

National Load Despatch Centre
Total Transfer Capability for September 2015

Issue Date: 24/09/2015

Issue Time: 1100 hrs

Revision No. 14

Corridor	Date	Time Period (hrs)	Total Transfer Capability (TTC)	Reliability Margin	Available Transfer Capability (ATC)	Long Term Access (LTA)/ Medium Term Open Access (MTOA) #	Margin Available for Short Term Open Access (STOA)	Changes in TTC w.r.t. Last Revision	Comments
NR-WR *	1st Sep 2015 to 30th Sep 2015	00-24	2500	500	2000	421	1579		
WR-NR*	1st Sep 2015 to 09th Sep 2015	00-24	6400	500	5900	5638	262		
	10th Sep 2015 to 24th Sep 2015	00-24	7700	500	7200	5638	1562		
	25th Sep 2015 to 30th Sep 2015	00-24	7450	500	6950	5638	1312	-250	Revised due to outage of Vindhyachal BTB HVDC Block-1.
NR-ER*	1st Sep 2015 to 30th Sep 2015	00-06	2000	200	1800	293	1507		
		06-18'	2000		1800	358	1442		
		18-24	2000		1800	293	1507		
ER-NR*	1st Sep 2015 to 30th Sep 2015	00-24	4800	300	4500	2431	2069		
W3-ER ^s	1st Sep 2015 to 30th Sep 2015	00-24	No limit is being specified. No Re-routing is allowed via W3-ER-NR.						
ER-W3	1st Sep 2015 to 30th Sep 2015	00-24	1000	300	700	874	0		
WR-SR	1st Sep 2015 to 9th Sep 2015	00-24	2300	750	1550	1550	0		
	10th Sep 2015	05-22	2300	750	1550	1550	0		
		00-05 22-24	2700		1950	1550	400		
	11th Sep 2015 to 12th Sep 2015	00-05	2700	750	1950	1550	400		
		05-07'	2300	750	1550	1550	0		
		07-22'	1000	0	1000	1550	0		
	13th Sep 2015	22-24	1000	0	1000	1550	0		
		00-05	2700	750	1950	1550	400		
		05-07'	2300	750	1550	1550	0		
		07-22'	1000	0	1000	1550	0		
	14th Sep 2015 to 17th Sep 2015	22-24	1000	0	1000	1550	0		
		05-22	2300	750	1550	1550	0		
		00-05 22-24	2700		1950	1550	400		
	18th Sep 2015	00-05	2700	750	1950	1550	400		
		05-08'	2300	750	1550	1550	0		
		08-22'	1000	0	1000	1550	0		
		22-24	1000	0	1000	1550	0		
	19th Sep 2015 to 21st Sep 2015	05-22	2300	750	1550	1550	0		
		00-05 22-24	2700		1950	1550	400		
	22nd Sep 2015 to 23rd Sep 2015	00-05	2700	750	1950	1550	400		
		05-08'	2300	750	1550	1550	0		
08-22'		1000	0	1000	1550	0			
24th Sep 2015 to 30th Sep 2015	22-24	1000	0	1000	1550	0			
	05-22	2300	750	1550	1550	0			
	00-05 22-24	2700		1950	1550	400			
SR-WR *	1st Sep 2015 to 30th Sep 2015	00-24	No limit is being Specified.						

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ER-SR	1st Sep 2015 to 6th Sep 2015	00-06	2650	0	2650	2300	350			
		18-24								2365
	7th Sep 2015	00-06	2650	0	2650	2300	2365	285		
		06-08'	2650							
		08-18'	2350							
		18-24	2350							
	8th Sep 2015 to 13th Sep 2015	00-06	2650	0	2650	2300	2365	285		
		18-24								
	14th Sep 2015	00-06	2650	0	2650	2300	2365	285		
		06-08'								
		08-18'	2350	0	2350	2365	0			
		18-24	2350	0	2350	2300	50			
15th Sep 2015 to 30th Sep 2015	00-06	2650	0	2650	2300	2365	285			
	18-24									2365
SR-ER *	1st Sep 2015 to 30th Sep 2015	00-24	No limit is being Specified.							
S1-S2	1st Sep 2015 to 30th Sep 2015	00-24	S1-S2 corridor TTC/ATC is uploaded on NLDC website under Intra-Regional Section in Monthly ATC.							
ER-NER	1st Sep 2015 to 19th Sep 2015	00-17	1200	40	1160	210	950			
		23-24	1250		1210		1000			
	20th Sep 2015	00-08	1200	40	1160	210	950			
		08-13'	1000		960		750			
		13-17	1200		1160		950			
		17-23	1250		1210		1000			
		23-24	1200		1160		950			
	21st Sep 2015 to 30th Sep 2015	00-17	1200	40	1160	210	950			
		23-24	1250		1210		1000			
	NER-ER	1st Sep 2015 to 19th Sep 2015	00-17	1220	30	1190	0	1190		
23-24			1300	40	1260	1260				
17-23			1300	40	1260	1260				
20th Sep 2015		00-08	1220	30	1190	0	1190			
		08-13'	950		920		920			
		13-17	1220	1190	1190					
		17-23	1300	40	1260		1260			
		23-24	1220	30	1190		1190			
21st Sep 2015 to 30th Sep 2015		00-17	1220	30	1190	0	1190			
		23-24	1300		40		1260			1260
W3 zone Injection	1st Sep 2015 to 9th Sep 2015	00-17	9400	200	9200	7576	1624			
		23-24			9900		9700			2124
	10th Sep 2015 to 30th Sep 2015	00-17	11000	200	10800	7576	3224			
		23-24			11000		10800			3224

* Fifty Percent (50 %) Counter flow benefit on account of LTA/MTOA transactions in the reverse direction would be considered for advanced transactions (Bilateral & First Come First Serve).

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\$ As per Simulations, predominant direction of flow is on West to North Corridor. Hence, in case injection point is in Western Region (W1,W2,W3), STOA/PX transactions from West to North on West-East-North corridor shall not be allowed as such transaction increases congestion in the West to North Corridor.

1) S1 comprises of Telangana, AP and Karnataka: S2 comprises of Tamil Nadu, Kerala and Puducherry

2) W3 comprises of the following regional entities :

a) Chattisgarh Sell transaction, b) Jindal Power Limited (JPL) Stage-I & Stage-II, c) Jindal Steel and Power Limited (JSPL), d) ACBL, e) LANCO Amarkantak
f) BALCO, g) Sterlite (#1,3,4), h) NSPCL, i) Korba, j) Sipat, k) KSK Mahanadi, L)DB Power, m) KWPCCL, n)Vandana Vidyut

The figure is based on LTA/MTOA approved by CTU and Allocation figures as per RPCs RTA/REA. In actual Operation, due to Units being on Maintenance/ Fuel shortage/New units being commissioned the LTA/MTOA utilized would vary. RLDC/NLDC would factor this situation on day-ahead basis.

In the eventuality that net schedules exceed ATC, real time curtailments might be effected by RLDCs/NLDC.

In case of TTC Revision due to any shutdown :

- 1) The TTC value will be revised to normal values after restoration of shutdown.
- 2) The TTC value will be revised to normal values if the shutdown is not being availed in real time.

Limiting Constraints

Corridor	Constraint
NR-WR	(n-1) contingency of 400kV Zerda-Bhinmal and (n-1) contingency of 220kV Badod-Modak.
WR-NR	High Loading of 400kV Singrauli-Anpara & High loading of 765 kV Agra-Gwalior (1800 MW SPS setting on each circuit of 765 kV Gwalior-Agra) and Loop flows on 400 kV Kankroli-Zerda and 400kV Bhinmal-Zerda (power flowing from WR to NR on 765kV Gwalior-Agra D/C and from NR to WR on 400kV Kankroli-Zerda and 400kV Bhinmal-Zerda). Outage of one circuit of 765 kV Agra - Gwalior will result in 2750 MW loading on the other circuit
NR-ER	(n-1) contingency of 400 kV Saranath-Pusauli
ER-NR	N-1 contingency of 400 kV Biharshariff- Lakhisarai S/C
ER-W3	1. n-1 of 400 kV Wardha – Parli will lead to 30 degrees angular separation between Wardha and Parli. 2. (n-1) contingency of one circuit of 400kV Parli(PG)-Sholapur(PG)
WR-SR & ER-SR	1. (n-1) of 400 kV Wardha – Parli will lead to 30 degrees angular separation between Wardha and Parli. 2. (n-1) contingency of one circuit of 400kV Parli(PG)-Sholapur(PG) 3. ER-SR TTC has been declared assuming more than 1100 MW generation at Talcher Stage-2. In case Talcher Stage-2 generation goes below 1100 MW, then the ER-SR TTC would be revised downward as constraints within ER would emerge.
ER-NER	(n-1) contingency of 400/220 kV, 2x315 MVA ICTs at Misa results in high loading of other 400/220 kV, 315 MVA ICT at Misa
NER-ER	(n-1) contingency of 400/220 kV, 2x315 MVA ICTs at Misa results in high loading of other 400/220 kV, 315 MVA ICT at Misa
W3 zone Injection	1. n-1 of 400 kV Wardha – Parli will lead to 30 degrees angular separation between Wardha and Parli. 2. (n-1) contingency of one circuit of 400kV Parli(PG)-Sholapur(PG)

*Primary constraints

Simultaneous Import Capability

Corridor	Date	Time Period (hrs)	Total Transfer Capability (TTC)	Reliability Margin	Available Transfer Capability (ATC)	Long Term Access (LTA)/ Medium Term Open Access (MTOA)	Margin Available for Short Term Open Access (STOA)	Changes in TTC w.r.t. Last Revision	Comments
ER									
NR*	1st Sep 2015 to 09th Sep 2015	00-05	9100	800	8300	8069	231		
		05-08'	9600		8800		731		
		08-19'	9100		8300		231		
		19-24'	8500		7700		0		
	10th Sep 2015 to 24th Sep 2015	00-05	11000	800	10200	8069	2131		
		05-08'	11500		10700		2631		
		08-19'	11000		10200		2131		
		19-24'	10250		9450		1381		
	25th Sep 2015 to 30th Sep 2015	00-05	10650	800	9850	8069	1781	350	
		05-08'	11150		10350		2281	350	
		08-19'	10650		9850		1781	350	
		19-24'	9950		9150		1081	300	
NER	1st Sep 2015 to 19th Sep 2015	00-17	1200	40	1160	210	950		
		23-24			1210		1000		
		17-23			1250				
	20th Sep 2015	00-08	1200	40	1160	210	950		
		08-13'	1000		960		750		
		13-17	1200		1160		950		
		17-23	1250		1210		1000		
		23-24	1200		1160		950		
	21st Sep 2015 to 30th Sep 2015	00-17	1200	40	1160	210	950		
		23-24			1210		1000		
		17-23			1250				
	WR								
	1st Sep 2015 to 06th Sep 2015	00-06	4950	750	4200	3850	350		
		18-24			4200		3915	285	
	07th Sep 2015	00-06	4950	750	4200	3850	350		
		06-08'			4950		4200	3915	285
		08-18'			4650		3900	3915	0
		18-24			4650		3900	3850	50
	08th Sep 2015 to 9th Sep 2015	00-06	4950	750	4200	3850	350		
		18-24			4950		4200	3915	285
	10th Sep 2015	00-05	5350	750	4600	3850	750		
		05-06'	4950		4200		3850	350	
		06-18'	4950		4200		3915	285	
		18-22'	4950		4200		3850	350	
		22-24	5350		4600		3850	750	
	11th Sep 2015 to 12th Sep 2015	00-05	5350	750	4600	3850	750		
		05-06'	4950	750	4200	3850	350		
		06-07'	4950	750	4200	3915	285		
		07-18'	3650	0	3650	3915	0		
		18-22'	3650	0	3650	3850	0		
			22-24	3650	0	3650	3850	0	

Revised due to outage of Vindhyachal BTB HVDC Block-1.

SR	13th Sep 2015	00-05	5350	750	4600	3850	750	
		05-06'	4950	750	4200	3850	350	
		06-07'	4950	750	4200	3915	285	
		07-18'	3650	0	3650	3915	0	
		18-22'	3650	0	3650	3850	0	
		22-24	3650	0	3650	3850	0	
	14th Sep 2015	00-05	5350	750	4600	3850	750	
		05-06'	4950		4200	3850	350	
		06-08'	4950		4200	3915	285	
		08-18'	4650		3900	3915	0	
		18-22'	4650		3900	3850	50	
		22-24	5050		4300	3850	450	
	15th Sep 2015 to 17th Sep 2015	00-05	5350	750	4600	3850	750	
		05-06'	4950		4200	3850	350	
		06-18'	4950		4200	3915	285	
		18-22'	4950		4200	3850	350	
		22-24	5350		4600	3850	750	
	18th Sep 2015	00-05	5350	750	4600	3850	750	
		05-06'	4950	750	4200	3850	350	
		06-08'	4950	750	4200	3915	285	
		08-18'	3650	0	3650	3915	0	
		18-22'	3650	0	3650	3850	0	
		22-24	3650	0	3650	3850	0	
	19th Sep 2015 to 21st Sep 2015	00-05	5350	750	4600	3850	750	
		05-06'	4950		4200	3850	350	
		06-18'	4950		4200	3915	285	
		18-22'	4950		4200	3850	350	
22-24		5350	4600		3850	750		
22nd Sep 2015 to 23rd Sep 2015	00-05	5350	750	4600	3850	750		
	05-06'	4950	750	4200	3850	350		
	06-08'	4950	750	4200	3915	285		
	08-18'	3650	0	3650	3915	0		
	18-22'	3650	0	3650	3850	0		
	22-24	3650	0	3650	3850	0		
24th Sep 2015 to 30th Sep 2015	00-05	5350	750	4600	3850	750		
	05-06'	4950		4200	3850	350		
	06-18'	4950		4200	3915	285		
	18-22'	4950		4200	3850	350		
	22-24	5350		4600	3850	750		

* Fifty Percent (50 %) Counter flow benefit on account of LTA/MTOA transactions in the reverse direction would be considered for advanced transactions (Bilateral & First Come First Serve).

* For approving STOA Bilateral transactions, margin available in Simultaneous Import of NR would be apportioned on WR-NR Corridor & ER-NR Corridor in the following ratio:

Margin in Simultaneous import of NR = A

WR-NR ATC = B

ER-NR ATC = C

Margin for WR-NR applicants = $B * A / (B + C)$

Margin for ER-NR Applicants = $C * A / (B + C)$

Example: Margin for WR-NR applicants from 00-05 hours = $7200 * 2131 / (7200 + 4500) = 1311$

Margin for ER-NR applicants from 00-05 hours = $4500 * 2131 / (7200 + 4500) = 820$

Simultaneous Export Capability

Corridor	Date	Time Period (hrs)	Total Transfer Capability (TTC)	Reliability Margin	Available Transfer Capability (ATC)	Long Term Access (LTA)/ Medium Term Open Access (MTOA)	Margin Available for Short Term Open Access (STOA)	Changes in TTC w.r.t. Last Revision	Comments
NR*	1st Sep 2015 to 30th Sep 2015	00-06	4500	700	3800	714	3086		
		06-18'			3800	779	3021		
		18-24	4500		3800	714	3086		
NER	1st Sep 2015 to 19th Sep 2015	00-17	1220	30	1190	0	1190		
		23-24	1300	40	1260		1260		
		17-23		1190	1190				
	20th Sep 2015	00-08	1220	30	1190	0	1190		
		08-13'	950		920		920		
		13-17	1220		1190		1190		
		17-23	1300	40	1260		1260		
		23-24	1220	30	1190		1190		
	21st Sep 2015 to 30th Sep 2015	00-17	1220	30	1190	0	1190		
		23-24	1300	40	1260		1260		
WR									
SR *	1st Sep 2015 to 30th Sep 2015	00-24	No limit is being Specified.						

* Fifty Percent (50 %) Counter flow benefit on account of LTA/MTOA transactions in the reverse direction would be considered for advanced transactions (Bilateral & First Come First Serve).

Limiting Constraints

NR	Import	(n-1) contingency of 400 kV Biharshariff- Lakhisarai S/C High loading of 765 kV Agra-Gwalior (1800 MW SPS setting on each circuit of 765 kV Gwalior-Agra) and high loop flows on 400kV Kankroli-Zerda and 400kV Bhinmal-Zerda (power flowing from WR to NR on 765kV Gwalior-Agra D/C and from NR to WR on 400kV Kankroli-Zerda and 400kV Bhinmal-Zerda). Outage of one circuit of 765 kV Agra - Gwalior will result in 2750 MW loading on the other circuit.
	Export	(n-1) contingency of 400kV Zerda-Bhinmal and (n-1) contingency of 220kV Badod-Modak. (n-1) contingency of 400 kV Saranath-Pusauli
NER	Import	(n-1) contingency of 400/220 kV, 2x315 MVA ICTs at Misa results in high loading of other 400/220 kV, 315 MVA ICT
	Export	at Misa
SR	Import	1. n-1 of 400 kV Wardha – Parli will lead to 30 degrees angular separation between Wardha and Parli. 2. (n-1) contingency of one circuit of 400kV Parli(PG)-Sholapur(PG)
		3. ER-SR TTC has been declared assuming more than 1100 MW generation at Talcher Stage-2. In case Talcher Stage-2 generation goes below 1100 MW, then the ER-SR TTC would be revised downward as constraints within ER would emerge.

*Primary constraints

**National Load Despatch Centre
Total Transfer Capability for September 2015**

Revision No	Date of Revision	Period of Revision	Reason for Revision	Corridor Affected
1	6/25/2015	Whole month	Revised considering skewed sharing of flows on WR-NR and ER-NR corridor in the range 70:30	Import of NR
2	6/28/2015	Whole month	STOA Margin revised due to Jhajjar reallocation	ER-SR/ NR-WR
3	7/20/2015	Whole month	STOA Margin revised considering CERC order dated 03-07-2015 in petition No- 92/MP/2015 which is under implementation by CTU. Pending this any margins would be released for short term transactions on day ahead basis.	ER-SR
4	8/24/2015	Whole month	Revised due to the commissioning of 765 kV Gwalior-Phagi 1,2	WR-NR/ Import of NR
5	8/26/2015	Whole month	Revised due to commissioning of 765kV Phagi-Bhiwani S/C and STOA margin revised due to operationalization of MTOA.	WR-NR/ Import of NR
			STOA Margin revised due to Operationalization of LTA.	W3 Zone Injection
6	8/26/2015	03/09/15 to 30/09/15	A remark has been put on Simultaneous Import of NR for approving STOA Bilateral Transactions	Import of NR
7	9/6/2015	9/7/2015	Revised due to shutdown of 400 kV Angul-Bolangir	ER-SR
8	9/9/2015	10-9-2015 to 30-09-2015	Revised considering the present Maharashtra demand pattern.	WR-SR
			Revised due to increase in SPS setting of 765 kV Agra-Gwalior D/C	WR-NR/ Import of NR
			Revised considering powerflow pattern from W3 to W1/W2, NR and ER.	W3 Zone Injection
9	9/10/2015	11-09-2015 to 12-09-2015	Revised due to shutdown of 765 kV Raichur - Sholapur ckt 1 & 2, one at a time	WR-SR
10	9/12/2015	9/13/2015	Revised considering the risk of tripping of both 765 kV Raichur - Shoapur D/C during SPS maintenance	WR-SR
		9/14/2015	Revised due to shutdown of 400 kV Angul - Bolangir	ER-SR
11	9/17/2015	9/18/2015	Revised considering the risk of tripping of both 765 kV Raichur - Shoapur D/C during SPS maintenance	WR-SR
12	9/19/2015	9/20/2015	Revised due to shutdown of 220 kV Bus at Samaguri	ER-NER / NER-ER
13	9/21/2015	22-09-2015 to 23-09-2015	Revised due to shutdown of 765 kV Sholapur Bus 1	WR-SR

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14	9/21/2015	25-09-2015 to 30-09-2015	Revised due to outage of Vindhyachal BTB HVDC Block-1.	WR-NR/ Import of NR

ASSUMPTIONS IN BASECASE					
				Month : September '15	
S.No.	Name of State/Area	Load		Generation	
		Peak Load (MW)	Off Peak Load (MW)	Peak (MW)	Off Peak (MW)
I	NORTHERN REGION				
1	Punjab	8327	7408	4656	4626
2	Haryana	7890	7084	3318	3318
3	Rajasthan	9096	8161	5709	5646
4	Delhi	4549	3953	1095	1095
5	Uttar Pradesh	12551	12022	6555	6605
6	Uttarakhand	1677	1295	874	723
7	Himachal Pradesh	1189	985	988	971
8	Jammu & Kashmir	2123	1439	438	438
9	Chandigarh	266	159	0	0
10	ISGS/PPs	0	0	19172	14064
	Total NR	47668	42504	42804	37485
II	EASTERN REGION				
1	Bihar	2690	2033	110	0
2	Jharkhand	915	749	507	330
3	Damodar Valley Corporation	2906	2140	3619	2922
4	Orissa	3574	2894	3176	2150
5	West Bengal	7617	5926	5553	3524
6	Sikkim	88	43	0	0
7	Bhutan	105	104	1300	1030
8	ISGS/PPs	608	568	9360	8909
	Total ER	18502	14458	23625	18865
III	WESTERN REGION				
1	Maharashtra	20211	11204	14900	6645
2	Gujarat	12909	7121	10115	4527
3	Madhya Pradesh	7861	4927	4832	2521
4	Chattisgarh	3612	2182	2491	1036
5	Daman and Diu	305	233	0	0
6	Dadra and Nagar Haveli	771	570	0	0
7	Goa-WR	513	293	0	0
8	ISGS/PPs	1048	1046	23713	20410
	Total WR	47230	27575	56050	35139

IV	SOUTHERN REGION				
1	Andhra Pradesh	5904	5359	4699	4399
2	Telangana	7336	6348	3626	2262
3	Karnataka	7925	6076	7334	5247
4	Tamil Nadu	13399	11925	8681	7218
5	Kerala	3381	2230	1779	694
6	Pondy	338	290	0	0
7	Goa-SR	81	81	0	0
8	ISGS/PPs	0	0	9605	9470
	Total SR	38364	32309	35724	29290
V	NORTH-EASTERN REGION				
1	Arunachal Pradesh	107	92	0	0
2	Assam	1050	944	285	250
3	Manipur	125	105	0	0
4	Meghalaya	312	208	211	155
5	Mizoram	72	44	4	4
6	Nagaland	110	106	22	16
7	Tripura	266	166	110	110
8	ISGS/PPs	7	7	1501	1302
	Total NER	2049	1672	2133	1837
	Total All India	153812	118517	160336	122616