

# National Load Despatch Centre राष्ट्रीय भार प्रेषण केंद्र

## POWER SYSTEM OPERATION CORPORATION LIMITED पॉवर सिस्टम ऑपरेशन कारपोरेशन लिमिटेड

(Government of India Enterprise/ भारत सरकार का उद्यम) B-9, QUTUB INSTITUTIONAL AREA, KATWARIA SARAI, NEW DELHI -110016

बी-9, क़ुतुब इन्स्टीट्यूशनल एरिया, कटवारिया सराये, न्यू दिल्ली-110016

Ref: POSOCO/NLDC/SO/Daily PSP Report

दिनांक: 17<sup>th</sup> Jan 2020

To,

- 1. कार्यकारी निदेशक, पू .क्षे .भा .प्रे .के.,14 , गोल्फ क्लब रोड , कोलकाता 700033 Executive Director, ERLDC, 14 Golf Club Road, Tollygunge, Kolkata, 700033
- 2. कार्यकारी निदेशक, ऊ. क्षे. भा. प्रे. के., 18/ ए , शहीद जीत सिंह सनसनवाल मार्ग, नई दिल्ली 110016 Executive Director, NRLDC, 18-A, Shaheed Jeet Singh Marg, Katwaria Sarai, New Delhi – 110016
- 3. कार्यकारी निदेशक, प .क्षे .भा .प्रे .के., एफ3-, एम आई डी सी क्षेत्र , अंधेरी, मुंबई -400093 Executive Director, WRLDC, F-3, M.I.D.C. Area, Marol, Andheri (East), Mumbai-400093
- 4. कार्यकारी निदेशक, ऊ. पू. क्षे. भा. प्रे. के., डोंगतिएह, लोअर नोंग्रह , लापलंग, शिलोंग 793006 Executive Director, NERLDC, Dongteih, Lower Nongrah, Lapalang, Shillong - 793006, Meghalaya
- 5. कार्यकारी निदेशक , द .क्षे .भा .प्रे .के.,29 , रेस कोर्स क्रॉस रोड, बंगलुरु -560009 Executive Director, SRLDC, 29, Race Course Cross Road, Bangalore-560009

Sub: Daily PSP Report for the date 16.01.2020.

महोदय/Dear Sir,

आई॰ई॰जी॰सी॰-2010 की धारा स.-5.5.1 के प्रावधान के अनुसार, दिनांक 16-जनवरी-2020 की अखिल भारतीय प्रणाली की दैनिक ग्रिड निष्पादन रिपोर्ट रा॰भा॰प्रे॰के॰ की वेबसाइट पर उप्लब्ध है |

As per article 5.5.1 of the Indian Electricity Grid Code, the daily report pertaining power supply position of All India Power System for the date 16<sup>th</sup> Jan 2020, is available at the NLDC website.

धन्यवाद,

Report for previous day

A. Power Supply Position at All India and Regional level

Date of Reporting 17-Jan-20

	NR	WR	SR	ER	NER	Total
Demand Met during Evening Peak hrs(MW) (at 1900	46860	46603	35476	18344	2384	149667
hrs; from RLDCs)	40000	40003	33470	10544	2304	147007
Peak Shortage (MW)	620	0	0	0	11	631
Energy Met (MU)	911	1083	884	347	40	3265
Hydro Gen (MU)	124	40	74	30	7	276
Wind Gen (MU)	15	51	22			88
Solar Gen (MU)*	24.91	21.60	96.22	1.35	0.02	144
Energy Shortage (MU)	10.0	0.0	0.0	0.0	1.2	11.2
Maximum Demand Met during the day (MW) & time	46889	52508	42210	18416	2434	157260
(from NLDC SCADA)	18:57	11:01	09:30	18:57	17:55	09:40

B. Frequency Profile (%	%)						
Region	FVI	<49.7	49.7-49.8	49.8-49.9	<49.9	49.9-50.05	> 50.05
All India	0.042	0.00	0.27	8.09	8.36	72.06	19.58

C. Power Supply	Position	in States
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Region	States	Max. Demand Met during the day (MW)	Shortage during maximum Demand (MW)	Energy Met (MU)	Drawal Schedule (MU)	OD(+)/UD(-) (MU)	Max OD (MW)	Energy Shortage (MU
	Punjab	5829	0	112.0	57.0	-1.6	167	0.0
	Haryana	6500	0	125.3	93.7	0.8	176	0.0
	Rajasthan	12650	0	225.9	68.2	-3.6	310	0.0
	Delhi	4361	0	76.4	60.0	0.0	238	0.0
NR	UP	14548	85	253.9	104.7	-2.8	992	0.0
	Uttarakhand	2145	0	39.8	21.9	0.0	218	0.0
	HP	1699	0	31.1	23.2	1.5	289	0.0
	J&K(UT) and Ladakh(UT)	2479	620	42,2	35.6	1.2	445	10.0
	Chandigarh	276	0	4.7	4.5	0.2	27	0.0
	Chhattisgarh	3656	0	78.8	23.8	-1.5	241	0.0
	Gujarat	14908	0	309.7	80.7	3.7	698	0.0
	MP	11700	0	214.5	122.0	-2.9	763	0.0
WR	Maharashtra	21823	0	438.8	144.6	0.6	423	0.0
WK	Goa	484	0	10.0	10.0	-0.5	26	0.0
	DD	326	0	7.2	6.7	0.5	40	0.0
	DNH	783	0	18.2	18.2	0.0	75	0.0
	Essar steel	283	0	5.6	5.6	0.0	252	0.0
	Andhra Pradesh	8085	0	153.7	57.2	-0.8	390	0.0
	Telangana	10367	0	200.8	101.3	0.8	643	0.0
SR	Karnataka	12678	0	227.3	62.9	-1.0	899	0.0
JK.	Kerala	3577	0	70.1	55.9	1.0	209	0.0
	Tamil Nadu	10650	0	227.2	130.3	-0.7	489	0.0
Essar st Andhra Telanga SR Karnata Kerala Tamil N Pondy Bihar DVC		260	0	5.2	6.0	-0.8	30	0.0
		4515	0	77.1	76.1	-0.3	210	0.0
		3123	0	63.2	-35.0	-0.3	250	0.0
ER	Jharkhand	1308	0	25.4	16.0	0.4	120	0.0
	Odisha	3619	0	65.6	6.4	0.4	330	0.0
	West Bengal	6429	0	113.8	20.3	1.0	265	0.0
	Sikkim	130	0	1.9	1.7	0.3	35	0.0
	Arunachal Pradesh	121	1	2.3	2.4	-0.2	27	0.0
	Assam	1295	5	20.9	18.2	-0.1	89	0.3
	Manipur	217	1	3.2	3.1	0.1	33	0.0
NER	Meghalaya	372	0	6.1	3.3	0.6	47	0.9
	Mizoram	104	2	1.6	1.6	-0.2	7	0.0
	Nagaland	132	1	2,2	2.1	-0.1	36	0.0
	Tripura	219	1	3.7	2.2	-0.2	59	0.0

### D. Transnational Exchanges (MU) - Import(+ve)/Export(-ve)

The state of the s	Bhutan	Nepal	Bangladesh
Actual(MU)	4.1	-8.3	-7.8
Day peak (MW)	463.1	-506.3	-757.0

 $E.\ Import/export\ By\ Regions (in\ MU)\ -\ Import(+ve)/Export(-ve);\ OD(+)/UD(-)$ 

	NR	WR	SR	ER	NER	TOTAL
Schedule(MU)	219.6	-253.6	107.0	-77.5	4.5	0.0
Actual(MU)	201.6	-245.4	112.9	-66.6	3.7	6.2
O/D/U/D(MU)	-18.0	8.2	6.0	10.8	-0.8	6.1

## F. Generation Outage(MW)

	NR	WR	SR	ER	NER	Total
Central Sector	5058	15308	7552	2170	588	30676
State Sector	11990	16930	8870	4850	11	42651
Total	17048	32237	16422	7020	600	73326

#### G. Sourcewise generation (MU)

	NR	WR	SR	ER	NER	All India
Coal	459	1151	435	414	11	2469
Lignite	22	13	45	0	0	79
Hydro	124	40	74	30	7	276
Nuclear	24	23	45	0	0	92
Gas, Naptha & Diesel	32	25	18	0	19	95
RES (Wind, Solar, Biomass & Others)	69	91	159	1	0	321
Total	730	1342	775	445	37	3331

Share of RES in total generation (%)	9.47	6.75	20.56	0.31	0.05	9.63
Share of Non-fossil fuel (Hydro, Nuclear and RES) in total generation (%)	29.74	11.47	35.90	7.07	19.01	20.66

#### H. All India Demand Diversity Factor

Based on Regional Max Demands	1.033
Based on State Max Demands	1.092

Diversity factor = Sum of regional or state-wise maximum demands / All India maximum demand

 $<sup>\</sup>textbf{*Source} : \textbf{RLDCs for solar connected to ISTS; SLDCs for embedded solar. Limited visibility of embedded solar data.}$ 

		IN	TER-REGI	ONAL EXCH	ANGES	Date of 1	Reporting :	17-Jan-20
								Import=(+ve) /Export =(-ve) for NET (MU)
Sl No	Voltage Level	Line Details	Circuit	Max Import (MW)	Max Export (MW)	Import (MU)	Export (MU)	NET (MU)
		ER (With NR)						
5	HVDC	ALIPURDUAR-AGRA PUSAULI B/B	S/C	0	0 299	0.0	7.2	-7.2
1		GAYA-VARANASI	D/C	0	788	0.0	9.1	-7.2 -9.1
2	765kV	SASARAM-FATEHPUR	S/C	54	296	0.0	0.4	-0.4
3		GAYA-BALIA	S/C	0	409	0.0	6.5	-6.5
6		PUSAULI-VARANASI	S/C	0	220	0.0	4.4	-4.4
7		PUSAULI -ALLAHABAD	S/C	0	156	0.0	2.6	-2.6
8	40017	MUZAFFARPUR-GORAKHPUR	D/C	0	796	0.0	8.6	-8.6
9	400 kV	PATNA-BALIA	Q/C	0	760	0.0	11.2	-11.2
10	_	BIHARSHARIFF-BALIA MOTIHARI-GORAKHPUR	D/C D/C	0	503	0.0	6.2 0.0	-6.2 0.0
12	_	BIHARSHARIFF-VARANASI	D/C D/C	41	350	0.0	2.4	-2.4
13	220 kV	PUSAULI-SAHUPURI	S/C	6	140	0.0	2.1	-2.1
14		SONE NAGAR-RIHAND	S/C	0	0	0.0	0.0	0.0
15	1	GARWAH-RIHAND	S/C	30	0	0.6	0.0	0.6
16	132 kV	KARMANASA-SAHUPURI	S/C	0	0	0.0	0.0	0.0
17		KARMANASA-CHANDAULI	S/C	0	0	0.0	0.0	0.0
					ER-NR	0.6	53.5	-52.9
Import/E	Export of	ER (With WR)						1
18		JHARSUGUDA-DHARAMJAIGARH	Q/C	1074	0	18.1	0.0	18.1
19	765 kV	NEW RANCHI-DHARAMJAIGARH	D/C	600	79	5.9	0.0	5.9
20	1	JHARSUGUDA-DURG	D/C	155	158	0.9	0.0	0.9
21	400 kV	JHARSUGUDA-RAIGARH	Q/C	140	177	0.0	0.5	-0.5
22	400 KV	RANCHI-SIPAT	D/C	191	35	2.3	0.0	2.3
23	220 kV	BUDHIPADAR-RAIGARH	S/C	0	90	0.0	1.4	-1.4
24		BUDHIPADAR-KORBA	D/C	158	0	2.9	0.0	2.9
					ER-WR	30.1	1.8	28.3
Import/F	Export of	ER (With SR)						1
26	HVDC	JEYPORE-GAZUWAKA B/B	D/C	0.0	694.0	0.0	14.7	-14.7
27		TALCHER-KOLAR BIPOLE	D/C	0.0	1589.0	0.0	29.5	-29.5
25	765 kV	ANGUL-SRIKAKULAM	D/C	0.0	2494.0	0.0	44.4	-44.4
28	400 kV	TALCHER-I/C	D/C	918.0	438.0	8.9	0.0	8.9
29	220 kV	BALIMELA-UPPER-SILERRU	S/C	1.0	0.0 ER-SR	0.0	0.0 88.5	0.0 -88.5
Import/E	Export of	ER (With NER)			EK-5K	0.0	00.0	-00.5
30	Ĺ	BINAGURI-BONGAIGAON	D/C	233	82	3.1	0.0	3
31	400 kV	ALIPURDUAR-BONGAIGAON	D/C	281	74	4.2	0.0	4
32	220 kV	ALIPURDUAR-SALAKATI	D/C	60	28	0.7	0.0	1
	1	l			ER-NER	8.1	0.0	8.0
Import/E	Export of	NER (With NR)						
33		BISWANATH CHARIALI-AGRA		470	0	11.8	0.0	11.8
	HVDC		-				0.0	
			-		NER-NR	11.8	0.0	11.8
Import/E		WR (With NR)	-		NER-NR	11.8		11.8
34	Export of	CHAMPA-KURUKSHETRA	D/C	0	1851	0.0	<b>0.0</b> 27.5	-27.5
34 35		CHAMPA-KURUKSHETRA V'CHAL B/B	D/C D/C	448	1851	0.0 8.3	27.5 0.0	-27.5 8.3
34 35 36	Export of	CHAMPA-KURUKSHETRA V'CHAL B/B APL -MHG	D/C D/C D/C	448	1851 0 1930	0.0 8.3 0.0	27.5 0.0 40.7	-27.5 8.3 -40.7
34 35 36 37	Export of	CHAMPA-KURUKSHETRA V'CHAL B/B APL -MHG GWALIOR-AGRA	D/C D/C D/C D/C	0 0	1851 0 1930 2615	0.0 8.3 0.0 0.0	27.5 0.0 40.7 45.8	-27.5 8.3 -40.7 -45.8
34 35 36 37 38	Export of	CHAMPA-KURUKSHETRA VCHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR	D/C D/C D/C D/C D/C D/C	448 0 0 0	1851 0 1930 2615 1503	0.0 8.3 0.0 0.0 0.0	27.5 0.0 40.7 45.8 20.8	-27.5 8.3 -40.7 -45.8 -20.8
34 35 36 37 38 39	Export of	CHAMPA-KURUKSHETRA VCHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI	D/C D/C D/C D/C D/C D/C D/C D/C	448 0 0 0 0	1851 0 1930 2615 1503 910	0.0 8.3 0.0 0.0 0.0 0.0	27.5 0.0 40.7 45.8 20.8 21.8	-27.5 8.3 -40.7 -45.8 -20.8 -21.8
34 35 36 37 38 39 40	Export of HVDC	CHAMPA-KURUKSHETRA VCHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI	D/C D/C D/C D/C D/C D/C S/C	448 0 0 0 0 0 0 595	1851 0 1930 2615 1503 910 0	0.0 8.3 0.0 0.0 0.0 0.0 0.0	27.5 0.0 40.7 45.8 20.8 21.8	-27.5 8.3 -40.7 -45.8 -20.8 -21.8 11.6
34 35 36 37 38 39 40 41	Export of HVDC	CHAMPA-KURUKSHETRA VCHAL B/B APL-MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI	D/C D/C D/C D/C D/C D/C S/C S/C	448 0 0 0 0 0 0 595 0	1851 0 1930 2615 1503 910 0 1354	0.0 8.3 0.0 0.0 0.0 0.0 11.6	0.0 27.5 0.0 40.7 45.8 20.8 21.8 0.0 28.8	-27.5 8.3 -40.7 -45.8 -20.8 -21.8 11.6 -28.8
34 35 36 37 38 39 40 41 42	Export of HVDC	CHAMPA-KURUKSHETRA VCHAL B/B APL-MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI CHITTORGARH-BANASKANTHA	D/C D/C D/C D/C D/C D/C D/C S/C S/C D/C	448 0 0 0 0 0 595 0	1851 0 1930 2615 1503 910 0 1354 855	0.0 8.3 0.0 0.0 0.0 0.0 11.6 0.0	27.5 0.0 40.7 45.8 20.8 21.8 0.0 28.8 9.0	-27.5 8.3 -40.7 -45.8 -20.8 -21.8 11.6 -28.8 -9.0
34 35 36 37 38 39 40 41 42 43	Export of HVDC - 765 kV	CHAMPA-KURUKSHETRA VCHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI CHITTORGARH-BANASKANTHA ZERDA-KANKROLI	D/C D/C D/C D/C D/C D/C D/C S/C S/C S/C S/C S/C	448 0 0 0 0 0 595 0 0 114	1851 0 1930 2615 1503 910 0 1354 855 97	0.0 8.3 0.0 0.0 0.0 0.0 11.6 0.0 0.0	0.0 27.5 0.0 40.7 45.8 20.8 21.8 0.0 28.8 9.0 0.0	-27.5 8.3 -40.7 -45.8 -20.8 -21.8 11.6 -28.8 -9.0
34 35 36 37 38 39 40 41 42 43	Export of HVDC	CHAMPA-KURUKSHETRA VCHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI CHITTORGARH-BANASKANTHA ZERDA-KANKROLI ZERDA -BHINMAL	D/C D/C D/C D/C D/C D/C D/C D/C S/C S/C S/C S/C S/C	448 0 0 0 0 595 0 0 114 136	1851 0 1930 2615 1503 910 0 1354 855 97 251	0.0 8.3 0.0 0.0 0.0 0.0 11.6 0.0 0.0 0.1	27.5 0.0 40.7 45.8 20.8 21.8 0.0 28.8 9.0 0.0	-27.5 8.3 -40.7 -45.8 -20.8 -21.8 11.6 -28.8 -9.0 0.1 -2.0
34 35 36 37 38 39 40 41 42 43	Export of HVDC - 765 kV	CHAMPA-KURUKSHETRA V'CHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI CHITTORGARH-BANASKANTHA ZERDA-KANKROLI ZERDA -BHINMAL V'CHAL -RIHAND	D/C D/C D/C D/C D/C D/C D/C S/C S/C S/C S/C S/C	448 0 0 0 0 595 0 0 114 136 980	1851 0 1930 2615 1503 910 0 1354 855 97 251 0	0.0 8.3 0.0 0.0 0.0 0.0 11.6 0.0 0.0	27.5 0.0 40.7 45.8 20.8 21.8 0.0 28.8 9.0	-27.5 8.3 -40.7 -45.8 -20.8 -21.8 11.6 -28.8 -9.0
34 35 36 37 38 39 40 41 42 43 44 45	Export of HVDC - 765 kV	CHAMPA-KURUKSHETRA VCHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI CHITTORGARH-BANASKANTHA ZERDA-KANKROLI ZERDA -BHINMAL	D/C D/C D/C D/C D/C D/C D/C D/C D/C S/C S/C S/C S/C S/C S/C S/C	448 0 0 0 0 595 0 0 114 136	1851 0 1930 2615 1503 910 0 1354 855 97 251	0.0 8.3 0.0 0.0 0.0 0.0 11.6 0.0 0.0 0.1 0.0	27.5 0.0 40.7 45.8 20.8 21.8 0.0 28.8 9.0 0.0 2.0	-27.5 8.3 -40.7 -45.8 -20.8 -21.8 11.6 -28.8 -9.0 0.1 -2.0 21.7
34 35 36 37 38 39 40 41 42 43 44 45 46	HVDC  - 765 kV  - 400 kV	CHAMPA-KURUKSHETRA V'CHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI CHITTORGARH-BANASKANTHA ZERDA-KANKROLI ZERDA -BHINMAL V'CHAL -RIHAND RAPP-SHUJALPUR	D/C D/C D/C D/C D/C D/C D/C D/C S/C S/C S/C S/C S/C S/C D/C	448 0 0 0 0 595 0 0 114 136 980 182	1851 0 1930 2615 1503 910 0 1354 855 97 251 0 374	0.0 8.3 0.0 0.0 0.0 0.0 11.6 0.0 0.1 0.0 21.7 0	27.5 0.0 40.7 45.8 20.8 21.8 0.0 28.8 9.0 0.0 2.0	-27.5 8.3 -40.7 -45.8 -20.8 -21.8 11.6 -28.8 -9.0 0.1 -2.0 21.7 -1
34 35 36 37 38 39 40 41 42 43 44 45 46 47	Export of HVDC - 765 kV	CHAMPA-KURUKSHETRA V'CHAL B/B APL-MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI ZERDA-KANKROLI ZERDA -BHINMAL V'CHAL -RIHAND RAPP-SHUJALPUR BHANPURA-RANPUR	D/C D/C D/C D/C D/C D/C D/C S/C S/C S/C S/C S/C S/C S/C S/C S/C S	448 0 0 0 0 595 0 0 114 136 980 182 19	1851 0 1930 2615 1503 910 0 1354 855 97 251 0 374 67	0.0 8.3 0.0 0.0 0.0 11.6 0.0 0.1 0.0 21.7 0	27.5 0.0 40.7 45.8 20.8 21.8 0.0 28.8 9.0 0.0 2.0 1	-27.5 8.3 -40.7 -45.8 -20.8 -21.8 11.6 -28.8 -9.0 0.1 -2.0 21.7 -1 0.3
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48	HVDC  - 765 kV  - 400 kV	CHAMPA-KURUKSHETRA V'CHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI CHITTORGARH-BANASKANTHA ZERDA-KANKROLI ZERDA -BHINMAL V'CHAL -RIHAND RAPP-SHUJALPUR BHANPURA-RANPUR BHANPURA-MORAK	D/C D/C D/C D/C D/C D/C D/C S/C S/C S/C S/C S/C S/C S/C S/C S/C S	448 0 0 0 0 595 0 0 114 136 980 182 19 32	1851 0 1930 2615 1503 910 0 1354 855 97 251 0 374 67 121	0.0 8.3 0.0 0.0 0.0 0.0 11.6 0.0 0.1 0.0 21.7 0	27.5 0.0 40.7 45.8 20.8 21.8 0.0 28.8 9.0 0.0 2.0 1 0.0 0.0	-27.5 8.3 -40.7 -45.8 -20.8 -21.8 11.6 -28.8 -9.0 0.1 -2.0 21.7 -1 0.3 -0.6
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49	HVDC  - 765 kV  - 400 kV	CHAMPA-KURUKSHETRA V'CHAL B/B APL-MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI CHITTORGARH-BANASKANTHA ZERDA-KANKROLI ZERDA -BHINMAL V'CHAL -RIHAND RAPP-SHUJALPUR BHANPURA-RANPUR BHANPURA-MORAK MEHGAON-AURAIYA	D/C D/C D/C D/C D/C D/C D/C S/C S/C S/C S/C S/C S/C S/C S/C S/C S	448 0 0 0 0 595 0 0 114 136 980 182 19 32 62	1851 0 1930 2615 1503 910 0 1354 855 97 251 0 374 67 121	0.0 8.3 0.0 0.0 0.0 0.0 11.6 0.0 0.0 0.1 0.0 21.7 0	27.5 0.0 40.7 45.8 20.8 21.8 0.0 28.8 9.0 0.0 2.0 0.0 1 0.0 0.8	-27.5  8.3  -40.7  -45.8  -20.8  -21.8  11.6  -28.8  -9.0  0.1  -2.0  21.7  -1  0.3  -0.6  0.6
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50	765 kV 400 kV 220 kV	CHAMPA-KURUKSHETRA VCHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI CHITTORGARH-BANASKANTHA ZERDA-BHINMAL VCHAL -RIHAND RAPP-SHUJALPUR BHANPURA-RANPUR BHANPURA-MORAK MEHGAON-AURAIYA MALANPUR-AURAIYA	D/C D/C D/C D/C D/C D/C D/C S/C S/C S/C S/C S/C S/C S/C S/C S/C S	448 0 0 0 0 595 0 0 114 136 980 182 19 32 62 42	1851 0 1930 2615 1503 910 0 1354 855 97 251 0 374 67 121 0	0.0 8.3 0.0 0.0 0.0 0.0 11.6 0.0 0.0 0.1 0.0 21.7 0 0.4 0.1 0.6 0.2	27.5 0.0 40.7 45.8 20.8 21.8 0.0 28.8 9.0 0.0 2.0 0.0 1 0.0 0.8 0.0	-27.5  8.3  -40.7  -45.8  -20.8  -21.8  11.6  -28.8  -9.0  0.1  -2.0  21.7  -1  0.3  -0.6  0.6  0.2
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51	Export of HVDC - 765 kV - 400 kV - 220 kV	CHAMPA-KURUKSHETRA VCHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI CHITTORGARH-BANASKANTHA ZERDA-BHINMAL VCHAL -RIHAND RAPP-SHUJALPUR BHANPURA-RANPUR BHANPURA-MORAK MEHGAON-AURAIYA MALANPUR-AURAIYA	D/C D/C D/C D/C D/C D/C D/C S/C S/C S/C S/C S/C S/C S/C S/C S/C S	448 0 0 0 0 595 0 0 114 136 980 182 19 32 62 42	1851 0 1930 2615 1503 910 0 1354 855 97 251 0 374 67 121 0	0.0 8.3 0.0 0.0 0.0 0.0 11.6 0.0 0.0 0.1 0.0 21.7 0 0.4 0.1 0.6 0.2 0.0	27.5 0.0 40.7 45.8 20.8 21.8 0.0 28.8 9.0 0.0 2.0 0.0 0.0 0.0 0.8 0.0 0.0	-27.5 8.3 -40.7 -45.8 -20.8 -21.8 11.6 -28.8 -9.0 0.1 -2.0 21.7 -1 0.3 -0.6 0.6 0.2 0.0
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51	HVDC  765 kV  400 kV  220 kV	CHAMPA-KURUKSHETRA VCHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI CHITTORGARH-BANASKANTHA ZERDA-KANKROLI ZERDA -BHINMAL VCHAL -RIHAND RAPP-SHUJALPUR BHANPURA-RANPUR BHANPURA-MORAK MEHGAON-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR  WR (With SR) BHADRAWATI B/B	D/C D/C D/C D/C D/C D/C D/C S/C S/C S/C S/C S/C S/C S/C S/C S/C S	448 0 0 0 0 595 0 0 114 136 980 182 19 32 62 42	1851 0 1930 2615 1503 910 0 1354 855 97 251 0 374 67 121 0	0.0 8.3 0.0 0.0 0.0 0.0 11.6 0.0 0.0 0.1 0.0 21.7 0 0.4 0.1 0.6 0.2 0.0	27.5 0.0 40.7 45.8 20.8 21.8 0.0 28.8 9.0 0.0 2.0 0.0 0.0 0.0 0.8 0.0 0.0	-27.5 8.3 -40.7 -45.8 -20.8 -21.8 11.6 -28.8 -9.0 0.1 -2.0 21.7 -1 0.3 -0.6 0.6 0.2 0.0
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51	Export of HVDC - 765 kV - 400 kV - 220 kV	CHAMPA-KURUKSHETRA VCHAL B/B APL-MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI SATNA-ORAI CHITTORGARH-BANASKANTHA ZERDA-KANKROLI ZERDA -BHINMAL VCHAL -RIHAND RAPP-SHUJALPUR BHANPURA-RANPUR BHANPURA-RANPUR BHANPURA-WALIANYA MALANPUR-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR WR (With SR) BHADRAWATI B/B BARSUR-L.SILERU	D/C D/C D/C D/C D/C D/C D/C S/C S/C S/C S/C S/C S/C S/C S/C S/C S	448 0 0 0 0 0 595 0 0 114 136 980 182 19 32 62 42 0	1851 0 1930 2615 1503 910 0 1354 855 97 251 0 374 67 121 0 19 0 WR-NR	0.0 8.3 0.0 0.0 0.0 0.0 11.6 0.0 0.0 0.1 0.0 21.7 0 0.4 0.1 0.6 0.2 0.0 43.0	0.0  27.5 0.0  40.7  45.8  20.8  21.8  0.0  28.8  9.0  0.0  1  0.0  0.8  0.0  0.0  1  1  13.4  0.0	-27.5  8.3  -40.7  -45.8  -20.8  -21.8  11.6  -28.8  -9.0  0.1  -2.0  21.7  -1  0.3  -0.6  0.6  0.2  0.0  -155.6
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51  Import/F 52 53 54	HVDC  765 kV  400 kV  220 kV	CHAMPA-KURUKSHETRA V'CHAL B/B APL-MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI CHITTORGARH-BANASKANTHA ZERDA-KANKROLI ZERDA -BHINMAL V'CHAL -RIHAND RAPP-SHUJALPUR BHANPURA-RANPUR BHANPURA-MORAK MEHGAON-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR WR (With SR) BHADRAWATI B/B BARSUR-L.SILERU SOLAPUR-RAICHUR	D/C D/C D/C D/C D/C D/C D/C S/C S/C S/C S/C S/C S/C S/C S/C S/C S	448 0 0 0 0 0 595 0 0 114 136 980 182 19 32 62 42 0	1851 0 1930 2615 1503 910 0 1354 855 97 251 0 374 67 121 0 19 0 WR-NR	0.0 8.3 0.0 0.0 0.0 0.0 11.6 0.0 0.0 0.1 0.0 21.7 0 0.4 0.1 0.6 0.2 0.0 43.0	0.0  27.5 0.0  40.7  45.8  20.8  21.8  0.0  28.8  9.0  0.0  1  0.0  0.8  0.0  0.0  1  1  0.0  1  1  0.0  1  1  0.0  1  1  0.0  1  1  0.0  1  1  0.0  1  1  0.0  1  1  0.0  1  1  0.0  1  1  0.0  1  1  0.0  1  1  0.0  1  1  0.0  1  1  1  1  1  1  1  1  1  1  1  1  1	-27.5  8.3  -40.7  -45.8  -20.8  -21.8  11.6  -28.8  -9.0  0.1  -2.0  21.7  -1  0.3  -0.6  0.6  0.2  0.0  -155.6
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51  Import/F 52 53 54 55	220 kV  132kV  Export of HVDC  765 kV	CHAMPA-KURUKSHETRA VCHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI CHITTORGARH-BANASKANTHA ZERDA-BHINMAL VCHAL -RIHAND RAPP-SHUJALPUR BHANPURA-RANPUR BHANPURA-MORAK MEHGAON-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR  WR (With SR) BHADRAWATI B/B BARSUR-L.SILERU SOLAPUR-RAICHUR WARDHA-NIZAMABAD	D/C D/C D/C D/C D/C D/C D/C S/C S/C S/C S/C S/C S/C S/C S/C S/C S	448 0 0 0 0 0 595 0 0 114 136 980 182 19 32 62 42 0	1851 0 1930 2615 1503 910 0 1354 855 97 251 0 374 67 121 0 19 0 WR-NR	0.0 8.3 0.0 0.0 0.0 0.0 11.6 0.0 0.1 0.0 21.7 0 0.4 0.1 0.6 0.2 0.0 43.0	0.0 27.5 0.0 40.7 45.8 20.8 21.8 0.0 28.8 9.0 0.0 1 0.0 0.0 0.0 0.0 1 0.0 0.0	-27.5  8.3  -40.7  -45.8  -20.8  -21.8  11.6  -28.8  -9.0  0.1  -2.0  21.7  -1  0.3  -0.6  0.6  0.2  0.0  -155.6
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51  Import/E 52 53 54 55	Export of HVDC  765 kV  400 kV  220 kV  132kV  Export of HVDC	CHAMPA-KURUKSHETRA VCHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI CHITTORGARH-BANASKANTHA ZERDA-KANKROLI ZERDA -BHINMAL VCHAL -RIHAND RAPP-SHUJALPUR BHANPURA-RANPUR BHANPURA-MORAK MEHGAON-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR  WR (With SR) BHADRUK-LSILERU SOLAPUR-RAICHUR WARDHA-NIZAMABAD KOLHAPUR-KUDGI	D/C	448 0 0 0 0 595 0 0 114 136 980 182 19 32 62 42 0	1851 0 1930 2615 1503 910 0 1354 855 97 251 0 374 67 121 0 19 0 WR-NR 1012 0 1846 2234 0	0.0 8.3 0.0 0.0 0.0 0.0 0.0 11.6 0.0 0.0 0.1 0.0 21.7 0 0.4 0.1 0.6 0.2 0.0 43.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0  27.5 0.0 40.7 45.8 20.8 21.8 0.0 28.8 9.0 0.0 2.0 0.0 1 0.0 0.8 0.0 0.0 198.6  13.4 0.0 21.5 37.5 0.0	-27.5 8.3 -40.7 -45.8 -20.8 -21.8 11.6 -28.8 -9.0 0.1 -2.0 21.7 -1 0.3 -0.6 0.6 0.2 0.0 -155.6
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51  Import/E 52 53 54 55 56 57	220 kV 220 kV 2400 kV 400 kV 400 kV	CHAMPA-KURUKSHETRA VCHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI CHITTORGARH-BANASKANTHA ZERDA-KANKROLI ZERDA -BHINMAL VCHAL -RIHAND RAPP-SHUJALPUR BHANPURA-RANPUR BHANPURA-MORAK MEHGAON-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR  WR (With SR) BHADRAWATI B/B BHASWATI B/B BKSUR-LSILERU SOLAPUR-RAICHUR WARDHA-NIZAMABAD KOLHAPUR-KUDGI	D/C	448 0 0 0 0 0 595 0 0 114 136 980 182 19 32 62 42 0 0 0 0 0 0 0 0 0 0 0 0 0	1851 0 1930 2615 1503 910 0 1354 855 97 251 0 374 67 121 0 19 0 WR-NR 1012 0 1846 2234 0	0.0 8.3 0.0 0.0 0.0 0.0 0.0 11.6 0.0 0.0 0.1 0.0 21.7 0 0.4 0.1 0.6 0.2 0.0 43.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0  27.5  0.0  40.7  45.8  20.8  21.8  0.0  28.8  9.0  0.0  10.0  0.8  0.0  0.0  198.6  13.4  0.0  21.5  37.5  0.0  0.0	-27.5 8.3 -40.7 -45.8 -20.8 -21.8 11.6 -28.8 -9.0 0.1 -2.0 21.7 -1 0.3 -0.6 0.6 0.2 0.0 -155.6  -13.4 0.0 -21.5 -37.5 8.5 0.0
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51  Import/E 52 53 54 55 56 57 58	220 kV  132kV  Export of HVDC  765 kV	CHAMPA-KURUKSHETRA VCHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI CHITTORGARH-BANASKANTHA ZERDA-KANKROLI ZERDA -BHINMAL VCHAL -RIHAND RAPP-SHUJALPUR BHANPURA-RANPUR BHANPURA-RANPUR BHANPURA-WARAI MALANPUR-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR  WR (With SR) BHADRAWATI B/B BARSUR-LSILERU SOLAPUR-RICHMER WARDHA-NIZAMABAD KOLHAPUR-KUDGI KOLHAPUR-KUDGI KOLHAPUR-CHIKODI PONDA-AMBEWADI	D/C	448 0 0 0 0 0 0 595 0 0 114 136 980 182 19 32 62 42 0 0 0 0 0 757	1851 0 1930 2615 1503 910 0 1354 855 97 251 0 374 67 121 0 WR-NR 1012 0 1846 2234 0 0	0.0 8.3 0.0 0.0 0.0 0.0 11.6 0.0 0.0 21.7 0 0.4 0.1 0.6 0.2 0.0 43.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0  27.5 0.0 40.7 45.8 20.8 21.8 0.0 28.8 9.0 0.0 1 0.0 0.8 0.0 0.0 198.6  13.4 0.0 21.5 37.5 0.0 0.0 0.0	-27.5 8.3 -40.7 -45.8 -20.8 -21.8 11.6 -28.8 -9.0 0.1 -2.0 21.7 -1 0.3 -0.6 0.6 0.2 0.0 -155.6  -13.4 0.0 -21.5 -37.5 8.5 0.0 0.0
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51  [mport/F] 52 53 54 55 56 57	220 kV 220 kV 2400 kV 400 kV 400 kV	CHAMPA-KURUKSHETRA VCHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI CHITTORGARH-BANASKANTHA ZERDA-KANKROLI ZERDA -BHINMAL VCHAL -RIHAND RAPP-SHUJALPUR BHANPURA-RANPUR BHANPURA-MORAK MEHGAON-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR  WR (With SR) BHADRAWATI B/B BHASWATI B/B BKSUR-LSILERU SOLAPUR-RAICHUR WARDHA-NIZAMABAD KOLHAPUR-KUDGI	D/C	448 0 0 0 0 0 595 0 0 114 136 980 182 19 32 62 42 0 0 0 0 0 0 0 0 0 0 0 0 0	1851 0 1930 2615 1503 910 0 1354 855 97 251 0 374 67 121 0 19 0 WR-NR	0.0 8.3 0.0 0.0 0.0 0.0 0.0 11.6 0.0 0.0 0.1 0.0 21.7 0 0.4 0.1 0.6 0.2 0.0 43.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0  27.5  0.0  40.7  45.8  20.8  21.8  0.0  28.8  9.0  0.0  10.0  0.8  0.0  0.0  198.6  13.4  0.0  21.5  37.5  0.0  0.0	-27.5 8.3 -40.7 -45.8 -20.8 -21.8 11.6 -28.8 -9.0 0.1 -2.0 21.7 -1 0.3 -0.6 0.6 0.2 0.0 -155.6
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51  mport/F 52 53 54 55 56 57 58	220 kV 220 kV 2400 kV 400 kV 400 kV	CHAMPA-KURUKSHETRA VCHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI CHITTORGARH-BANASKANTHA ZERDA-KANKROLI ZERDA -BHINMAL VCHAL -RIHAND RAPP-SHUJALPUR BHANPURA-RANPUR BHANPURA-RANPUR BHANPURA-WARAI MALANPUR-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR  WR (With SR) BHADRAWATI B/B BARSUR-LSILERU SOLAPUR-RICHMER WARDHA-NIZAMABAD KOLHAPUR-KUDGI KOLHAPUR-KUDGI KOLHAPUR-CHIKODI PONDA-AMBEWADI	D/C	448 0 0 0 0 0 0 595 0 0 114 136 980 182 19 32 62 42 0 0 0 0 0 757	1851 0 1930 2615 1503 910 0 1354 855 97 251 0 374 67 121 0 WR-NR 1012 0 1846 2234 0 0	0.0 8.3 0.0 0.0 0.0 0.0 11.6 0.0 0.0 21.7 0 0.4 0.1 0.6 0.2 0.0 43.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0  27.5 0.0 40.7 45.8 20.8 21.8 0.0 28.8 9.0 0.0 1 0.0 0.8 0.0 0.0 198.6  13.4 0.0 21.5 37.5 0.0 0.0 0.0	-27.5 8.3 -40.7 -45.8 -20.8 -21.8 11.6 -28.8 -9.0 0.1 -2.0 21.7 -1 0.3 -0.6 0.6 0.2 0.0 -155.6  -13.4 0.0 -21.5 -37.5 8.5 0.0 0.0
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51  mport/F 52 53 54 55 56 57 58	220 kV 220 kV 2400 kV 400 kV 400 kV	CHAMPA-KURUKSHETRA VCHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATTA-ORAI CHITTORGARH-BANASKANTHA ZERDA-KANKROLI ZERDA -BHINMAL VCHAL -RIHAND RAPP-SHUJALPUR BHANPURA-RANPUR BHANPURA-RANPUR BHANPURA-WARIANA MALANPUR-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR  WR (With SR) BHADRAWATI B/B BARSUR-L.SILERU SOLAPUR-RAICHUR WARDHA-NIZAMABAD KOLHAPUR-KUDGI KOLHAPUR-CHIKODI PONDA-AMBEWADI XELDEM-AMBEWADI	D/C D/C D/C D/C D/C D/C D/C D/C S/C S/C S/C S/C S/C S/C S/C S/C S/C S	448 0 0 0 0 0 0 595 0 0 114 136 980 182 19 32 62 42 0 0 0 0 0 757	1851 0 1930 2615 1503 910 0 1354 855 97 251 0 374 67 121 0 19 0 WR-NR	0.0 8.3 0.0 0.0 0.0 0.0 11.6 0.0 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.0	0.0  27.5 0.0 40.7 45.8 20.8 21.8 0.0 28.8 9.0 0.0 1 0.0 0.0 1 0.0 198.6  13.4 0.0 21.5 37.5 0.0 0.0 0.0 0.0 0.0	-27.5 8.3 -40.7 -45.8 -20.8 -21.8 11.6 -28.8 -9.0 0.1 -2.0 21.7 -1 0.3 -0.6 0.6 0.2 0.0 -155.6  -13.4 0.0 -21.5 -37.5 8.5 0.0 0.0 1.6
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51  mport/F 52 53 54 55 56 57 58	220 kV 220 kV 2400 kV 400 kV 400 kV	CHAMPA-KURUKSHETRA VCHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATTA-ORAI CHITTORGARH-BANASKANTHA ZERDA-KANKROLI ZERDA -BHINMAL VCHAL -RIHAND RAPP-SHUJALPUR BHANPURA-RANPUR BHANPURA-RANPUR BHANPURA-WARIANA MALANPUR-AURAIYA MALANPUR-AURAIYA GWALIOR-SAWAI MADHOPUR  WR (With SR) BHADRAWATI B/B BARSUR-L.SILERU SOLAPUR-RAICHUR WARDHA-NIZAMABAD KOLHAPUR-KUDGI KOLHAPUR-CHIKODI PONDA-AMBEWADI XELDEM-AMBEWADI	D/C D/C D/C D/C D/C D/C D/C D/C S/C S/C S/C S/C S/C S/C S/C S/C S/C S	448 0 0 0 0 0 0 595 0 0 114 136 980 182 19 32 62 42 0 0 0 0 757 0 1	1851 0 1930 2615 1503 910 0 1354 855 97 251 0 374 67 121 0 19 0 WR-NR	0.0 8.3 0.0 0.0 0.0 0.0 11.6 0.0 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.1 0.0 0.0	0.0  27.5 0.0 40.7 45.8 20.8 21.8 0.0 28.8 9.0 0.0 1 0.0 0.0 1 0.0 198.6  13.4 0.0 21.5 37.5 0.0 0.0 0.0 0.0 0.0	-27.5 8.3 -40.7 -45.8 -20.8 -21.8 11.6 -28.8 -9.0 0.1 -2.0 21.7 -1 0.3 -0.6 0.6 0.2 0.0 -155.6  -13.4 0.0 -21.5 -37.5 8.5 0.0 0.0 1.6