	143	TW. MOOSE	400	D/C
27	JAMSHEDPUR - CHAIBASA	POWERGRID	POWERGRID	POWERGRID	82	TW. MOOSE	400	D/C
28	CHAIBASA- ROURKELA	POWERGRID	POWERGRID	POWERGRID	120	TW. MOOSE	400	D/C
29	KTPS - JEERAT	WBSETCL	WBPDC	WBSETCL	130	TW. MOOSE	400	S/C
30	BAKRESWAR - JEERAT	WBSETCL	WBPDC	WBSETCL	162	TW. MOOSE	400	S/C
31	BAKRESWAR - ARAMBAGH	WBSETCL	WBPDC	WBSETCL	130	TW. MOOSE	400	S/C
32	PPSP - ARAMBAGH	WBSEDCL	WBPDC	WBSETCL	210	TW. MOOSE	400	S/C
33	PPSP - BIDHANAGAR	WBSEDCL	WBPDC	WBSETCL	185	TW. MOOSE	400	D/C
34	KTPS - ARAMBAGH	WBSETCL	WBPDC	WBSETCL	75	TW. MOOSE	400	S/C
35	KTPS-KHARGPUR	WBSETCL	WBPDC	WBSETCL	80	TW. MOOSE	400	S/C
36	KTPS-KHARGPUR	WBSETCL	WBPDC	WBSETCL	98	TW. MOOSE	400	S/C
37	PARULIA - JAMSHEDPUR	POWERGRID	POWERGRID	POWERGRID	177	TW. MOOSE	400	S/C
38	MAITHON - JAMSHEDPUR	POWERGRID	POWERGRID	POWERGRID	153	TW. MOOSE	400	S/C
39	MAITHON - RANCHI	POWERGRID	POWERGRID	POWERGRID	200	TW. MOOSE	400	D/C
40	DSTPS-RAGHUNATHPUR I & II	DVC	DVC	DVC	72.5	TW. MOOSE	400	D/C
41	JAMSHEDPUR-BARIPADA	POWERGRID	POWERGRID	POWERGRID	141	TW. MOOSE	400	S/C
42	RANCHI-RANCHI NEW	POWERGRID	POWERGRID	POWERGRID	77	QUAD-MOOSE	400	Q/C
43	RANCHI-ROURKELA-I&II	POWERGRID	POWERGRID	POWERGRID	143	TW. MOOSE	400	D/C
44	BINAGURI-RANGPO	POWERGRID	POWERGRID	POWERGRID	110	TW.MOOSE	400	D/C
45	NEW RANCHI-CHANDWA	POWERGRID	POWERGRID	POWERGRID	68	QUAD-MOOSE	400	D/C
46	GAYA- CHANDWA	POWERGRID	POWERGRID	POWERGRID	117	QUAD-MOOSE	400	D/C
47	AILPURDUAR-BINAGURI	POWERGRID	POWERGRID(ER)	POWERGRID(ER)	123.711	QUAD-MOOSE	400	D/C
48	MUZAFFARPUR-DARBHANGA	DMTCL	POWERGRID(ER)	DMTCL	62.8	TRIPLE SNOWBIRD	400	D/C
49	SEL- MEERAMANDALI	POWERLINKS	SEL	OPTCL	220	TW.MOOSE	400	D/C
50	BARIPADA-PANDIABILI	POWERGRID	POWERGRID	POWERGRID	301	TW.MOOSE	400	S/C
51	MEERAMUNDALI- NEW DUBURI	POWERGRID	OPTCL	POWERGRID	90	TW.MOOSE	400	D/C

Tie Lines (Cont....)

C) 220 KV LINES								
52	BIHARSHARIFF-FATUAH	BSPHCL	BSPHCL	BSPHCL	40	ZEBRA	220	D/C
53	BIHARSHARIFF-BODHAGYA	BSPHCL	BSPHCL	BSPHCL	85	ZEBRA	220	D/C
54	BIHARSHARIFF-BEGUSARAI	BSPHCL	BSPHCL	BSPHCL	75	ZEBRA	220	D/C
55	MTPS-BEGUSARAI	BSPHCL	BSPHCL	BSPHCL	152	ZEBRA	220	D/C
56	MTPS-DARBHANGA	BSPHCL	BSPHCL	BSPHCL	68	ZEBRA	220	D/C
57	MTPS-GOPALGANJ	BSPHCL	BSPHCL	BSPHCL	101	ZEBRA	220	D/C
58	SASARAM-ARRAH	POWERGRID	POWERGRID	POWERGRID	112	ZEBRA	220	S/C
59	WARIA-PARULLA	DVC	DVC	DVC	21	ZEBRA	220	D/C
60	WARIA-MEJIA	DVC	DVC	DVC	34	ZEBRA	220	D/C
61	CTPS A-DHANBAD	DVC	DVC	DVC	63	ZEBRA	220	S/C
62	CTPS B-DHANBAD	DVC	DVC	DVC	63	ZEBRA	220	S/C
63	DHANBAD-GIRIDIH	DVC	DVC	DVC	44	ZEBRA	220	D/C
64	BOKARO-JAMSHEDPUR	DVC	DVC	DVC	150	ZEBRA	220	D/C
65	KASBA-EMBYPASS	CESC	WBSETCL	CESC	1	SINGLE CORE XLPE	220	S/C
66	KASBA-SUBHASGRAM(WB)	WBSETCL	WBSETCL	WBSETCL	20	ZEBRA	220	D/C
67	BOKARO-CTPS B	DVC	DVC	DVC	42	ZEBRA	220	D/C
68	KALYANESHWARI-MEJIA	DVC	DVC	DVC	55	ZEBRA	220	T/C
69	KALYANESHWARI-BURNPUR	DVC	DVC	DVC	18	ZEBRA	220	S/C
70	BURNPUR-MEJIA	DVC	DVC	DVC	70	ZEBRA	220	S/C
71	MEJIA-MUCHIPARA	DVC	DVC	DVC	31	ZEBRA	220	D/C
72	MEJIA-BARJORA	DVC	DVC	DVC	16	ZEBRA	220	D/C
73	PARULLA-MUCHIPARA	DVC	DVC	DVC	16	ZEBRA	220	D/C
74	BOKARO-RAMGARH	DVC	DVC	DVC	55	ZEBRA	220	D/C
75	PTPS -TENUGHAT	JUSNL	JUSNL	TVNL	53	TW. MOOSE	220	S/C
76	PATRATU-HATIA	JUSNL	JUSNL	JUSNL	51	ZEBRA	220	D/C
77	CHANDIL-RAMCHANDRAPUR	JUSNL	JUSNL	JUSNL	30	ZEBRA	220	S/C
78	JEYANAGAR-U.KOLAB	OPTCL	OPTCL	OHPC	6	ZEBRA	220	D/C
79	MERAMUNDALI-NALCO	OPTCL	NTPC	NALCO	10	ZEBRA	220	D/C
80	MERAMUNDALI - BIDANASI	OPTCL	OPTCL	OPTCL	90	TW. MOOSE	220	D/C
81	MERAMUNDALI - DUBURI(OLD)	OPTCL	OPTCL	OPTCL	95	ZEBRA	220	D/C
82	KATAPALLI-BUDHIPADAR	OPTCL	OPTCL	OPTCL	61	ZEBRA	220	D/C
83	IBTPS - BUDHIPADAR	OPTCL	OPGC	OPTCL	25	ZEBRA	220	Q/C
84	TARKERA-BUDHIPADAR	OPTCL	OPTCL	OPTCL	120	ZEBRA	220	D/C
85	TARKERA-CHANDIPOSH	OPTCL	OPTCL	OPTCL	30	ZEBRA	220	S/C
86	TARKERA-BARKOT	OPTCL	OPTCL	OPTCL	101	ZEBRA	220	S/C
87	RENGALI-CHANDIPOSH	OPTCL	OPTCL	OPTCL	102	ZEBRA	220	S/C
88	RENGALI-BARKOT	OPTCL	OPTCL	OPTCL	34	ZEBRA	220	S/C
89	U. KOLAB-THERUVALI	OPTCL	OHPC	OPTCL	136	ZEBRA	220	S/C
90	U. KOLAB-JAYANAGAR	OPTCL	OHPC	OPTCL	6	ZEBRA	220	D/C
91	BALIMELA -JEYNAGAR	OPTCL	OHPC	OPTCL	93	ZEBRA	220	T/C
92	TALCHER-MERAMUNDALI	OPTCL	NTPC	OPTCL	20	ZEBRA	220	S/C
93	MERAMUNDALI - BHANJNAGAR	OPTCL	OPTCL	OPTCL	134	ZEBRA	220	D/C
94	MENDHASAL -BHANJNAGAR	OPTCL	OPTCL	OPTCL	135	ZEBRA	220	S/C
95	MENDHASAL - NAYAGARH	OPTCL	OPTCL	OPTCL	65	ZEBRA	220	S/C
96	NAYAGARH - BHANJNAGAR	OPTCL	OPTCL	OPTCL	68.7	ZEBRA	220	S/C
97	THERUVALI - BHANJNAGAR	OPTCL	OPTCL	OPTCL	176	ZEBRA	220	D/C
98	THERUVALI - LAXMIPUR	OPTCL	OPTCL	OPTCL	64	ZEBRA	220	D/C
99	THERUVALI - NARENDRAPUR	OPTCL	OPTCL	OPTCL	196	ZEBRA	220	D/C
100	MENDHASAL - NARENDRAPUR	OPTCL	OPTCL	OPTCL	174	ZEBRA	220	S/C
101	MENDHASAL - CHANDAKA	OPTCL	OPTCL	OPTCL	20	ZEBRA	220	Q/C
102	JAYANAGAR - LAXMIPUR	OPTCL	OPTCL	OPTCL	81	ZEBRA	220	D/C
103	UIHEP-THERUVALI	OPTCL	OHPC	OPTCL	90	ZEBRA	220	Q/C
104	KTPS-HOWRAH	WBSETCL	WBPDC	WBSETCL	71	ZEBRA	220	D/C
105	BISHNUPUR-SANTALDIH	WBSETCL	WBSETCL	WBPDC	92	ZEBRA	220	D/C
106	SANTALDIH-BIDHANNAGAR	WBSETCL	WBPDC	WBSETCL	100	ZEBRA	220	S/C
107	BIDHANNAGAR-DPL	WBSETCL	WBSETCL	DPL	5	ZEBRA	220	D/C
108	BIDHANNAGAR-BAKRESWAR	WBSETCL	WBSETCL	WBPDC	47	ZEBRA	220	D/C
109	SATGACHIA-BAKRESWAR	WBSETCL	WBSETCL	WBPDC	140	ZEBRA	220	D/C
110	KHARAGPUR- MIDNAPORE I&II	WBSETCL	WBSETCL	WBSETCL	46	ZEBRA	220	D/C
111	ARAMBAGH- MIDNAPORE	WBSETCL	WBSETCL	WBSETCL	71	ZEBRA	220	D/C
112	ARAMBAGH-N.BISHNUPUR	WBSETCL	WBSETCL	WBSETCL	55	ZEBRA	220	D/C
113	ARAMBAGH- DOMJUR	WBSETCL	WBSETCL	WBSETCL	57	ZEBRA	220	D/C
114	ARAMBAGH- RISHRA	WBSETCL	WBPDC	WBSETCL	73	ZEBRA	220	S/C
115	JEERAT-NEWTOWN	WBSETCL	WBSETCL	WBSETCL	80	ZEBRA	220	D/C
116	JEERAT-SATGACHIA	WBSETCL	WBPDC	WBSETCL	79	ZEBRA	220	D/C
117	SATGACHIA-KRISHNANAGAR	WBSETCL	WBPDC	WBSETCL	53	ZEBRA	220	D/C
118	BAKRESWAR-GOKARNO	WBSETCL	WBPDC	WBSETCL	82	ZEBRA	220	D/C
119	GOKARNO-SAGARDIGHI	WBSETCL	WBSETCL	WBPDC	39	ZEBRA	220	D/C
120	GOKARNO-KRISHNANAGAR	WBSETCL	WBSETCL	WBPDC	105	ZEBRA	220	D/C
121	SUBHASGRAM (WB)- LAKHIKANTPUR	WBSETCL	WBSETCL	WBSETCL	50	ZEBRA	220	D/C
122	DALKHOLA-PURNEA	POWERGRID	WBSETCL	WBSETCL	41	ZEBRA	220	D/C
123	BIRPARA-BINAGURI	POWERGRID	POWERGRID	POWERGRID	80	ZEBRA	220	D/C
124	BINAGURI-SILIGURI	POWERGRID	POWERGRID	POWERGRID	8	ZEBRA	220	D/C
125	JEERAT-KASBA	WBSETCL	WBPDC	WBSETCL	59	ZEBRA	220	D/C
126	JEERAT- DHARAMPUR	WBSETCL	WBPDC	WBSETCL	30	ZEBRA	220	D/C
127	DHARAMPUR- RISHRA	WBSETCL	WBPDC	WBSETCL	25	ZEBRA	220	D/C
128	SILIGURI-KISHANGANJ	POWERGRID	POWERGRID	POWERGRID	108	ZEBRA	220	D/C
129	DALKHOLA-KISHANGANJ	POWERGRID	POWERGRID	POWERGRID	30	ZEBRA	220	D/C
130	DALKHOLA-MALDA	POWERGRID	POWERGRID	POWERGRID	116	ZEBRA	220	D/C
131	RANGPOO- NEW MELLI	POWERGRID	POWERGRID	POWERGRID	20	ZEBRA	220	D/C
132	ALIPURDUAR-BIRPARA	POWERGRID	POWERGRID(ER)	POWERGRID(ER)	57.486	ZEBRA	220	D/C

## 3.0 List of Important Transformer

(As on 30.05.2017)

LIST OF IMPORTANT ICTs			
LOCATION	VOLTAGE RATIO	CAPACITY (MVA)	OWNERSHIP
<b>A) 765/400 KV ICTS</b>			
GAYA	765/400	3X1500	POWERGRID
RANCHI NEW	765/400	2X1500	POWERGRID
SASARAM	765/400	2X1500	POWERGRID
ANGUL	765/400	4X1500	POWERGRID
JHARSUGUDA	765/400	2X1500	POWERGRID
<b>B) 400/220 KV &amp; 400/132 KV ICTS</b>			
JAMSHEDPUR	400/220	3X315	POWERGRID
FARAKKA	400/220	1X315	POWERGRID
PARULIA	400/220	2X315	POWERGRID
MALDA	400/220	2X315	POWERGRID
BIHARSHARIF	400/220	3X315	POWERGRID
JEYPORE	400/220	2X315	POWERGRID
RENGALI	400/220	2X315	POWERGRID
MAITHON	400/220	1X315+1X500	POWERGRID
ROURKELA	400/220	2X315	POWERGRID
RANGPO	400/220	5X315	POWERGRID
CHAIBASA	400/220	2X315	POWERGRID
NEW DUBURI	400/220	2X 315	POWERGRID
RANCHI	400/220	2X315	POWERGRID
TSTPP	400/220	2X315	NTPC
BINAGURI	400/220	2X315	POWERGRID
BARIPADA	400/220	2X315+1X500	POWERGRID
INDRAVATI HPS	400/220	2X315	POWERGRID(1) + OHPC(1)
KEONJHAR	400/220	2X315	POWERGRID
BOLANGIR	400/220	2X315	POWERGRID
ARAMBAGH	400/220	4X315	WBSETCL
BIDHANNAGAR	400/220	2X315	WBSETCL
KOLAGHAT TPS	400/220	2X315	WBPDCL
BAKRESWAR TPS	400/220	2X315	WBPDCL
SAGARDIGHI TPS	400/220	1X315	WBPDCL
PATNA	400/220	1X315+1X500	POWERGRID
MERAMUNDALI	400/220	2X315	OPTCL
MENDHASAL	400/220	2X315	OPTCL
KODERMA TPS	400/220	2X315	DVC
JEERAT	400/220	4X315	WBSETCL
KHARAGPUR	400/220	3X315	WBSETCL
BOKARO-A TPS	400/220	2X315	DVC
KISHANGANJ	400/220	2X 500	POWERGRID
TISCO	400/132	2X315	DVC
BANKA	400/132	2X200	POWERGRID
LAKHISARAI	400/132	2 x 200	POWERGRID
BARH-II STPS	400/132	2X200	NTPC
KAHALGAON	400/132	2X200	NTPC
GAYA	400/220	1X315 + 1X500	POWERGRID
SASARAM	400/220	1 X 500 + 1X315	POWERGRID
NEW PURNEA	400/220	2 X 500	POWERGRID
MUZAFFARPUR	400/220	2X315 + 1 X 500	POWERGRID
SUBHASGRAM	400/220	4X315+1X500	POWERGRID(2+1) + CESC(2)
GOKARNO	400/220	2X315	WBSETCL
DARBHANGA	400/220	2X500	DMTCL
ALIPURDUAR	400/220	2X315	POWERGRID
NABINAGAR	400/132	2X200	BRBCL
DIKCHU	400/132	1X270(SINGLE PH UNIT 3*90)	DIKCHU
PANDIABILI	400/220	2X 500	POWERGRID

(6)

ICTs List (Cont...)



<b>C) 220/132 KV ICTS</b>			
NEW SASARAM	220/132	1X160	BSPHCL
PURNEA	220/132	3x160	POWERGRID
BARIPADA	220/132	2X160	POWERGRID
RANGPO	220/132	3X100	POWERGRID
CHAIBASA	220/132	2 X 150	JUSNL
KHAGAUL	220/132	4X100	BSPHCL
SIPARA	220/132	2X160	BSPHCL
TALCHER TPS	220/132	2X160	NTPC
PATRATU TPS	220/132	2X150	JUSNL
CHANDIL	220/132	4 X 100	JUSNL
BOKARO-B TPS	220/132	2X150	DVC
WARIA TPS	220/132	2X150	DVC
KODERMA TPS	220/132	2X160	DVC
JODA	220/132	2X100	OPTCL
PURNEA	220/132	3X160	POWERGRID
BUDIPADAR	220/132	2X160	OPTCL
DALKHOLA	220/132	2X160	WBSETCL
SANTALDIH TPS	220/132	1X100	WBPDC
BIRPARA	220/132	1x160+1x100	POWERGRID
NJP (SILIGURI)	220/132	1X100+1X160	POWERGRID
CHANDRAPURA-A TPS	220/132	2x100+2x150	DVC
MADHEPURA	220/132	2X100 + 1X 160	BSPHCL
ARRAH	220/132	2 X 100 + 1X 160	POWERGRID
MALDA	220/132	2X160 +1X50	POWERGRID
KISHANGANJ	220/132	2X160	BSPHCL
MUZAFFARPUR	220/132	2X100	POWERGRID
<b>D) 132/66 KV ICTS</b>			
GANGTOK	132/66	2X50	POWERGRID
<b>E) 220/132 KV ICTS</b>			
TALCHER HVDC CONVERTER TRANSFORMER	$400/(\sqrt{3})/210$	$6X(397/198.5/198.5)$	POWERGRID
SSRM HVDC CONVERTER TRANSFORMER (EAST)	$400/(93/\sqrt{3})/93$	$3X(234/117/117)$	POWERGRID
SSRM HVDC CONVERTER TRANSFORMER (NORTH)	$400/(93/\sqrt{3})/93$	$3X(234/117/117)$	POWERGRID
ALIPURDUAR HVDC CONVERTER TRANSFORMER	$400/\sqrt{3}/333.9$ (YD) AND $400/\sqrt{3}/333.9/\sqrt{3}$ (YY)	6X295.1	POWERGRID

## ICT TAP POSITION

TAP POSITION OF 765/400 kV & 400/220 kV ICTS IN EASTERN REGION AS ON 30.05.17

SUBSTATION	CAPACITY (MVA)	TAP POSITION No.
GAYA 765/400 kV	3x1500	12
SASARAM 765/400 kV	1x1500	10
NEW RANCHI 765/400 kV	2x1500	12
ANGUL	4X1500	12
JHARSUGUDA	2X1500	12
BINAGURI	2X315	10
NEW PURNEA	2X500	11
MUZAFFARPUR	2X315 +1X500	12
MALDA	2X315	10
SASARAM 400/220kV	1X315+1X500	14
BIHARSHARIF	3X315	12
BIDHANNAGAR	2X315	11
PATNA	1X315+1X500	9
FARAKKA STPS	1X315	11
MAITHON	1X315+1X500	9B
RANCHI	2X315	9B
JAMSHEDPUR	3X315	15
PARULIA	2X315	11
KODERMA TPS	2X315	9B
BOKARO-A TPS	1X315	9B
BAKRESWAR	2X315	11
ARAMBAGH	4X315	11
JEERAT	4X315	13
KHARAGPUR	3X315	7
SUBHASGRAM	4X315+ 1X 500	9
KOLAGHAT	2X315	12
BARIPADA	2X315+1X500	11
RENGALI	2X315	12
ROURKELA	2X315	10
TALCHER STPS	2X315	13
MERAMUNDALI	2X315	10
N. DUBURI	2X315	9
U. INDRAVATI HEP	2X315	9B
JEYPORE	2X315	12
MENDASAL	2X315	6, 9
BOLANGIR	2X315	9B
CHAIBASA	2X315	9B
KEONJHAR	2X315	9B
RANGPO	5X315	9
GAYA 400/220 kV	1X315 + 1x500	12
KISHANGANJ	2X500	9B
GOKARNO	2X315	9
DARBHANGA	2X500	9
ALIPURDUAR	2X315	7
PANDIABILI	2X500	9

FOR 765/400 kV TAP 1:807/400, 12:765/400, 23: 723/400  
FOR 400/220 KV ICT TAP 1: 440/220, 9:400/220, 17:360/220

# 4.0 List of Reactors and Harmonic Filters

(As on 30.05.2017)

## 4.1 Line Reactors:-

REACTIVE COMPENSATION DETAILS FOR 400 KV AND ABOVE LINES / SUB-STATIONS						
A) LINE REACTORS:-						
Sl No	LINE/SUB-STN	LENGTH ( KM )	REACTORS CAPACITY			REMARKS
			IN MVAR			
			LINE		END	
1	SAGARDIGHI-SUBASHGRAM	256.3		1X63	SAGARDIGHI	
2	FARAKKA-PARULIA-I	150		1X50	SUBHASGRM	
3	BIDHANAGAR-PARULIA I	11		1X50	FARAKKA	
5	LAKHISARAI-B'SHARIFF-I	89		1X50	PARULIA	
6	LAKHISARAI-B'SHARIFF-II	89		1X50	B'SHARIFF	
7	K'GAON-MAITHON-I	172		1X50	B'SHARIFF	
8	K'GAON-MAITHON-II	172		1X50	MAITHON	
9	ROURKELA-CHAIBASA-I	120		1X50	MAITHON	SWITCHABLE
11	ROURKELA-TALCHER I	175		1X50	ROURKELA	
12	ROURKELA-TALCHER II	175		1X50	TSTPP	
14	ROURKELA- CHAIBASA-II			1X50	TSTPP	
15	KEONJHAR-BARIPADA	156		1X50	ROURKELA	
16	PANDIABIL-MENDASAL-II	273		1X50	BARIPADA	SWITCHABLE
17	BAKRESWAR-ARAMBAGH	132		1 X 63	MENDASAL	
18	BAKRESWAR-JEERAT	162		1 X 63	BARIPADA	
19	RENGALI-INDRAVATI	356		1X63	BAKRESWAR	
20	B'SHARIFF-TENUGHAT	180		1X63	JEERAT	
21	MALDA-PURNEA -I	167		1x50	RENGALI	
22	MALDA-PURNEA -II	167		1x50	INDRAVATI	
23	BINAGURI-BONGAIGAON-I	216		1x50	TENUGHAT	NOW AT 220 KV
24	BINAGURI-BONGAIGAON-II	216		1x63	MALDA	
25	BINAGURI-ALIPURDUAR-III	224		1x63	MALDA	
26	BINAGURI-ALIPURDUAR-IV	224		1X63	BONGAIGAON	IN NER
27	BINAGURI-TALA-I	115		1X63	BONGAIGAON	IN NER
28	BINAGURI-TALA-II	115		1X80	BINAGURI	SWITCHABLE
29	BINAGURI-TALA-IV	98		1X80	BINAGURI	SWITCHABLE
32	PURNEA-MUZAFFARPUR-I	240		1X63	BINAGURI	
33	PURNEA-MUZAFFARPUR-II	240		1x63	PURNEA	SWITCHABLE
34	ROURKELA-JHARSUGUDA - I	142		1x63	MZFRPR	SWITCHABLE
35	ROURKELA-STERLITE-I	113		1x63	PURNEA	SWITCHABLE
36	MERAMUNDALI-ANGUL-I	20.8		1x63	MZFRPR	SWITCHABLE
37	ANGUL-BOLANGIR	199		1x50	PURNEA	
38	BOLANGIR-JEYPORE	288		1x50	MZFRPR	
39	B'SHARIFF-PUSAULI -I	195		1x80	JEYPORE	
40	PUSAULI-ALLAHABAD	271		1X50	BIHARSARIFF	SWITCHABLE
41	PUSAULI-SARNATH	260		1X63	PUSAULI	SWITCHABLE
42	MUZAFFARPUR-GRKPR-I	260		1X63	PUSAULI	SWITCHABLE
43	MUZAFFARPUR-GRKPR-II	260		1X50	MUZAFFARPUR	SWITCHABLE
44	B'SHARIFF-BALIA -I	242		1X50	MUZAFFARPUR	SWITCHABLE
					BALIA	IN NR

45	BSHARIFF-BALIA -II	242	1X50	BALIA	IN NR
46	PATNA-BALIA-III	185	1X63	BALIA	IN NR
47	PATNA-BALIA-IV	185	1X63	BALIA	IN NR
48	RANCHI-SIPAT-I	405	1X80	RANCHI	
			1X80	SIPAT	IN WR
49	RANCHI-SIPAT-II	405	1X80	RANCHI	
			1X80	SIPAT	IN WR
50	JEYPORE-GAJUWAKA-I	220	1X80	GAJUWAKA	IN SR (SWITCH)
51	JEYPORE-GAJUWAKA-II	220	1X80	GAJUWAKA	IN SR (SWITCH)
52	MPL-RANCHI -I	188	1 X50	MPL	
			1 X50	RANCHI	
53	MPL-RANCHI -II	188	1 X50	MPL	
			1 X50	RANCHI	
54	PUSAULI-BIHARSHARIFF-I	198	1 X63	PUSAULI	
55	PUSAULI-BIHARSHARIFF-II	198	1 X63	PUSAULI	
56	765 kV PUSAULI-FATHEPUR	356	1 X 330 #	PUSAULI	765 kV LINE SWITCHABLE
			1 X 330 #	FATHEPUR	IN NR
57	765 kV NEW RANCHI-DHRAMJAYGARH I	303	1 X 240 #	RANCHI	766 kV LINE SWITCHABLE
			1 X 330 #	DHARAMJAYGARH	IN WR (SWITCHABLE)
58	765 kV NEW RANCHI-DHRAMJAYGARH II	303	1 X 240 #	RANCHI	767 kV LINE SWITCHABLE
			1 X 330 #	DHARAMJAYGARH	IN WR (SWITCHABLE)
59	LAKHISARAI-KhSTPP - I	145	1 X 50	LAKHISARAI	
60	LAKHISARAI-KhSTPP - II	145	1 X 50	LAKHISARAI	
61	PATNA - KISHANGUNJ-I	352	1 X 63	PATNA	SWITCHABLE
			1 X 63	KISHANGANJ	
62	PATNA - KISHANGUNJ-II	352	1 X 63	PATNA	SWITCHABLE
			1 X 63	KISHANGANJ	
63	MAITHON-GAYA-I	235	1 X 50	GAYA	SWITCHABLE
			1 X 50	MAITHON	SWITCHABLE
64	MAITHON-GAYA-II	235	1 X 50	GAYA	SWITCHABLE
			1 X 50	MAITHON	
65	MAITHON-MEJIA-I	83	1 X 50	MAITHON	SWITCHABLE
66	BANKA-BIHARSARIFF I & II	185	2X 50	BANKA	
67	BARIPADA-KEONJHAR	156	1 X 50	BARIPADA	
68	BIHARSARIFF-PURNEA I	232	1 X 80	BIHARSARIFF	SWITCHABLE
69	BIHARSARIFF-PURNEA II	232	1 X 80	BIHARSARIFF	SWITCHABLE
70	BIHARSARIFF-VARANASI-I	321	1 X 50	BIHARSARIFF	SWITCHABLE
71	BIHARSARIFF-VARANASI-II	321	1 X 50	BIHARSARIFF	SWITCHABLE
72	PURNEA- BINAGURI-I	168	1 X 63	PURNEA	
73	PURNEA- KISHANGANJ-I	71	1 X 63	PURNEA	SWITCHABLE
74	765 KV GAYA- BALIA	120	1 X 240 #	GAYA	SWITCHABLE
			1 X 330 #	BALIA	
75	765 KV GAYA- VARANASI-I	272	1 X 240 #	GAYA	SWITCHABLE
76	766 KV GAYA- VARANASI-II	272	2 X 240 #	GAYA	SWITCHABLE
77	765 KV JHARSUGUDA-ANGUL I	273	1 X 240 #	JHARSUGUDA	SWITCHABLE
			1 X 240 #	ANGUL	
78	765 KV JHARSUGUDA-ANGUL II	273	1 X 240 #	JHARSUGUDA	SWITCHABLE
			1 X 240 #	ANGUL	
79	765 KV JHARSUGUDA-DHARAMJAYGARH-I	151	1 X 330 #	DHARAMJAYGARH	IN WR (SWITCHABLE)
80	765 KV JHARSUGUDA-DHARAMJAYGARH-II	151	1 X 330 #	DHARAMJAYGARH	IN WR (SWITCHABLE)
81	KHARAPUR-CHAIBASA I	162	1 X 63	CHAIBASA	
			1 X 63	CHAIBASA	
82	KHARAPUR-CHAIBASA II	162	1 X 63	PANDIABILI	
83	BARIPADA-PANDIABILI	301	1 X 63	PANDIABILI	
84	NEW DUBRI-PANDIABILI	142	1 X 63	PANDIABILI	
85	NEW RANCHI-PPSP	117	1 X 50	NEW RANCHI	
86	NEW RANCHI-ARAMBAGH	320	1 X 50	NEW RANCHI	
87	RTPS-RANCHI-II	155.5	1 X 50	RTPS	SWITCHABLE
88	RTPS-RANCHI-II	155.5	1 X 50	RTPS	SWITCHABLE
89	765 KV ANGUL-SRIKAKULAM I	276.5	1 X 240 #	ANGUL	SWITCHABLE
			1 X 240 #	SRIKAKULAM	IN SR (SWITCHABLE)
			1 X 240 #	ANGUL	SWITCHABLE
			1 X 240 #	SRIKAKULAM	IN SR (SWITCHABLE)
	<b>TOTAL</b>		<b>8046</b>		

## 4.2 Bus Reactors:-

B) BUS REACTORS:-					
Sl No	LINE/SUB-STN	LENGTH ( KM )	REACTORS CAPACITY IN MVAR		REMARKS
			BUS		
1	765 KV ANGUL		2 x 330 #		765 kV
2	765 KV GAYA		2 x 240 #		765 kV
3	765 KV JHARSUGUDA		2 X 240 #		765 kV
4	765 KV PUSAULI		1 x 330 #		765 kV
5	765 KV RANCHI NEW		2X240 #		765 kV
6	ANGUL		3X125		
7	ARAMBAGH		1X50		
8	BAKRESWAR		1X50		
9	BANKA		1X80		
10	BARH		1X80		
11	BEHRAMARA		2X63		BANGLADESH
12	BEHRAMPURE		1X80+1X50 (PARALLEL)		
13	BIDHANNAGAR		1X50		
14	BIHARSHARIFF		1X50+1X80+1X125		
15	BINAGURI		2X125		
16	BOLANGIR		1X80		
17	CHAIBASA		1X80		
18	DUBURI		1X80		
19	DURGAPUR		1X50+1X125(PARALLEL)+1 X 125		
20	FARAKKA		2X50		
21	GAYA		2 X125		
22	INDRAVATI		1X125		
23	JAMSHEDPUR		2X50		
24	JEYPORE		31.5* + 1X125 +1 x 63		* Tertiary winding of 400/220/33 kV ICT
25	JHARSUGUDA		2X125		
26	JITPL		2X50		
27	KAHALGAON		2X50		
28	KEONJHAR		1X80		
29	KHARAGPUR		1 X80		
30	KISHANGANJ		2X 125		125
31	KODERMA		2X50		
32	LAKHISARAI		1 X 80		
33	MAITHON		1X50+1X125+1X125		
34	MAITHON RIGHT BANK		2 X 50		
35	MUZAFFARPUR		2X125		
36	NEW MELLI		2X31.5		
37	PANDIABALLI		1X80+1X63		
38	PATNA		1X80+2x125		
39	PURNEA		2X125		
40	PUSAULI		2 X 125		
41	RAGHUNATHPUR		2X50		
42	RANCHI		1X80+1x125		
43	RANCHI NEW		2x125		
44	RANGPO		2 X 80		
45	RENGALI		31.5*		* Tertiary winding of 400/220/33 kV ICT
46	ROURKELA		1X50+1X125		
47	CHANDWA		2 X 125		
48	BARIPADA		1 X 125		
49	GOKARNA		1 X 80		
50	ALIPURDUAR		2 X 125		
51	JEERAT		2 X 50		IN PARALLEL
52	DARBHANGA		2 X 125		
	<b>TOTAL</b>		<b>9787</b>		

# three single phase units, whose combined capacity is indicated

\* 31.5 MVAR reactor is connected to 33 kV tertiary winding

## SERIES COMPENSATION ELEMENTS & HVDC CONVERTERS

1	FSC + TCSC AT PURNEA END OF 400KV PURNEA - MUZAFFARPUR I & II
2	FSC AT JEYPORE END OF 400KV BOLANGIR-JEYPORE LINE
3	FSC AT JEYPORE END OF 400KV JEYPORE - GAJUWAKA I & II
4	FSC AT RENGALI END OF 400KV RENGALI - INDRAVATI LINE
5	FSC AT RANCHI END OF 400 KV RANCHI-SIPAT I & II
5	500MW HVDC BACK-TO-BACK CONVERTER AT SASARAM

Filters at Gazuwaka East		Number
106 MVAR Doubled Damped Filter		1
106 MVAR 3rd Harmonic/Doubled Damped Filter		2
50 MVAR Bus Reactor		2
Filters at Talcher		Number
Doubled Damped filter		
120 MVAR (Switchable)		6
97 MVAR		3
66 MVAR Shunt Capacitor		1
72.6 MVAR Shunt Capacitor		2
Filters at Pusauli		Number
112 MVAR at North Bus		4
112 MVAR at East Bus		4
Filters at Bheremara		Number
91 MVAR at 400 kV Side		4
91 MVAR at 230 kV Side		4
Filters at Alipurduar		
FILTER BANK 1		
HP 12 (125 Mvar)	125	
HP 12B (160 Mvar)	160	
HP 24/36 (125 Mvar)	125	
HP 3 (159 Mvar)	159	
HP 12B (160 Mvar)	160	
FILTER BANK 2		
HP 12 (125 Mvar)	125	
HP 12B (160 Mvar)	160	
HP 24/36 (125 Mvar)	125	
HP 3 (159 Mvar)	159	

SERIES COMPENSATION DETAILS			
S.NO	Line	End at which installed	Compensation
1	400kV Purnea – Muzaffarpur D/C	Purnea	40% fixed, +15%/-5% dynamic
2	400kV Jeypore-Bolangir S/C	Jeypore	63% (fixed)
3	<b>400kV Rengali-Indravati S/C</b>	<b>Rengali</b>	<b>40% (fixed)</b>
4	400kV Jeypore-Gajuwaka D/C	Jeypore	40% (fixed)
5	400kV Ranchi-Sipat D/C	Ranchi	40% (fixed)

## 5.0 List of Important Generators

(As on 30.05.2017)

LIST OF IMPORTANT GENERATORS					
Control Area	Station	Type	Owner	Capacity(MW)	
Farakka	Farakka STPS Stage I & II	ISGS Thermal	NTPC	3x200+2x500	
Kahalgaon Talcher Stg I Talcher Stg II Barh Nabinagar Teesta -V Rangit Bhutan Bhutan Bhutan Bhutan	Farakka STPS Stage III	ISGS Thermal	NTPC	1x500	
	Kahalgaon STPS Stage I	ISGS Thermal	NTPC	4x210	
	Kahalgaon STPS Stage II	ISGS Thermal	NTPC	3x500	
	Talcher STPS Stage I	ISGS Thermal	NTPC	2x500	
	Talcher STPS Stage II	ISGS Thermal	NTPC	4x500	
			ISGS Thermal	NTPC	2X660
			ISGS Thermal	NTPC+Railway	1x250
	Teesta V	Teesta V	ISGS Hydro	NHPC	3x170
	Rangit	Rangit	ISGS Hydro	NHPC	3x20
	Tala	Tala	ISGS Hydro	DGPC(Bhutan)	6x170
	Chukha	Chukha	ISGS Hydro	DGPC(Bhutan)	4x84
	BHPC	BHPC	Hydro	DGPC(Bhutan)	20X2+2X12
	Kurichu	Kurichu	ISGS Hydro	DGPC(Bhutan)	4x15
	Jharkhand	Tenughat	Thermal	TVNL	2x210
Subarnarekha		Hydro	JUUNL	2X65	
DVC	Waria	Thermal	DVC	(U#4) 210	
	Mejia	Thermal	DVC	4X210+2X250	
	CTPS B	Thermal	DVC	2 X 250	
	Mejia-B	Thermal	DVC	2 X 500	
	Koderma TPS	Thermal	DVC	2 x 500	
	Bokaro"B"	Thermal	DVC	3x 210	
	Bokaro"A"	Thermal	DVC	1 x 500	
	RAGHUNATHPUR DSTPS	Thermal Thermal	DVC DVC	2 x 600 2 X 500	
West Bengal	Kolaghat	Thermal	WBPDC	6x210	
	Sagardighi	Thermal	WBPDC	2x300+2x500	
	Bakreswar	Thermal	WBPDC	5x210	
	Santalidih	Thermal	WBPDC	2 X 250	
	Bandel	Thermal	WBPDC	U#5 (210)	
	TLDP III	Hydro	NHPC	4x33	
	TLDP IV	Hydro	NHPC	4x40	
	PPSP	Hydro	WBSEDCL	4X225	
	DPL	Thermal	DPL	(U#7) 300	
	DPL	Thermal	DPL	(U#8) 250	
	HALDIA	Thermal	HEL	2X300	
Budge-Budge	Thermal	CESC	3X250		
Orissa	IB	Thermal	OPGC	2x210	
	Balimela	Hydro	OHPC	6x60+2x75	
	U-Kolab	Hydro	OHPC	4x80	
	U-Indravati	Hydro	OHPC	4x150	
	Rengali	Hydro	OHPC	4x50	
	Sterlite (IPP)	Thermal	SEL	1X600	
IPP	MPL	Thermal	MPL	2 x 525	
	ADHUNIK	Thermal	APNRL	2X270	
	GMR*	Thermal	GMR-Infra'	3x350	
	JITPL	Thermal	JINDAL	2x600	
	INDBHARAT	Thermal	IBEUL	1X350	
	JLHEP	Hydro	DANS	2X48	
	TEESTA -III	Hydro	TUL	6X200	
	DIKCHU	Hydro	SKPPL	2X48	
	Dagachu	Hydro	DGPC	2x63	
	CHJACHEN	Hydro	GATI	2 X 49.5	

\*One unit of GMR is dedicated to Odisha

## EFFECTIVE/INSTALLED CAPACITY

(AS ON 30.04.2017)

CONST.	INSTALLED CAPACITY				EFFECTIVE CAPACITY			
	THERMAL	HYDEL	GT	TOTAL	THERMAL	HYDEL	GT	TOTAL
<b>BSPGCL &amp; BSPHCL</b>	830	25	0	855	820	25	0	845
<b>JUUNL &amp; TVNL</b>	1260	140	0	1400	1190	140	0	1330
<b>DVC</b>	8290	147.2	0	8437	8260	147.2	0	8407
<b>TTPS(NTPC)</b>	470	0	0	470	460	0	0	460
<b>OHPC</b>	0	2085	0	2085	0	2085	0	2085
<b>OPGC</b>	420	0	0	420	420	0	0	420
<b>WBSEDCL</b>	0	1365	0	1365	0	1364	0	1364
<b>WBPDC</b>	4950	0	0	4950	4860	0	0	4860
<b>CESC</b>	1285	0	0	1285	1225	0	0	1225
<b>HEL</b>	600	0	0	600	600	0	0	600
<b>DPL</b>	885	0	0	885	880	0	0	880
<b>SIKKIM</b>	5	33	0	38	5	33	0	38
<b>NTPC *</b>	9010	0	0	9010	9010	0	0	9010
<b>NHPC</b>	0	570	0	570	0	570	0	570
<b>IPP</b>	4540	1502	0	6042	4540	206	0	4746
<b>REGION</b>	<b>32545</b>	<b>5867</b>	<b>0</b>	<b>38412</b>	<b>32270</b>	<b>4569.6</b>	<b>0</b>	<b>36840</b>
<b>CHPC</b>	0	336	0	336	0	336	0	336
<b>DHPC</b>	0	126	0	126	0	126	0	126
<b>KHPC</b>	0	60	0	60	0	60	0	60
<b>BHPC</b>	0	64	0	64	0	64	0	64
<b>THPC</b>	0	1020	0	1020	0	1020	0	1020

Thermal capacity of Sikkim refers to diesel generators only

\* Including 2000MW TSTPS Stage-II, geographically located in ER and synchronized with ER grid but dedicated to SR. Only GRIDCO has 10% share from this plant

**Document last updated on 30<sup>th</sup> May 2017**

Rev No. 00



**THIS PAGE IS LEFT BLANK INTENTIONALLY**