

## National Load Despatch Centre राष्ट्रीय भार प्रेषण केंद्र

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

(Government of India Enterprise/ भारत सरकार का उद्यम)
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बी-9, कृतुब इन्स्टीट्यूशनल एरिया, कटवारिया सराय, न्यू दिल्ली-110016

Ref: POSOCO/NLDC/SO/Daily PSP Report

दिनांक: 08<sup>th</sup> July 2018

To,

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

Sub: Daily PSP Report for the date 07.07.2018.

महोदय/Dear Sir,

आई॰ई॰जी॰सी॰-2010 की धारा स.-5.5.1 के प्रावधान के अनुसार, दिनांक 7 जुलाई 2018 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 7<sup>th</sup> July 2018, is available at the NLDC website.

धन्यवाद,

# पॉवर सिस्टम ऑपरेशन कारपोरेशन लिमिटेड राष्ट्रीय भार प्रेषण केंद्र, नई दिल्ली

Report for previous day **Date of Reporting** 8-Jul-18

#### A. Maximum Demand

	NR	WR	SR	ER	NER	Total
Demand Met during Evening Peak hrs(MW) (at 2000 hrs; from RLDCs)	56832	44046	38142	19691	2772	161483
Peak Shortage (MW)	1983	0	0	0	101	2084
Energy Met (MU)	1353	1027	866	438	53	3738
Hydro Gen (MU)	300	20	47	92	26	485
Wind Gen (MU)	24	110	209			343
Solar Gen (MU)*	16.36	15.77	33.75	0.79	0.02	67
Energy Shortage (MU)	19.0	0.3	0.0	0.0	0.8	20.1
Maximum Demand Met during the day	59858	45203	39511	21190	2953	165606
(MW) & time (from NLDC SCADA)	22:55	10:33	19:19	20:01	19:18	21:15

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	0.044	0.00	0.14	12.45	12.59	83.65	3.76

C. Power Supply Po	sition in States	T	T					
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	11479	0	254.3	139.0	-1.3	87	0.0
	Haryana	9575	0	208.2	145.0	2.8	382	0.1
	Rajasthan	10361	0	231.4	74.4	1.3	234	0.0
	Delhi	6058	0	124.7	99.7	-1.2	170	0.1
NR	UP	18051	340	412.2	188.9	3.7	480	5.5
	Uttarakhand	2058	0	44.5	16.1	2.4	232	1.2
	HP	1401	0	26.4	1.9	1.2	228	1.3
	J&K	2198	550	45.8	20.5	0.0	279	10.8
	Chandigarh	300	0	5.9	6.0	-0.1	31	0.0
	Chhattisgarh	3708	0	88.3	29.5	0.4	303	0.3
	Gujarat	14512	0	321.6	97.9	3.9	715	0.0
	MP	7559	0	167.7	71.3	1.0	513	0.0
WR	Maharashtra	18326	0	403.2	112.7	-2.2	586	0.0
VVI	Goa	404	0	8.9	7.9	0.3	48	0.0
	DD	334	0	7.6	6.3	1.2	79	0.0
	DNH	765	0	17.4	16.3	1.2	92	0.0
	Essar steel	630	0	12.8	12.0	0.8	313	0.0
	Andhra Pradesh	6984	0	156.9	23.3	-1.0	473	0.0
	Telangana	6575	0	141.2	63.2	-0.6	558	0.0
SR	Karnataka	8739	0	183.7	59.6	-0.4	562	0.0
311	Kerala	3317	0	67.1	46.4	1.0	201	0.0
	Tamil Nadu	14391	0	309.5	100.3	-3.3	716	0.0
	Pondy	366	0	8.0	8.0	-0.1	39	0.0
	Bihar	4958	0	92.0	87.8	1.5	250	0.0
	DVC	3180	0	70.3	-41.9	-1.6	280	0.0
ER	Jharkhand	1234	0	24.0	18.3	0.3	180	0.0
	Odisha	3873	0	75.6	31.2	2.0	320	0.0
	West Bengal	8555	0	174.4	52.9	5.0	380	0.0
	Sikkim	86	0	1.2	1.5	-0.3	0	0.0
	Arunachal Pradesh	128	0	2.3	2.7	-0.4	75	0.0
	Assam	1768	81	34.3	26.7	1.5	223	0.6
	Manipur	166	2	2.5	2.6	-0.1	62	0.0
NER	Meghalaya	305	0	5.5	0.6	-0.1	35	0.0
	Mizoram	86	2	1.4	0.8	0.2	36	0.0
	Nagaland	116	2	2.3	2.2	-0.1	14	0.0
	Tripura	266	5	5.0	4.6	0.2	81	0.0

 $\textbf{D. Transnational Exchanges} \ \ (MU) \ \textbf{- Import} (+ve) / Export (-ve)$ 

	Bhutan	Nepal	Bangladesh
Actual(MU)	26.9	-5.6	-14.8
Day peak (MW)	1311.6	-430.4	-647.0

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

	NR	WR	SR	ER	NER	TOTAL
Schedule(MU)	314.2	-252.2	32.6	-91.1	-2.4	1.1
Actual(MU)	325.0	-258.7	13.8	-79.0	-3.5	-2.3
O/D/U/D(MU)	10.8	-6.5	-18.8	12.1	-1.1	-3.4

F. Generation Outage(MW)

	NR	WR	SR	ER	NER	Total
Central Sector	5008	14957	8772	1365	121	30223
State Sector	7140	18413	10170	5555	50	41328
Total	12148	33370	18942	6920	171	71550

G. Sourcewise generation (MU)

	NR	WR	SR	ER	NER	All India
Thermal (Coal & Lignite)	627	1075	470	446	10	2627
Hydro	300	20	49	92	26	487
Nuclear	27	29	45	0	0	102
Gas, Naptha & Diesel	41	51	24	0	24	140
RES (Wind, Solar, Biomass & Others)	53	125	277	1	0	456
Total	1047	1301	865	539	60	3812

Share of RES in total generation (%)	5.04	9.63	32.06	0.20	0.06	11.97
Share of Non-fossil fuel (Hydro, Nuclear and	36.25	12.42	42.92	17.24	44.01	27.41
RES) in total generation (%)	30.25	15.42	42.92	17.24	44.01	27.41

H. Diversity Factor
All India Demand Diversity Factor
1.019
Diversity factor = Sum of regional maximum demands / All India maximum demand

						Date of I	Reporting	: 8-Jul
								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)
	Export of	ER (With NR)	D/C	0	554	0.0	10.2	10.2
2	765kV	GAYA-VARANASI SASARAM-FATEHPUR	D/C S/C	280	554 13	0.0 3.0	0.0	-10.2 3.0
3	70011	GAYA-BALIA	S/C	0	429	0.0	7.9	-7.9
4	HVDC	ALIPURDUAR-AGRA	-	0	725	0.0	18.5	-18.5
5	IIVDC	PUSAULI B/B	S/C	0	378	0.0	9.2	-9.2
6		PUSAULI-VARANASI	S/C	0	255	0.0	0.0	0.0
7 8	1	PUSAULI -ALLAHABAD	S/C D/C	0	178 796	0.0	13.3	-13.3
9	400 kV	MUZAFFARPUR-GORAKHPUR PATNA-BALIA	O/C	0	983	0.0	17.9	-17.9
10	100 K	BIHARSHARIFF-BALIA	D/C	0	329	0.0	5.6	-5.6
11		MOTIHARI-GORAKHPUR	D/C	302	2	4.0	0.0	4.0
12	Ī	BIHARSHARIFF-VARANASI	D/C	712	0	0.0	1.7	-1.7
13	220 kV	PUSAULI-SAHUPURI	S/C	0	212	0.0	4.4	-4.4
14		SONE NAGAR-RIHAND	S/C	0	0	0.0	0.0	0.0
15	132 kV	GARWAH-RIHAND	S/C	35	0	0.3	0.0	0.3
16	~~ ~ · ·	KARMANASA-SAHUPURI	S/C	0	45	0.0	0.0	0.0
17		KARMANASA-CHANDAULI	S/C	0	0	0.0	0.0	0.0
port/I	Export of	ER (With WR)			ER-NR	7.3	88.7	-81.4
18	765 kV	JHARSUGUDA-DHARAMJAIGARH S/C	D/C	499	2	7.4	0.0	7.4
19	ļ	NEW RANCHI-DHARAMJAIGARH	D/C	761	0	10.6	0.0	10.6
20	400 kV	JHARSUGUDA-RAIGARH	Q/C	695	0	9.8	0.0	9.8
21	<u> </u>	RANCHI-SIPAT	D/C S/C	337 24	123	5.2 0.0	0.0	5.2 -0.9
23	220 kV	BUDHIPADAR-RAIGARH BUDHIPADAR-KORBA	D/C	118	0	1.9	0.9	1.9
23		BUDHIFADAK-KUKBA	D/C	116	ER-WR	34.9	0.9	34.0
		ER (With SR)	D/G	0.0	1044.0	0.0	10.0	10.0
24	765 kV	ANGUL-SRIKAKULAM JEYPORE-GAZUWAKA B/B	D/C D/C	0.0	1044.8 411.4	0.0	10.9 9.8	-10.9 -9.8
26	HVDC LINK	TALCHER-KOLAR BIPOLE	D/C	0.0	1189.6	0.0	26.7	-26.7
27	400 kV	TALCHER-I/C	D/C	1016.7	0.8	0.0	13.8	-13.8
28	220 kV	BALIMELA-UPPER-SILERRU	S/C	0.0	0.0	0.0	0.0	0.0
					ER-SR	0.0	47.4	-47.4
nport/I	Export of	ER (With NER)	D/C	0	569	0.0	8.3	-8
30	400 kV	BINAGURI-BONGAIGAON ALIPURDUAR-BONGAIGAON	D/C	155	261	0.0	1.1	-0
31	220 kV	ALIPURDUAR-SALAKATI	D/C	0	137	0.0	2.2	-2
					ER-NER	0.0	11.6	-11.6
32 32		NER (With NR) BISWANATH CHARIALI-AGRA	1 -	0	701	0.0	16.8	-16.8
32	пурс	DISWANATTI CHARIALI-AGRA		U	NER-NR	0.0	16.8	-16.8
iport/I	Export of	WR (With NR)						
				178		0.0	9.1	-9.1
33		CHAMPA-KURUKSHETRA	D/C		1156			
34	HVDC	V'CHAL B/B	D/C	241	252	2.3	3.7	-1.5
34 35	HVDC	V'CHAL B/B APL -MHG	D/C D/C	0	252 2097	0.0	50.2	-50.2
34 35 36	HVDC	V'CHAL B/B APL -MHG GWALIOR-AGRA	D/C D/C D/C	0	252 2097 1465	0.0	50.2 57.9	-50.2 -57.9
34 35 36 37		V'CHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR	D/C D/C D/C D/C	0 0	252 2097 1465 1476	0.0 0.0 0.0	50.2 57.9 30.9	-50.2 -57.9 -30.9
34 35 36 37 38	HVDC 765 kV	V'CHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI	D/C D/C D/C D/C D/C	0 0 0	252 2097 1465 1476 0	0.0 0.0 0.0 0.0	50.2 57.9 30.9 0.0	-50.2 -57.9 -30.9 0.0
34 35 36 37 38 39		V'CHAL B/B  APL -MHG  GWALIOR-AGRA  PHAGI-GWALIOR  JABALPUR-ORAI  GWALIOR-ORAI	D/C D/C D/C D/C D/C S/C	0 0 0 0 465	252 2097 1465 1476 0	0.0 0.0 0.0 0.0 10.1	50.2 57.9 30.9 0.0 0.0	-50.2 -57.9 -30.9 0.0 10.1
34 35 36 37 38 39 40		V'CHAL B/B  APL -MHG  GWALIOR-AGRA  PHAGI-GWALIOR  JABALPUR-ORAI  GWALIOR-ORAI  SATNA-ORAI	D/C D/C D/C D/C D/C S/C S/C	0 0 0 0 465 0	252 2097 1465 1476 0 0 1800	0.0 0.0 0.0 0.0 10.1 0.0	50.2 57.9 30.9 0.0 0.0 40.4	-50.2 -57.9 -30.9 0.0 10.1 -40.4
34 35 36 37 38 39	765 kV	V'CHAL B/B  APL -MHG  GWALIOR-AGRA  PHAGI-GWALIOR  JABALPUR-ORAI  GWALIOR-ORAI	D/C D/C D/C D/C D/C S/C	0 0 0 0 465	252 2097 1465 1476 0	0.0 0.0 0.0 0.0 10.1	50.2 57.9 30.9 0.0 0.0	-50.2 -57.9 -30.9 0.0 10.1
34 35 36 37 38 39 40 41		V'CHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI ZERDA-KANKROLI	D/C D/C D/C D/C D/C S/C S/C S/C	0 0 0 0 465 0 222	252 2097 1465 1476 0 0 1800 63	0.0 0.0 0.0 0.0 10.1 0.0 1.2	50.2 57.9 30.9 0.0 0.0 40.4 0.0	-50.2 -57.9 -30.9 0.0 10.1 -40.4 1.2
34 35 36 37 38 39 40 41 42	765 kV	V'CHAL B/B APL -MHG GWALIOR-AGRA PHAGI-GWALIOR JABALPUR-ORAI GWALIOR-ORAI SATNA-ORAI ZERDA-KANKROLI ZERDA -BHINMAL	D/C D/C D/C D/C D/C S/C S/C S/C S/C	0 0 0 0 465 0 222 192	252 2097 1465 1476 0 0 1800 63 80	0.0 0.0 0.0 0.0 10.1 0.0 1.2 0.3	50.2 57.9 30.9 0.0 0.0 40.4 0.0 0.0	-50.2 -57.9 -30.9 0.0 10.1 -40.4 1.2 0.3
34 35 36 37 38 39 40 41 42 43	765 kV	V'CHAL B/B  APL -MHG  GWALIOR-AGRA  PHAGI-GWALIOR  JABALPUR-ORAI  GWALIOR-ORAI  SATNA-ORAI  ZERDA-KANKROLI  ZERDA -BHINMAL  V'CHAL -RIHAND	D/C D/C D/C D/C D/C S/C S/C S/C S/C S/C	0 0 0 0 465 0 222 192 971	252 2097 1465 1476 0 0 1800 63 80	0.0 0.0 0.0 0.0 10.1 0.0 1.2 0.3 22.4	50.2 57.9 30.9 0.0 0.0 40.4 0.0 0.0 0.0	-50.2 -57.9 -30.9 0.0 10.1 -40.4 1.2 0.3 22.4
34 35 36 37 38 39 40 41 42 43 44 45	765 kV	VCHAL B/B  APL -MHG  GWALIOR-AGRA  PHAGI-GWALIOR  JABALPUR-ORAI  GWALIOR-ORAI  SATNA-ORAI  ZERDA-KANKROLI  ZERDA -BHINMAL  VCHAL -RIHAND  RAPP-SHUJALPUR  BADOD-KOTA  BADOD-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	0 0 0 465 0 222 192 971	252 2097 1465 1476 0 0 1800 63 80 0 796	0.0 0.0 0.0 0.0 10.1 0.0 1.2 0.3 22.4	50.2 57.9 30.9 0.0 0.0 40.4 0.0 0.0 0.0 30	-50.2 -57.9 -30.9 0.0 10.1 -40.4 1.2 0.3 22.4 -30
34 35 36 37 38 39 40 41 42 43 44 45	765 kV	VCHAL B/B  APL -MHG  GWALIOR-AGRA  PHAGI-GWALIOR  JABALPUR-ORAI  GWALIOR-ORAI  SATNA-ORAI  ZERDA-KANKROLI  ZERDA -BHINMAL  VCHAL -RIHAND  RAPP-SHUJALPUR  BADOD-KOTA	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	0 0 0 465 0 222 192 971 0 4 0	252 2097 1465 1476 0 0 1800 63 80 0 796 45 124 35	0.0 0.0 0.0 0.0 10.1 0.0 1.2 0.3 22.4 0 0.0 0.0	50.2 57.9 30.9 0.0 0.0 40.4 0.0 0.0 30 1.0 1.7 0.3	-50.2 -57.9 -30.9 0.0 10.1 -40.4 1.2 0.3 22.4 -30 -1.0 -1.7 -0.3
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48	765 kV 400 kV - 220 kV	VCHAL B/B  APL -MHG  GWALIOR-AGRA  PHAGI-GWALIOR  JABALPUR-ORAI  GWALIOR-ORAI  SATNA-ORAI  ZERDA-KANKROLI  ZERDA -BHINMAL  VCHAL -RIHAND  RAPP-SHUJALPUR  BADOD-KOTA  BADOD-MORAK  MEHGAON-AURAIYA  MALANPUR-AURAIYA	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	0 0 0 0 465 0 222 192 971 0 4 0	252 2097 1465 1476 0 0 1800 63 80 0 796 45 124 35 56	0.0 0.0 0.0 0.0 10.1 0.0 1.2 0.3 22.4 0 0.0 0.0	50.2 57.9 30.9 0.0 0.0 40.4 0.0 0.0 30 1.0 1.7 0.3 0.9	-50.2 -57.9 -30.9 0.0 10.1 -40.4 1.2 0.3 22.4 -30 -1.0 -1.7 -0.3
34 35 36 37 38 39 40 41 42 43 44 45 46 47	765 kV	VCHAL B/B  APL -MHG  GWALIOR-AGRA  PHAGI-GWALIOR  JABALPUR-ORAI  GWALIOR-ORAI  SATNA-ORAI  ZERDA-KANKROLI  ZERDA-BHINMAL  VCHAL-RIHAND  RAPP-SHUJALPUR  BADOD-KOTA  BADOD-MORAK  MEHGAON-AURAIYA	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	0 0 0 465 0 222 192 971 0 4 0	252 2097 1465 1476 0 0 1800 63 80 0 796 45 124 35	0.0 0.0 0.0 0.0 10.1 0.0 1.2 0.3 22.4 0 0.0 0.0	50.2 57.9 30.9 0.0 0.0 40.4 0.0 0.0 30 1.0 1.7 0.3	-50.2 -57.9 -30.9 0.0 10.1 -40.4 1.2 0.3 22.4 -30 -1.0 -1.7 -0.3
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49	765 kV - 400 kV - 220 kV	VCHAL B/B  APL -MHG  GWALIOR-AGRA  PHAGI-GWALIOR  JABALPUR-ORAI  GWALIOR-ORAI  SATNA-ORAI  ZERDA-KANKROLI  ZERDA -BHINMAL  VCHAL -RIHAND  RAPP-SHUJALPUR  BADOD-KOTA  BADOD-MORAK  MEHGAON-AURAIYA  MALANPUR-AURAIYA	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	0 0 0 0 465 0 222 192 971 0 4 0	252 2097 1465 1476 0 0 1800 63 80 0 796 45 124 35 56	0.0 0.0 0.0 0.0 10.1 0.0 1.2 0.3 22.4 0 0.0 0.0 0.0	50.2 57.9 30.9 0.0 0.0 40.4 0.0 0.0 0.0 1.0 1.7 0.3 0.9 0.0	-50.2 -57.9 -30.9 0.0 10.1 -40.4 1.2 0.3 22.4 -30 -1.0 -1.7 -0.3 -0.9
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49	765 kV  400 kV  220 kV  132kV  Export of HVDC	VCHAL B/B  APL -MHG  GWALIOR-AGRA  PHAGI-GWALIOR  JABALPUR-ORAI  GWALIOR-ORAI  SATNA-ORAI  ZERDA-KANKROLI  ZERDA -BHINMAL  VCHAL -RIHAND  RAPP-SHUJALPUR  BADOD-KOTA  BADOD-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 S/C S/C S/C S/C S/C S/C S/C S/C S/C S	0 0 0 0 465 0 222 192 971 0 4 0 20 0	252 2097 1465 1476 0 0 1800 63 80 0 796 45 124 35 56	0.0 0.0 0.0 0.0 10.1 0.0 1.2 0.3 22.4 0 0.0 0.0 0.0 0.0 36.2	50.2 57.9 30.9 0.0 0.0 40.4 0.0 0.0 0.0 1.0 1.7 0.3 0.9 0.0	-50.2 -57.9 -30.9 0.0 10.1 -40.4 1.2 0.3 22.4 -30 -1.0 -1.7 -0.3 -0.9
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49	765 kV 400 kV 220 kV 132kV	VCHAL B/B  APL -MHG  GWALIOR-AGRA  PHAGI-GWALIOR  JABALPUR-ORAI  GWALIOR-ORAI  SATNA-ORAI  ZERDA-KANKROLI  ZERDA -BHINMAL  VCHAL -RIHAND  RAPP-SHUJALPUR  BADOD-KOTA  BADOD-MORAK  MEHGAON-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 S/C S/C S/C S/C S/C S/C S/C S/C S/C S	0 0 0 0 465 0 222 192 971 0 4 0 20 0	252 2097 1465 1476 0 0 1800 63 80 0 796 45 124 35 56 0 WR-NR	0.0 0.0 0.0 0.0 10.1 0.0 1.2 0.3 22.4 0 0.0 0.0 0.0 36.2	50.2 57.9 30.9 0.0 40.4 0.0 0.0 0.0 30 1.7 0.3 0.9 0.0 225.7	-50.2 -57.9 -30.9 0.0 10.1 -40.4 1.2 0.3 22.4 -30 -1.0 -1.7 -0.3 -0.9 0.0 -189.4
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 <b>port/I</b>	765 kV  400 kV  220 kV  132kV  Export of HVDC	VCHAL B/B  APL -MHG  GWALIOR-AGRA  PHAGI-GWALIOR  JABALPUR-ORAI  GWALIOR-ORAI  SATNA-ORAI  ZERDA-KANKROLI  ZERDA-KANKROLI  ZERDA-BHINMAL  VCHAL -RIHAND  RAPP-SHUJALPUR  BADOD-KOTA  BADOD-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 S/C S/C S/C S/C S/C S/C S/C S/C S/C S	0 0 0 0 465 0 222 192 971 0 4 0 0 0	252 2097 1465 1476 0 0 1800 63 80 0 796 45 124 35 56 0 WR-NR	0.0 0.0 0.0 0.0 10.1 0.0 1.2 0.3 22.4 0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	50.2 57.9 30.9 0.0 0.0 40.4 0.0 0.0 0.0 1.0 1.7 0.3 0.9 0.0 225.7	-50.2 -57.9 -30.9 0.0 10.1 -40.4 1.2 0.3 22.4 -30 -1.0 -1.7 -0.3 -0.9 0.0 -189.4
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 **Papert/F** 50 51 52 53	765 kV  400 kV  220 kV  132kV  Export of HVDC LINK  765 kV	VCHAL B/B  APL -MHG  GWALIOR-AGRA  PHAGI-GWALIOR  JABALPUR-ORAI  GWALIOR-ORAI  SATNA-ORAI  ZERDA-KANKROLI  ZERDA-BHINMAL  VCHAL -RIHAND  RAPP-SHUJALPUR  BADOD-KOTA  BADOD-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 S/C S/C S/C S/C S/C S/C S/C S/C S/C S	0 0 0 0 465 0 222 192 971 0 4 0 20 0 0	252 2097 1465 1476 0 0 1800 63 80 0 796 45 124 35 56 0 WR-NR	0.0 0.0 0.0 0.0 10.1 0.0 1.2 0.3 22.4 0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 10.0 0.0	50.2 57.9 30.9 0.0 0.0 40.4 0.0 0.0 1.0 1.7 0.3 0.9 0.0 225.7	-50.2 -57.9 -30.9 0.0 10.1 -40.4 1.2 0.3 22.4 -30 -1.0 -1.7 -0.3 -0.9 0.0 -189.4
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 <b>Solution</b> 50 51 52 53 54	765 kV  400 kV  220 kV  132kV  Export of HVDC LINK	VCHAL B/B  APL -MHG  GWALIOR-AGRA  PHAGI-GWALIOR  JABALPUR-ORAI  GWALIOR-ORAI  SATNA-ORAI  ZERDA-KANKROLI  ZERDA-BHINMAL  VCHAL-RIHAND  RAPP-SHUJALPUR  BADOD-KOTA  BADOD-MORAK  MEHGAON-AURAIYA  MALANPUR-AURAIYA  GWALIOR-SAWAI MADHOPUR  WR (With SR)  BHADRAWATI B/B  BARSUR-L-SILERU  SOLAPUR-RAICHUR  WARDHA-NIZAMABAD  KOLHAPUR-KUDGI	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 D/C S/C S/C S/C D/C S/C S/C S/C S/C S/C S/C S/C S/C S/C S	0 0 0 0 465 0 222 192 971 0 4 0 20 0 0	252 2097 1465 1476 0 0 1800 63 80 0 796 45 124 35 56 0 WR-NR	0.0 0.0 0.0 0.0 10.1 0.0 1.2 0.3 22.4 0 0.0 0.0 0.0 0.0 0.0 1.0 0.0 1.0 0.0 1.0 1	50.2 57.9 30.9 0.0 0.0 40.4 0.0 0.0 1.0 1.7 0.3 0.9 0.0 225.7 13.1 0.0 0.0 42.2 0.0	-50.2 -57.9 -30.9 -0.0 10.1 -40.4 1.2 -30.3 -22.4 -30 -1.0 -1.7 -0.3 -0.9 -0.0 -189.4 -13.1 -0.0 10.9 -42.2 13.8
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 <b>Au</b> 55 51 52 53 54 55	765 kV  400 kV  220 kV  132kV  Export of HVDC LINK 765 kV  400 kV	VCHAL B/B  APL -MHG  GWALIOR-AGRA  PHAGI-GWALIOR  JABALPUR-ORAI  SATNA-ORAI  ZERDA-KANKROLI  ZERDA-BHINMAL  VCHAL -RIHAND  RAPP-SHUJALPUR  BADOD-KOTA  BADOD-MORAK  MEHGAON-AURAIYA  MALANPUR-AURAIYA  GWALIOR-SAWAI MADHOPUR  WR (With SR)  BHADRAWATI B/B  BARSUR-L.SILERU  SOLAPUR-RAICHUR  WARDHA-NIZAMABAD  KOLHAPUR-KUDGI  KOLHAPUR-CHIKODI	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 D/C S/C S/C S/C D/C S/C S/C S/C S/C S/C S/C S/C S/C S/C S	0 0 0 0 465 0 222 971 0 4 0 20 0 0 0	252 2097 1465 1476 0 0 1800 63 80 0 796 45 124 35 56 0 WR-NR	0.0 0.0 0.0 0.0 10.1 0.0 1.2 0.3 22.4 0 0.0 0.0 0.0 0.0 0.0 1.0 0.0 1.0 1.0 0.0 1.0 1	50.2 57.9 30.9 0.0 0.0 40.4 0.0 0.0 30 1.0 1.7 0.3 0.9 0.0 225.7 13.1 0.0 0.0 42.2 0.0	-50.2 -57.9 -30.9 -0.0 10.1 -40.4 1.2 0.3 22.4 -30 -1.0 -1.7 -0.3 -0.9 0.0 -189.4 -13.1 0.0 10.9 -42.2 13.8 0.0
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 49 49 50 51 51 52 53 54 55 56	765 kV  400 kV  220 kV  132kV  Export of HVDC LINK 765 kV  400 kV	VCHAL B/B  APL -MHG  GWALIOR-AGRA  PHAGI-GWALIOR  JABALPUR-ORAI  GWALIOR-ORAI  SATNA-ORAI  ZERDA-KANKROLI  ZERDA-BHINMAL  VCHAL -RIHAND  RAPP-SHUJALPUR  BADOD-KOTA  BADOD-MORAK  MEHGAON-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	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 D/C S/C S/C D/C S/C S/C S/C S/C S/C S/C S/C S/C S/C S	0 0 0 0 465 0 222 192 971 0 4 0 20 0 0 0	252 2097 1465 1476 0 0 1800 63 80 0 796 45 124 35 56 0 WR-NR	0.0 0.0 0.0 0.0 10.1 0.0 1.2 0.3 22.4 0 0.0 0.0 0.0 0.0 0.0 1.0 0.0 1.0 0.0 1.0 0.0 1.0 0.0 0	50.2 57.9 30.9 0.0 0.0 40.4 0.0 0.0 30 1.0 1.7 0.3 0.9 0.0 225.7 13.1 0.0 0.0 42.2 0.0 0.0	-50.2 -57.9 -30.9 -0.0 10.1 -40.4 1.2 0.3 22.4 -30 -1.0 -1.7 -0.3 -0.9 0.0 -189.4 -13.1 0.0 10.9 -42.2 13.8 0.0 0.0
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 49 51 51 52 53 54 55	765 kV  400 kV  220 kV  132kV  Export of HVDC LINK 765 kV  400 kV	VCHAL B/B  APL -MHG  GWALIOR-AGRA  PHAGI-GWALIOR  JABALPUR-ORAI  SATNA-ORAI  ZERDA-KANKROLI  ZERDA-BHINMAL  VCHAL -RIHAND  RAPP-SHUJALPUR  BADOD-KOTA  BADOD-MORAK  MEHGAON-AURAIYA  MALANPUR-AURAIYA  GWALIOR-SAWAI MADHOPUR  WR (With SR)  BHADRAWATI B/B  BARSUR-L.SILERU  SOLAPUR-RAICHUR  WARDHA-NIZAMABAD  KOLHAPUR-KUDGI  KOLHAPUR-CHIKODI	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 D/C S/C S/C S/C D/C S/C S/C S/C S/C S/C S/C S/C S/C S/C S	0 0 0 0 465 0 222 971 0 4 0 20 0 0 0	252 2097 1465 1476 0 0 1800 63 80 0 796 45 124 35 56 0 WR-NR	0.0 0.0 0.0 0.0 10.1 0.0 1.2 0.3 22.4 0 0.0 0.0 0.0 0.0 0.0 1.0 1.0 0.0 1.0 1	50.2 57.9 30.9 0.0 0.0 40.4 0.0 0.0 30 1.0 1.7 0.3 0.9 0.0 225.7 13.1 0.0 0.0 42.2 0.0 0.0	-50.2 -57.9 -30.9 -0.0 10.1 -40.4 1.2 0.3 22.4 -30 -1.0 -1.7 -0.3 -0.9 0.0 -189.4 -13.1 0.0 10.9 -42.2 13.8 0.0 0.0
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 PPOT/I 52 53 54 55 56	765 kV  400 kV  220 kV  132kV  Export of HVDC LINK 765 kV  400 kV	VCHAL B/B  APL -MHG  GWALIOR-AGRA  PHAGI-GWALIOR  JABALPUR-ORAI  SATNA-ORAI  ZERDA-KANKROLI  ZERDA-BHINMAL  VCHAL -RIHAND  RAPP-SHUJALPUR  BADOD-KOTA  BADOD-MORAK  MEHGAON-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 S/C S/C S/C S/C S/C S/C D/C S/C S/C S/C S/C S/C S/C S/C S/C S/C S	0 0 0 0 465 0 222 971 0 4 0 20 0 0 0 0 1555 0 0	252 2097 1465 1476 0 0 1800 63 80 0 796 45 124 35 56 0 WR-NR	0.0 0.0 0.0 0.0 10.1 0.0 1.2 0.3 22.4 0 0.0 0.0 0.0 0.0 0.0 1.0 0.0 1.0 0.0 1.0 0.0 1.0 0.0 0	50.2 57.9 30.9 0.0 0.0 40.4 0.0 0.0 30 1.0 1.7 0.3 0.9 0.0 225.7 13.1 0.0 0.0 42.2 0.0 0.0	-50.2 -57.9 -30.9 -0.0 10.1 -40.4 1.2 0.3 22.4 -30 -1.0 -1.7 -0.3 -0.9 0.0 -189.4 -13.1 0.0 10.9 -42.2 13.8 0.0 0.0
34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 PPOT/I 52 53 54 55 56	765 kV  400 kV  220 kV  132kV  Export of HVDC LINK 765 kV  400 kV	VCHAL B/B  APL -MHG  GWALIOR-AGRA  PHAGI-GWALIOR  JABALPUR-ORAI  SATNA-ORAI  ZERDA-KANKROLI  ZERDA-BHINMAL  VCHAL -RIHAND  RAPP-SHUJALPUR  BADOD-KOTA  BADOD-MORAK  MEHGAON-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 S/C S/C S/C S/C S/C S/C D/C S/C S/C S/C S/C S/C S/C S/C S/C S/C S	0 0 0 0 465 0 222 192 971 0 4 0 20 0 0 0	252 2097 1465 1476 0 0 1800 63 80 0 796 45 124 35 56 0 WR-NR	0.0 0.0 0.0 0.0 10.1 0.0 1.2 0.3 22.4 0 0.0 0.0 0.0 0.0 0.0 1.0 1.0 0.0 1.0 1	50.2 57.9 30.9 0.0 0.0 40.4 0.0 0.0 30 1.0 1.7 0.3 0.9 0.0 225.7 13.1 0.0 0.0 42.2 0.0 0.0	-50.2 -57.9 -30.9 -0.0 10.1 -40.4 1.2 0.3 22.4 -30 -1.0 -1.7 -0.3 -0.9 0.0 -189.4 -13.1 0.0 10.9 -42.2 13.8 0.0 0.0