

**National Load Despatch Centre
Total Transfer Capability for April 2014**

Issue Date: 07/04/2014

Issue Time: 2100 hrs

Revision No. 8

| 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 April 2014 to 30th April 2014 | 00-24 | 2500 | 500 | 2000 | 361 | 1639 | | |
| WR-NR ¹ | 1st April 2014 to 30th April 2014 | 00-17 | 4200 | 500 | 3700 | 3656 | 44 | | |
| | | 23-24 | 4200 | | 3700 | | 44 | | |
| NR-ER* | 1st April 2014 to 30th April 2014 | 00-17 | 1000 | 200 | 800 | 200 | 600 | | |
| | | 23-24 | 1100 | | 900 | | 700 | | |
| ER-NR [§] | 1st April 2014 to 07th April 2014 | 00-17 | 3300 | 300 | 3000 | 2789 | 211 | | |
| | | 23-24 | | | | | 211 | | |
| | 08th April 2014 to 10th April 2014 | 00-17 | 3800 | 300 | 3500 | 2789 | 711 | 500 | Revised due to return of 400 kV Barh-Patna D/C shutdown |
| | 11th April 2014 to 30th April 2014 | 23-24 | 3800 | 300 | 3500 | 2789 | 711 | | |
| | | 17-23 | | | | | 711 | | |
| W3-ER | 1st April 2014 to 30th April 2014 | 00-24 | 1800 | 300 | 1500 | 0 | 1500 | | |
| ER-W3 | 1st April 2014 to 30th April 2014 | 00-24 | 1000 | 300 | 700 | 700 | 0 | | |
| WR-SR | 1st April 2014 to 30th April 2014 | 00-24 | 1000 | 0 | 1000 | 1000 | 0 | | |
| SR-WR * | 1st April 2014 to 30th April 2014 | 00-24 | 1000 | 0 | 1000 | 0 | 1000 | | |
| ER-SR | 1st April 2014 to 30th April 2014 | 00-05 | 750 | 0 | 750 | 507 | 243 | | |
| | | 10-19 | 750 | | 750 | | 243 | | |
| SR-ER * | 1st April 2014 to 30th April 2014 | 00-17 | 1100 | 0 | 1100 | 197 | 903 | | |
| | | 23-24 | 1100 | | 1100 | | 903 | | |
| ER-NER ² | 1st April 2014 | 00-17 | 620 | 50 | 570 | 230 | 340 | | |
| | | 23-24 | 620 | | 570 | | 340 | | |
| | | 17-23 | 620 | | 570 | | 340 | | |
| | 2nd April 2014 to 04th April 2014 | 00-06 | 620 | 50 | 570 | 230 | 340 | | |
| | | 06-24' | 350 | | 300 | | 70 | | |
| | 05th April 2014 to 07th April 2014 | 00-17 | 620 | 50 | 570 | 230 | 340 | | |
| 23-24 | | 620 | 570 | | 340 | | | | |
| 08th April 2014 to 10th April 2014 | 00-17 | 720 | 50 | 670 | 230 | 440 | 100 | Revised due to return of 400 kV Barh-Patna D/C shutdown | |
| | 23-24 | 670 | | 620 | | 390 | 50 | | |
| 11th April 2014 to 30th April 2014 | 00-17 | 720 | 50 | 670 | 230 | 440 | | | |
| | 23-24 | 720 | | 620 | | 390 | | | |
| NER-ER | 1st April 2014 | 00-17 | 580 | 100 | 480 | 0 | 480 | | |
| | | 23-24 | 580 | | 460 | | 460 | | |
| | | 17-23 | 580 | | 480 | | 480 | | |
| | 02nd April 2014 to 04th April 2014 | 00-06 | 580 | 100 | 480 | 0 | 480 | | |
| | | 06-17' | 110 | | 10 | | 10 | | |
| | | 17-23 | 110 | 100 | 10 | 0 | 10 | | |
| 110 | | | 10 | | | | | | |
| 1st April 2014 to 30th April 2014 | 00-17 | 580 | 100 | 480 | 0 | 480 | | | |
| | 23-24 | 580 | | 460 | | 460 | | | |
| 17-23 | 560 | 460 | | | | | | | |
| S1-S2 | 1st April 2014 to 30th April 2014 | 00-24 | 5650 | 400 | 5250 | 4900 | 350 | | |
| Import of Punjab | 1st April 2014 to 30th April 2014 | 00-24 | 5600 | 300 | 5300 | 3800 | 1500 | | |
| Import TTC for DD & DNH | 1st April 2014 to 30th April 2014 | 00-24 | 980 | 0 | 980 | LTA and MTOA as per ex-pp schedule | | | |
| W3 zone Injection | 1st April 2014 to 30th April 2014 | 00-17 | 9000 | 200 | 8800 | 6901 | 1899 | | |
| | | 23-24 | 9000 | | 8800 | | 1899 | | |
| | | 17-23 | 9500 | | 9300 | | 2399 | | |

* 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).

- 1) ER-SR TTC declared at Talcher Interconnector and Gazuwaka HVDC B/B seam
- 2) S1 comprises of AP and Karnataka; S2 comprises of Tamil Nadu, Kerala and Pondicherry
- 3) W3 comprises of the following regional entities :
 - a) Chattisgarh, b) Jindal Power Limited (JPL) , 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

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| 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 |
|----------|------|-------------------|---------------------------------|--------------------|-------------------------------------|--|--|-------------------------------------|----------|
|----------|------|-------------------|---------------------------------|--------------------|-------------------------------------|--|--|-------------------------------------|----------|

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.

The figure is based on LTA/MTOA approved by CTU. In actual Operation, due to Units being on Maintenance/ Fuel shortage the LTA/MTOA utilized would be less. RLDC/ NLDC would factor this situation while issuing STOA approvals

\$ 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. WR-NR Total Transfer capability will be reduced to 3100 MW in case of outage of any one of the following sections:
• 765 kV Gwalior-Agra one circuit

2. ER-NER Total Transfer capability will be reduced to 450 MW in case of outage of any one of the 400kV Purnea-Biharshariff circuit.

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 765 kV Agra-Gwalior (1000 MW SPS setting on each circuit of 765 kV Gwalior-Agra) |
| NR-ER | (n-1) contingency of 400 kV Allahabad-Pusauli |
| ER-NR | (n-1) contingency of 400 kV Kahalgaon-Biharshariff |
| W3-ER | (n-1) contingency of 400kV Sterilte-Rourkela S/C |
| ER-W3 | High loading of 400 kV Raipur-Bhadrawati T/C, Bhilai-Bhadrawati S/C, Bhilai-Koradi and Bhilai-Seoni* (n-1) contingency of 400kV Raigarh-Sterlite |
| WR-SR & ER-SR | 1. Commissioning of 765kV Raichur-Sholapur S/C 2. Based on the operational experience after the synchronization of SR grid with NEW grid and due to inadvertent variation of 765kV Raichur-Sholapur line flow, observation of Low Frequency Oscillations(LFO) 3. Considering transfer capability assessment by CTU on NEW-SR corridor. |
| SR-WR | Bhadrawati HVDC B/B link capacity |
| SR-ER | |
| ER-NER | (n-1) contingency of 400 kV Kahalgaon-Biharshariff (n-1) contingency of one circuit of 400 kV Balipara – Bongaigaon D/C |
| NER-ER | (n-1) contingency of 400/220 kV, 2x315 MVA ICTs at Misa |
| S1-S2 | (n-1) contingency of 400 kV Kolar-Hosur D/C line, 400kV Hosur-Salem S/C and 400kV Somanahalli-Salem S/C line. |
| Import of Punjab | (n-1) contingency of ICT at Patiala/Moga |
| W3 zone Injection | (n-1) contingency of 400 kV Raipur-Wardha-Parli section |

*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 | | | | | | | | | |
| NR¹ | 1st April 2014 to 7th April 2014 | 00-17 23-24 | 7500 | 800 | 6700 | 6445 | 255 | | Revised due to return of 400 kV Barh-Patna D/C shutdown |
| | | 17-23 | 7500 | | 6700 | | 255 | | |
| | 08th April 2014 to 10th April 2014 | 00-17 23-24 | 8000 | 800 | 7200 | 6445 | 755 | 500 | |
| | | 17-23 | 8000 | | 7200 | | 755 | 500 | |
| | 11th April 2014 to 30th April 2014 | 00-17 23-24 | 8000 | 800 | 7200 | 6445 | 755 | | |
| | | 17-23 | 8000 | | 7200 | | 755 | | |
| NER² | 1st April 2014 | 00-17 23-24 | 620 | 50 | 570 | 230 | 340 | | |
| | | 17-23 | 620 | | 570 | | 340 | | |
| | 2nd April 2014 to 04th April 2014 | 00-06 06-24' | 620 350 | 50 | 570 300 | 230 | 340 70 | | |
| | | 00-17 23-24 | 620 | | 570 | | 340 | | |
| | 05th April 2014 to 07th April 2014 | 00-17 23-24 | 620 | 50 | 570 | 230 | 340 | | |
| | | 17-23 | 620 | | 570 | | 340 | | |
| | 08th April 2014 to 10th April 2014 | 00-17 23-24 | 720 | 50 | 670 | 230 | 440 | 100 | |
| | | 17-23 | 670 | | 620 | | 390 | 50 | |
| | 11th April 2014 to 30th April 2014 | 00-17 23-24 | 720 | 50 | 670 | 230 | 440 | | |
| | | 17-23 | 670 | | 620 | | 390 | | |
| WR | | | | | | | | | |
| SR | 1st April 2014 to 30th April 2014 | 00-05 10-19 | 1750 | 0 | 1750 | 1507 | 243 | | |
| | | 05-10 19-24 | 1750 | | 1750 | | 243 | | |

1. WR-NR Total Transfer capability will be reduced to 3100 MW in case of outage of any one of the following sections:
• 765 kV Gwalior-Agra one circuit

2. ER-NER Total Transfer capability will be reduced to 450 MW in case of outage of any one of the 400kV Purnea-Biharshariff circuit.

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 April 2014 to 30th April 2014 | 00-17 23-24 | 3500 | 700 | 2800 | 561 | 2239 | | |
| | | 17-23 | 3600 | | 2900 | | 2339 | | |
| NER | 1st April 2014 | 00-17 23-24 | 580 | 100 | 480 | 0 | 480 | | |
| | | 17-23 | 560 | | 460 | | 460 | | |
| | 02nd April 2014 to 04th April 2014 | 00-06 | 580 | 100 | 480 | 0 | 480 | | |
| | | 06-17 23-24 | 110 | | 10 | | 10 | | |
| | 1st April 2014 to 30th April 2014 | 00-17 23-24 | 580 | 100 | 480 | 0 | 480 | | |
| | | 17-23 | 560 | | 460 | | 460 | | |
| WR | | | | | | | | | |
| SR* | 1st April 2014 to 30th April 2014 | 00-17 23-24 | 2100 | 0 | 2100 | 197 | 1903 | | |
| | | 17-23 | 2100 | | 2100 | | 1903 | | |

* 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 Kahalgaon-Biharshariff High loading of 765 kV Agra-Gwalior (1000 MW SPS setting on each circuit of 765 kV Gwalior-Agra) |
| | Export | (n-1) contingency of 400kV Zerda-Bhinmal and (n-1) contingency of 220kV Badod-Modak. (n-1) contingency of 400 kV Allahabad-Pusauli |
| NER | Import | (n-1) contingency of 400 kV Kahalgaon-Biharshariff and (n-1) contingency of one circuit of 400 kV Balipara – Bongaigaon D/C |
| | Export | (n-1) contingency of 400/220 kV, 2x315 MVA ICTs at Misa |
| SR | Import | 1. Commissioning of 765kV Raichur-Sholapur S/C 2. Based on the operational experience after the synchronization of SR grid with NEW grid and due to inadvertent variation of 765kV Raichur-Sholapur line flow, observation of Low Frequency Oscillations(LFO). 3. Considering transfer capability assessment by CTU on NEW-SR corridor. |
| | Export | |

*Primary constraints

**National Load Despatch Centre
Total Transfer Capability for April 2014**

| Revision No | Date of Revision | Period of Revision | Reason for Revision | Corridor Affected |
|--------------------|-------------------------|---------------------------|--|--------------------------|
| 1 | 22/01/2014 | Whole Month | Revised due to commissioning of 765kV Raichur-Sholapur S/C | WR-SR / ER-SR |
| 2 | 19/02/2014 | Whole Month | Revised due to change in Inter-regional flow pattern & COD of Sasan UMPP Unit-2 | WR-NR |
| | | | Revised considering operational experience and margins on HVDC | WR-SR / ER-SR |
| | | | Review of flow pattern due to network topology change and Load Generation Balance. | W3 Zone Injection |
| 3 | 07/03/2014 | Whole Month | STOA/PX transactions on West-East-North Corridor discontinued on account of Inter-Regional Loop flows leading to physical congestion on WR-NR. | ER-NR/ WR-NR |
| 4 | 13/03/2014 | Whole Month | Margin revised due to withdrawal/cancellation of 150MW MTOA from Corporate Power Limited | ER-SR |
| 5 | 25/03/2014 | Whole Month | Revised due to Non commissioning of Kudankulam U-1 & Vallur U-3 | S1-S2 |
| 6 | 30/03/2014 | 01/04/2014 - 10/04/2014 | Revised due to shutdown of 400 kV Barh-Patna D/C | ER-NER / ER-NR |
| | | Whole Month | Margin Revised due to Non commissioning of Neyveli TS2 expn | S1-S2 |
| 7 | 01/04/2014 | 02/04/2014 - 04/04/2014 | Revised due to shutdown of 400 kV Balipara-Misa D/C and 220 kV Samaguri-Sarusujai D/C | ER-NER / NER-ER |
| 8 | 07/04/2014 | 08/04/2014 - 10/04/2014 | Revised due to return of 400 kV Barh-Patna D/C shutdown | ER-NER / ER-NR |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

ASSUMPTIONS IN BASECASE

Month : April '14

| 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 | 5971 | 5191 | 2258 | 2229 |
| 2 | Haryana | 5885 | 5116 | 3178 | 3178 |
| 3 | Rajasthan | 7955 | 6916 | 5132 | 5116 |
| 4 | Delhi | 4102 | 3566 | 1296 | 1296 |
| 5 | Uttar Pradesh | 11500 | 10090 | 6358 | 6354 |
| 6 | Jammu & Kashmir | 2133 | 1854 | 387 | 420 |
| 7 | Uttarakhand | 1628 | 1415 | 461 | 416 |
| 8 | Himachal Pradesh | 1413 | 1228 | 469 | 385 |
| 9 | Chandigarh | 238 | 192 | 0 | 0 |
| 10 | ISGS/IPPs | | | 17197 | 11973 |
| | Total NR | 40825 | 35568 | 36736 | 31367 |
| | | | | | |
| II | EASTERN REGION | | | | |
| 1 | West Bengal | 6600 | 5100 | 4797 | 3999 |
| 2 | Jharkhand | 1000 | 800 | 450 | 450 |
| 3 | Orissa | 3400 | 2600 | 2404 | 1600 |
| 4 | Bihar | 2000 | 1600 | 0 | 0 |
| 5 | Damodar Valley Corporation | 2600 | 2350 | 3600 | 3397 |
| 6 | Sikkim | 90 | 50 | 0 | 0 |
| 7 | Bhutan | 110 | 110 | 200 | 200 |
| 8 | ISGS/IPPs | 250 | 250 | 6850 | 6490 |
| | Total ER | 16050 | 12860 | 18301 | 16136 |
| | | | | | |
| III | WESTERN REGION | | | | |
| 1 | Chattisgarh | | | | |
| 2 | Madhya Pradesh | | | | |
| 3 | Maharashtra | | | | |
| 4 | Gujarat | | | | |
| 5 | Goa | | | | |
| 6 | Daman and Diu | | | | |
| 7 | Dadra and Nagar Haveli | | | | |
| 8 | ISGS/IPPs | | | | |
| | Total WR | 0 | 0 | 0 | 0 |
| | | | | | |

| | | | | | |
|-----------|-----------------------------|--------------|--------------|--------------|--------------|
| IV | SOUTHERN REGION | | | | |
| 1 | Andhra Pradesh | 12114 | 10011 | 7509 | 6688 |
| 2 | Tamil Nadu | 11539 | 10115 | 7173 | 6000 |
| 3 | Karnataka | 8407 | 7250 | 6874 | 5088 |
| 4 | Kerala | 3310 | 2451 | 1724 | 461 |
| 5 | Pondy | 329 | 286 | | |
| 6 | Goa | 84 | 84 | | |
| 7 | ISGS/IPPs | | | 10280 | 9536 |
| | Total SR | 35783 | 30197 | 33560 | 27773 |
| | | | | | |
| V | NORTH-EASTERN REGION | | | | |
| 1 | Arunachal Pradesh | 120 | 84 | 0 | 0 |
| 2 | Assam | 1300 | 955 | 220 | 190 |
| 3 | Manipur | 120 | 84 | 0 | 0 |
| 4 | Meghalaya | 310 | 217 | 70 | 50 |
| 5 | Mizoram | 75 | 53 | 0 | 0 |
| 6 | Nagaland | 120 | 84 | 12 | 10 |
| 7 | Tripura | 230 | 130 | 105 | 100 |
| 8 | ISGS/IPPs | | | 963 | 597 |
| | Total NER | 2275 | 1607 | 1370 | 947 |
| | | | | | |
| | Total All India | 94933 | 80232 | 89966 | 76223 |