सत्यमेव जयते

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केंद्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन प्रभाग-II
Power System Planning & Appraisal Division-II

No: 75/1/PSPA-II/2017/ 496-503 Dated: 06.07.2017

To

As per address list

Subject: Minutes of Meeting regarding 132kV Banka (PG) – Deoghar D/c transmission line.

Sir,

Meeting regarding 132kV Banka (PG) – Deoghar D/c transmission line held on 13.06.2017 at CEA, New Delhi. Minutes of the meeting is enclosed herewith.

JUSNL is requested to send their comments/observations, if any, in regard to dropping of proposed Banka (PG) – Deoghar 132kV D/c line.

Yours faithfully,

6/7/2017

(Rishika Sharan)
Director (PSPA-II)

List of addressee:

1. Member Secretary Eastern Regional Power Committee 14, Golf Club Road, Tollygunge Kolkata – 700033 Fax No. 033-24171358	2. Managing Director, Bihar State Power Transmission Co. Ltd., Vidyut Bhawan, Bailey Road, Patna-800021 Telefax: 0612-2504968
3. Managing Director, Jharkhand Urja Sancharan Nigam Limited Engineering Building, H.E.C., Dhurwa, Ranchi-834004. Fax-0651-2400799	4. Chief Electrical Engineer, Eastern Railway, 17-NS Road, Kolkata-700 001 (fax no.: 033-22300446)
5. COO(CTU-Plg), Power Grid Corp. of India Ltd. "Saudamini", Plot No.2, Sector-29, Gurgaon 122 001, Haryana. FAX : 95124-2571932	6. CEO, POSOCO B-9, Qutub Institutional Area, Katwaria Sarai, New Delhi-110016

Copy to: PPS to Member (Power System) - for kind information please.

Minutes of Meeting regarding 132kV Banka (PG) – Deoghar D/c transmission line held on 13.06.2017 at CEA

List of participants is enclosed at **Annexure-1**

1. Chief Engineer (PSPA-II), CEA welcomed the participants and highlighted about the purpose of the meeting. He informed that Banka (PG) - Deoghar 132kV D/C line (about 40 km) was agreed in the 01st -2014 Standing Committee Meeting on Power System Planning in Eastern Region(ER) (16th SCMPSP(ER)) held on 02nd May 2014.

2. In the 16th SCM meeting, ERPC had informed that the 132kV Deoghar S/S (JSEB) is being fed through 132kV line(s) from DVC source (132kV Maithon-Jamtara-Deoghar S/C) or from NTPC source (Lalmatia). There is also a feed from BSPTCL source through 132kV Sultanganj- Deoghar S/C line, which is normally kept open due to overloading in Kahalgaon-Sabour- Sultanganj section of BSPTCL system. The Deoghar & Jamtara sub-stations feed important railway loads of 10MW each to Shankarpur TSS & Jamtara TSS and loading on Maithon – Jamtara – Deoghar 132kV S/C line sometimes exceeds 75MW. The reliability of supply to railway loads is being affected. In view of above, it was agreed to provide an additional supply to Deoghar S/S (JSEB) from 400/132kV Banka S/S (PG) by creating a 132kV Banka- Deoghar D/C lines (about 40 Kms).

3. JUSNL vide their letter dated 30.07.2015 addressed to POWERGRID(copy enclosed at Annex-II) informed that termination of above line at Deoghar is not possible due to space constraint. Further, JUSNL informed that after commissioning of 132kV Jasidih – Deoghar line (about 5km), Deoghar S/s will be able to receive 250MVA of power through Jasidih S/s and Dumka S/s, whereas the transformation capacity at Deoghar is only 150MVA. The matter was discussed in 18th SCMPSP(ER) meeting and it was decided to review the possible interconnections at Deoghar in a separate meeting at CEA with Railways & other stakeholders.

4. In the meeting, representative of BSPTCL stated that Banka (PG) substation is having 2x200 MVA 400/132 kV ICTs at present, which are sufficient to meet the loads of BSPTCL only. PGCIL informed that Banka substation is proposed to be augmented with addition of 1x315 MVA, 400/132kV ICT under ERSS-XX (approved in 18th SCMPSP(ER)). BSPTCL representative suggested that power supply to Deoghar (Jharkhand) from Banka (PG) may be commenced only after commissioning of additional 315 MVA ICT at Banka (PG), which is planned under 13th plan.

5. Chief Engineer (PSPA-II), CEA enquired about reason for keeping 132kV Sultanganj- Deoghar S/C line open under normal condition.

6. Representative of BSPTCL stated that BSPTCL can supply power with exiting system to Deoghar (Jharkhand) through the above line during off-peak hours only, as the bus bars capacity at Sultanganj is inadequate. However, supply

during peak hours would be possible only after strengthening of bus bar at Sultanganj, which is likely to be completed in next 6 months.

7. Representative of CTU informed that POWERGRID has closed the ERSS-XVI project involving construction of Banka (PG) - Deoghar 132kV D/C line and the same was informed to CEA vide letter dated 27-10-2016.

8. Chief Engineer (PSPA-II), CEA expressed that in absence of representatives from JUSNL (Jharkhand) and Railways, it is difficult to assess the loading of the network in present situation.

9. Thus, the proposed Deoghar-Jasidih 132kV D/C line (by JUSNL) and strengthening of 132kV bus at Sultanganj (by BSPTCL) are likely to enhance the reliability of power supply to the Railways TSS at Deoghar. In view of above, it was decided to drop the proposal of construction of Banka (PG) - Deoghar 132kV D/C line in the next Standing Committee meeting.

Annexure-I

List of the participants of the meeting held on 13.06.2017 at CEA

Sl. No.	Name of the Participant	Designation	Organization
1	S.K.Ray Mohapatra	Chief Engineer, (PSPA-II)	CEA
2	Sanjay Srivastava	Chief Engineer, (PSE&TD)	CEA
3	Uma Maheswara Rao	Dy. Director, (PSPA-II)	CEA
4	Ashok Pal	General Manager(CTU-Plg)	POWERGRID
5	Manish Ranjan Keshari	Sr. Engineer(CTU-Plg)	POWERGRID
6	N.Nallarasan	Dy. General Manager	POSOCO
7	Pankaj Kumar	ESE	BSPTCL
8	Premjeet Kumar	ESE	BSPTCL

Jharkhand Urja Sanchran Nigam Ltd.

Office of the

General Manager Cum Chief Engineer

Transmission Zone - II, Dumka

Letter No. 390 /G.M (T) Dumka, Dated 30/07/2015

From,

Er. R. N. Singh
General Manager Cum Chief Engineer

To,

AGM (Engg-S/S)
(Sri A.P. Gangadharan)
Power Grid

Sub :- Termination of 132 kV D/C Banks (Power Grid) – Deoghar Transmission line.

Ref :- Your office letter no. C/Eng/SS/ERSS-XVI/ dated 30.4.2015.

Sir,

With reference to above subject, letter of field officers and single line diagram of 132/33 kV GSS, Deoghar are enclosed. It was requested to visit the Grid Sub-Station Deoghar and to have an idea of associated Transmission lines in this regard. Now, with the commissioning of 220 kV Rupnarayanpur – Dumka Transmission line and 220/132 kV GSS Dumka, Power for 132/33 kV GSS is availed from Rupnarayanpur through Dumka 132 kV S/C Sultanganj (Bihar) 132 kV S/C Maithan – Jamtara – Deoghar are alternate sources. At present 132 kV S/C Railway Deoghar-Shankarpur is supplied power from DVC.

Although space in switchyard and control room along with 2 no. feeders in 415 V and 2 no. of 220 V DC feeders may also be available. But in view of the present system it may be reanalyzed regarding the usability of termination at GSS Deoghar or proposed adjacent GSS Jasidih.

Yours faithfully,

30/7/15

(Er. R. N. Singh)
General Manager cum Chief Engineer

Jharkhand Urja Sancharan Nigam Limited

(CIN : U40108 JH 2013 SGC 001704)

Regd. Office – Engineering Building, HEC Dhurwa, Ranchi- 834004

Office of the

Electrical Superintending Engineer

Transmission Circle,

Deoghar

Letter No. ...188.../ ESE (T) Deoghar dated- ...08.05...../ 15

From,

Er. B. P. Bhagat,
Electrical Superintending Engineer.

To,

The General Manager cum Chief Engineer,
Transmission Zone- II, Dumka.

Sub :- **Regarding Termination of 132 kV Banka – Deoghar Transmission Line at Grid Sub Station, Deoghar.**

Sir,

With reference to above, please find enclosed herewith the Termination of 132 kV Banka – Deoghar Transmission line at Grid Sub Station, Deoghar submitted by Assistant Executive Engineer, Transmission Sub Division, Deoghar and duly signed by Electrical Executive Engineer, Transmission Division, Deoghar- I for your kind information and necessary action. The proposal submitted by Electrical Ex. Engineer Tr. Divn. Deoghar-I is recommended.

Encl :- As above.

Yours faithfully,

B.P.Bhagat
08/05/15

(B.P. Bhagat)
Electrical Superintending Engineer

Termination of 132 kV Banka –Deoghar Tr Line at GSS Deoghar

Presently, Transformation capacity of GSS Deoghar is 100 MVA and its capacity becomes 150 MVA after installation of 3rd No Transformer by the end of this year which will be the highest Transformation capacity due to space unavailability at GSS Deoghar.

This Grid has been availing power from D/C Dumka –Deoghar Tr line, S/C Sultanganj-Deoghar Tr Line & S/C Jamtara-Deoghar Tr line. Generally, S/C Sultanganj-Deoghar Tr line remain in idle charging. The 132 kV main bus has been sectionalized by High level isolator due to incoming Power comes from Dumka Tr line & Jamtara Tr Line is not synchronized.

As 220/132/33 kV GSS Dumka is under construction and it is likely to be completed upto end of this year also Proposal for construction of 220/132/33 kV GSS Jasidih is under progress. Proposal for Commissioning of Two Nos 132 kV feeder at GSS Deoghar for receiving power from Proposed 220/132/33 kV GSS Jasidih has been under progress also.

As such Deoghar Grid will be capable to received power approximately to 250 MVA from GSS Dumka & GSS Jasidih which is enough for this Grid because maximum Transformation capacity is 150 MVA only. Also no space will be left in switchyard and control room for further commissioning of new panel & bays.

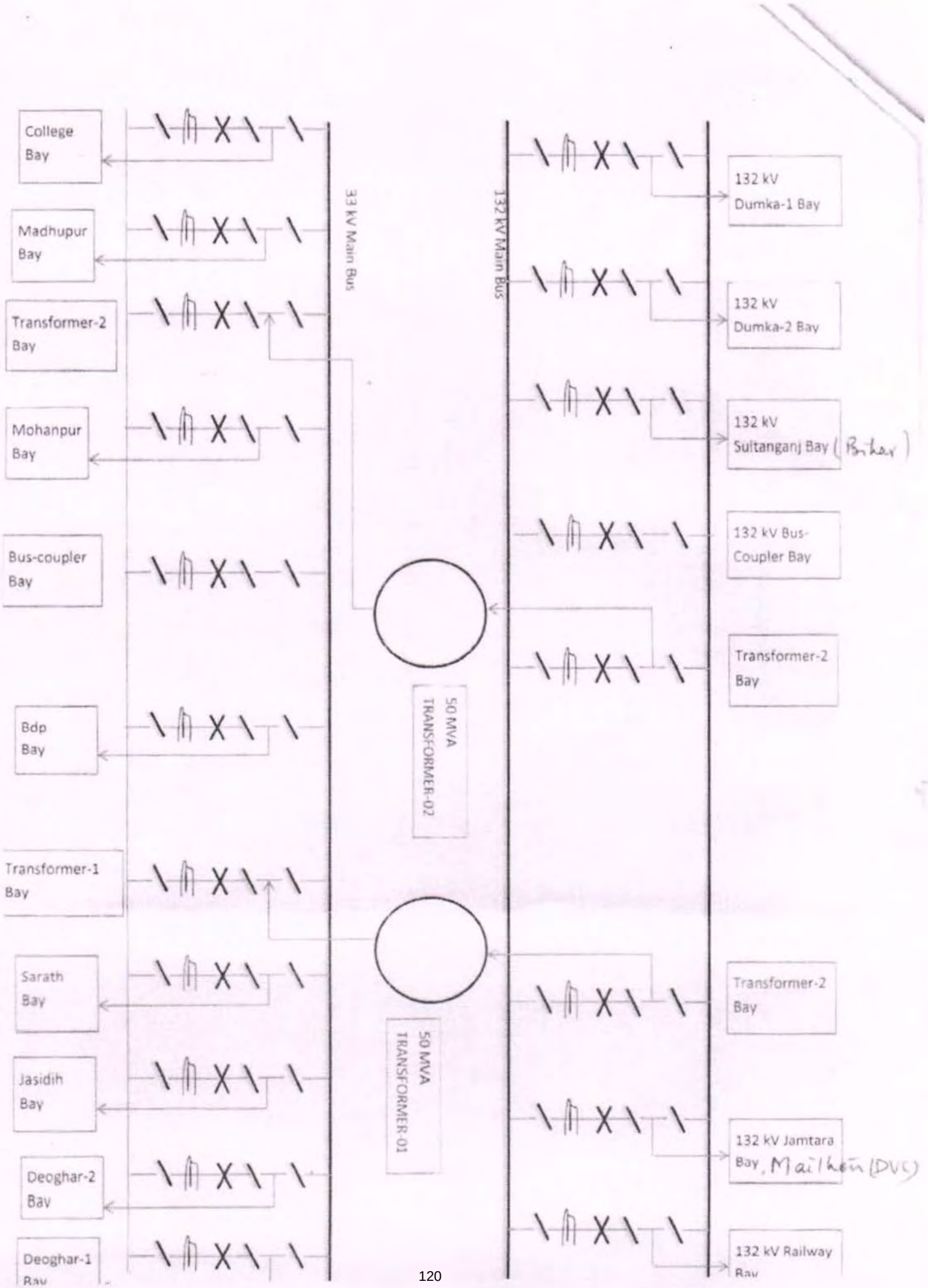
Hence, it is requested that proposal of Termination of 132 kV Banka- Deoghar Tr Line may be terminated to GSS Jasidih instead of GSS Deoghar. In proposed Jasidih GSS sufficient space is available for Termination of 132 kV Banka-Deoghar Tr line. Distance between GSS Jasidih & GSS Deoghar is only 5 km(approx.). So, that Deoghar Grid will be avail Power from 132 kV Banka-Deoghar Tr line also via GSS Jasidih without creating any mess.

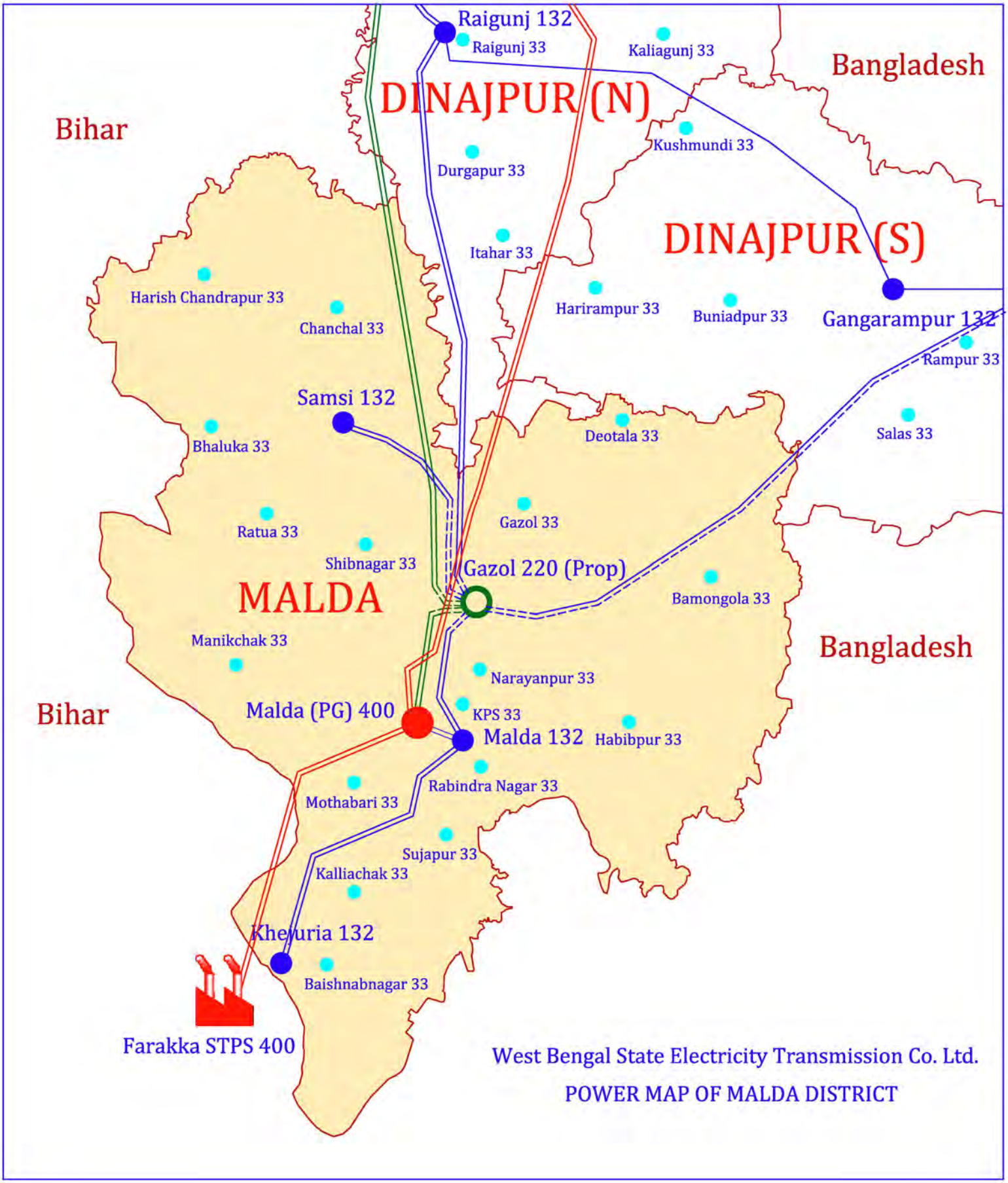
09/05/15

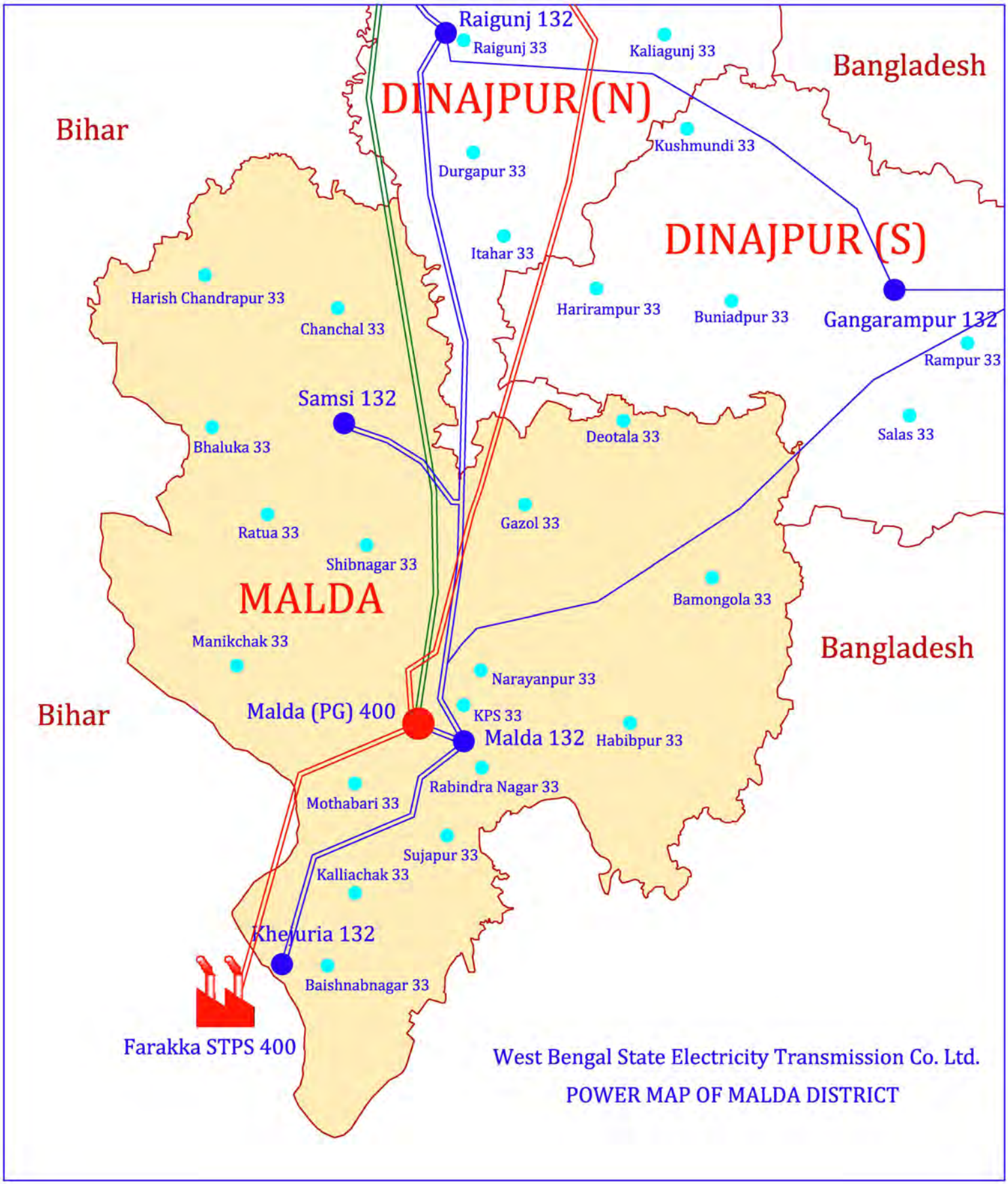
AEE
Trans S/D Deoghar

09/5/15

EEE
Trans Div Deoghar-I


College Bay
Madhupur Bay
Transformer-2 Bay
Mohanpur Bay
Bus-coupler Bay
Bdp Bay
Transformer-1 Bay
Sarath Bay
Jasidih Bay
Deoghar-2 Bay
Deoghar-1 Bay
33 kV Main Bus
50 MVA TRANSFORMER-02
50 MVA TRANSFORMER-01
132 kV Main Bus
132 kV Dumka-1 Bay
132 kV Dumka-2 Bay
132 kV Sultanganj Bay (Bihar)
132 kV Bus-Coupler Bay
Transformer-2 Bay
Transformer-2 Bay
132 kV Jamtara Bay, Maithon (DVC)
132 kV Railway Bay


Raigunj 132
Raigunj 33
Kaliagunj 33
Bangladesh
DINAJPUR (N)
Bihar
Kushmundi 33
Durgapur 33
DINAJPUR (S)
Itahar 33
Harish Chandrapur 33
Harirampur 33
Buniadpur 33
Gangarampur 132
Chanchal 33
Rampur 33
Samsi 132
Deotala 33
Salas 33
Bhaluka 33
Gazol 33
Ratua 33
Shibnagar 33
Gazol 220 (Prop)
MALDA
Bamongola 33
Manikchak 33
Bangladesh
Narayanpur 33
Bihar
Malda (PG) 400
KPS 33
Malda 132
Habibpur 33
Rabindra Nagar 33
Mothabari 33
Sujapur 33
Kalliachak 33
Khejuria 132
Baishnabnagar 33
Farakka STPS 400
West Bengal State Electricity Transmission Co. Ltd.
POWER MAP OF MALDA DISTRICT


Raigunj 132
Raigunj 33
Kaliagunj 33
Bangladesh
DINAJPUR (N)
Bihar
Kushmundi 33
Durgapur 33
DINAJPUR (S)
Itahar 33
Harish Chandrapur 33
Harirampur 33
Buniadpur 33
Gangarampur 132
Chanchal 33
Rampur 33
Samsi 132
Deotala 33
Salas 33
Bhaluka 33
Gazol 33
Ratua 33
Shibnagar 33
MALDA
Bamongola 33
Manikchak 33
Bangladesh
Narayanpur 33
Bihar
Malda (PG) 400
KPS 33
Malda 132
Habibpur 33
Rabindra Nagar 33
Mothabari 33
Sujapur 33
Kalliachak 33
Khejuria 132
Baishnabnagar 33
Farakka STPS 400
West Bengal State Electricity Transmission Co. Ltd.
POWER MAP OF MALDA DISTRICT

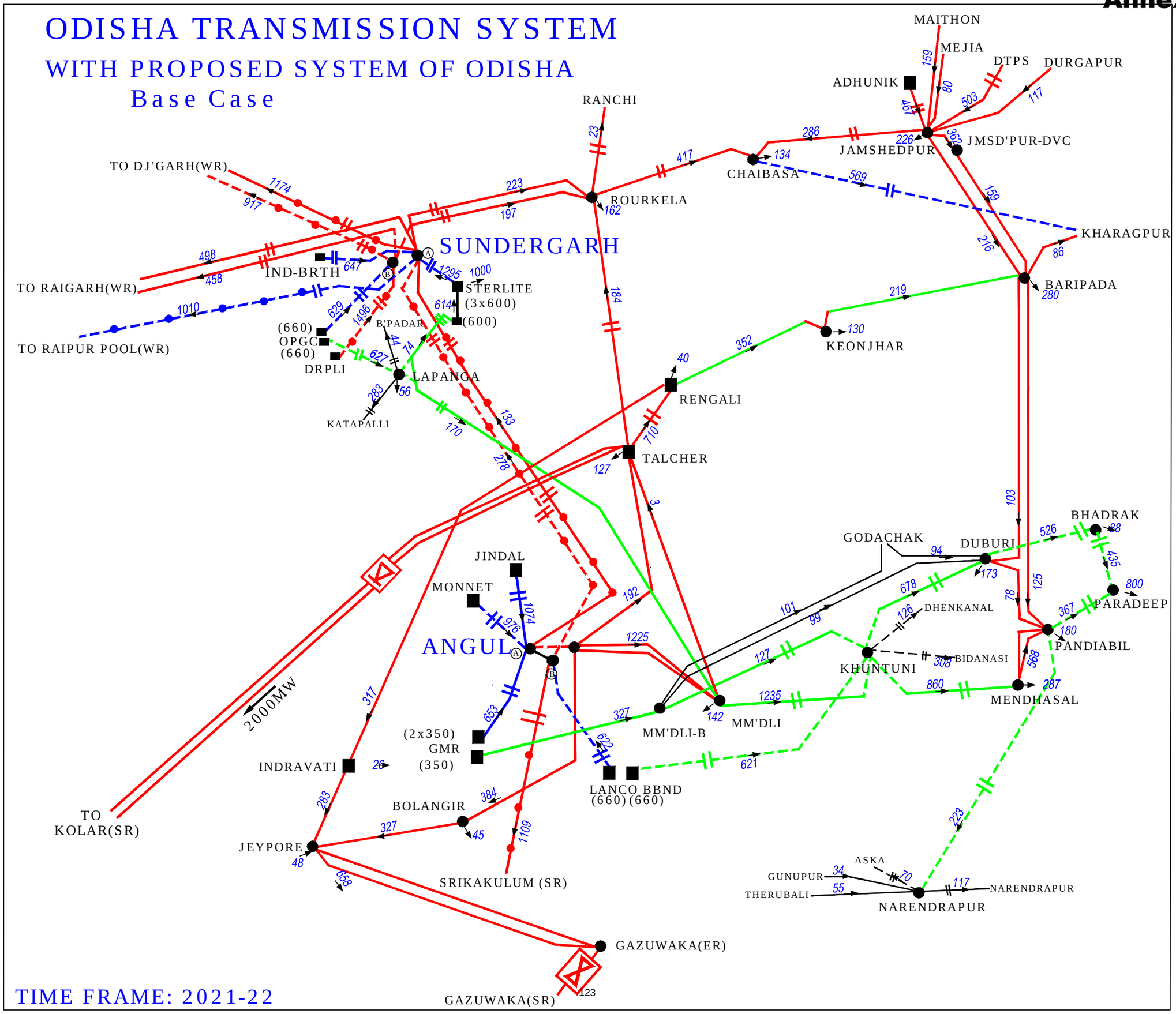
Annexure-34.1

Case 0

ODISHA TRANSMISSION SYSTEM

WITH PROPOSED SYSTEM OF ODISHA

Base Case

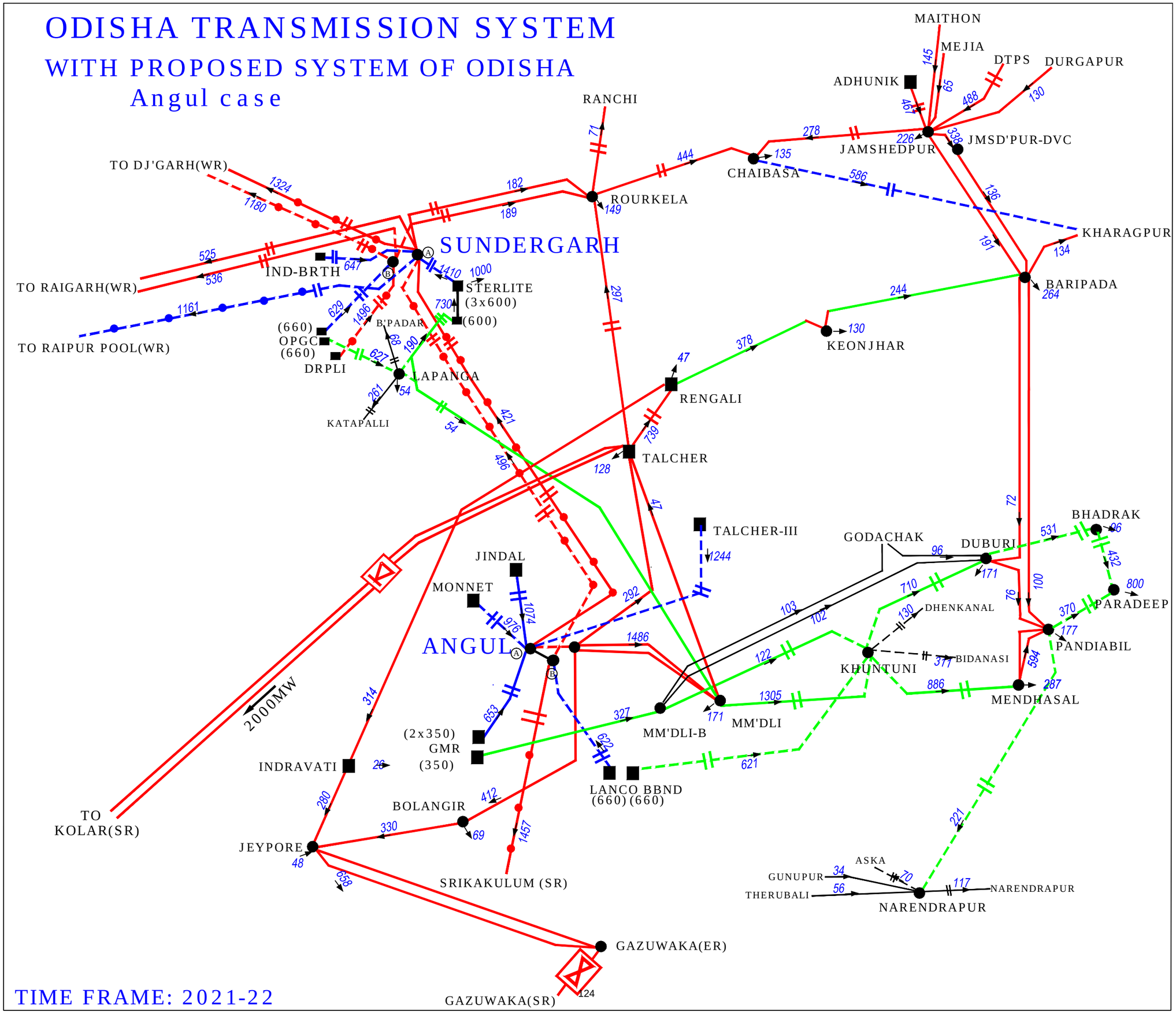


Case A1

ODISHA TRANSMISSION SYSTEM

WITH PROPOSED SYSTEM OF ODISHA

Angul case



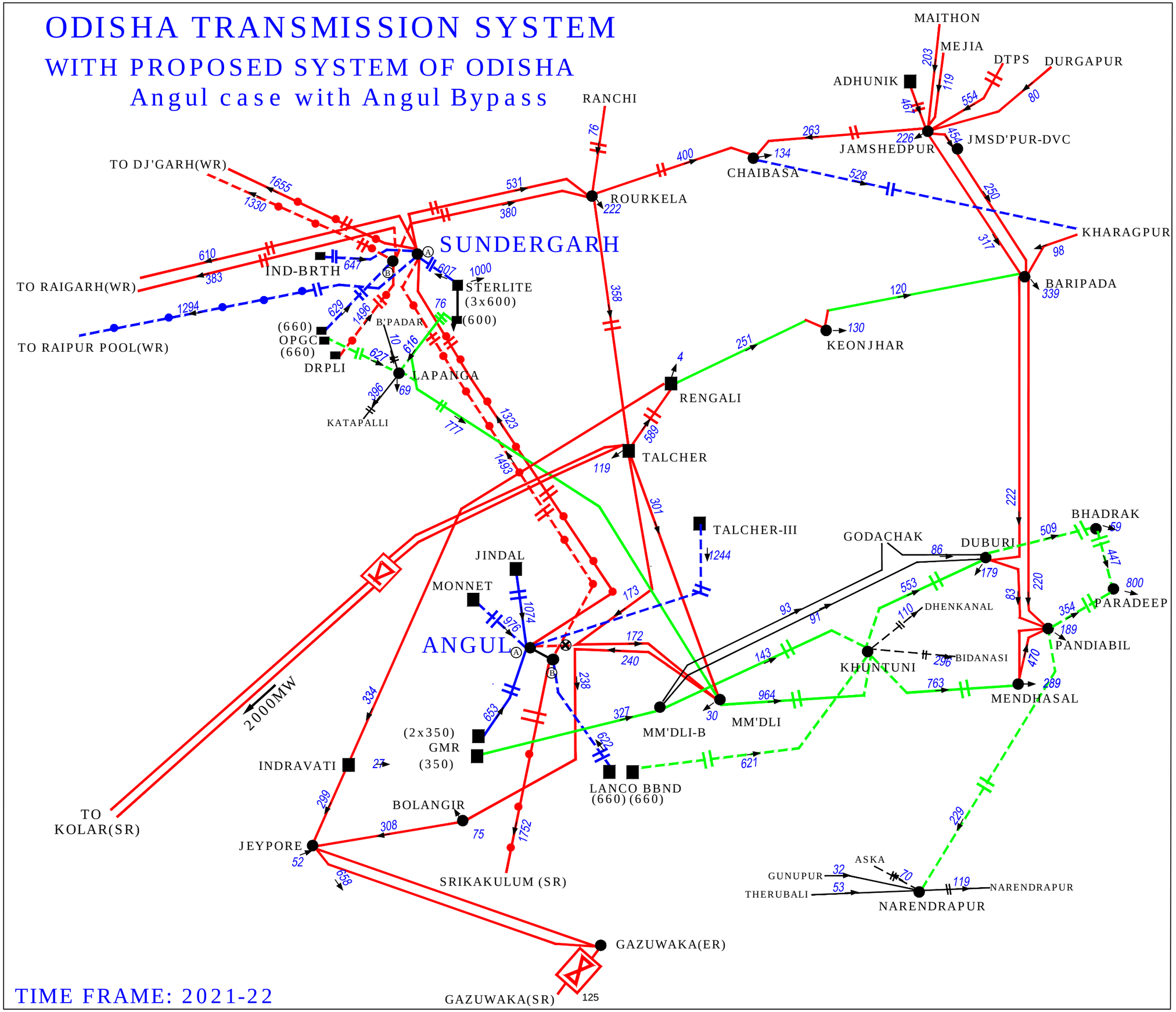
TIME FRAME: 2021-22

ODISHA TRANSMISSION SYSTEM

WITH PROPOSED SYSTEM OF ODISHA

Angul case with Angul Bypass

Case A2



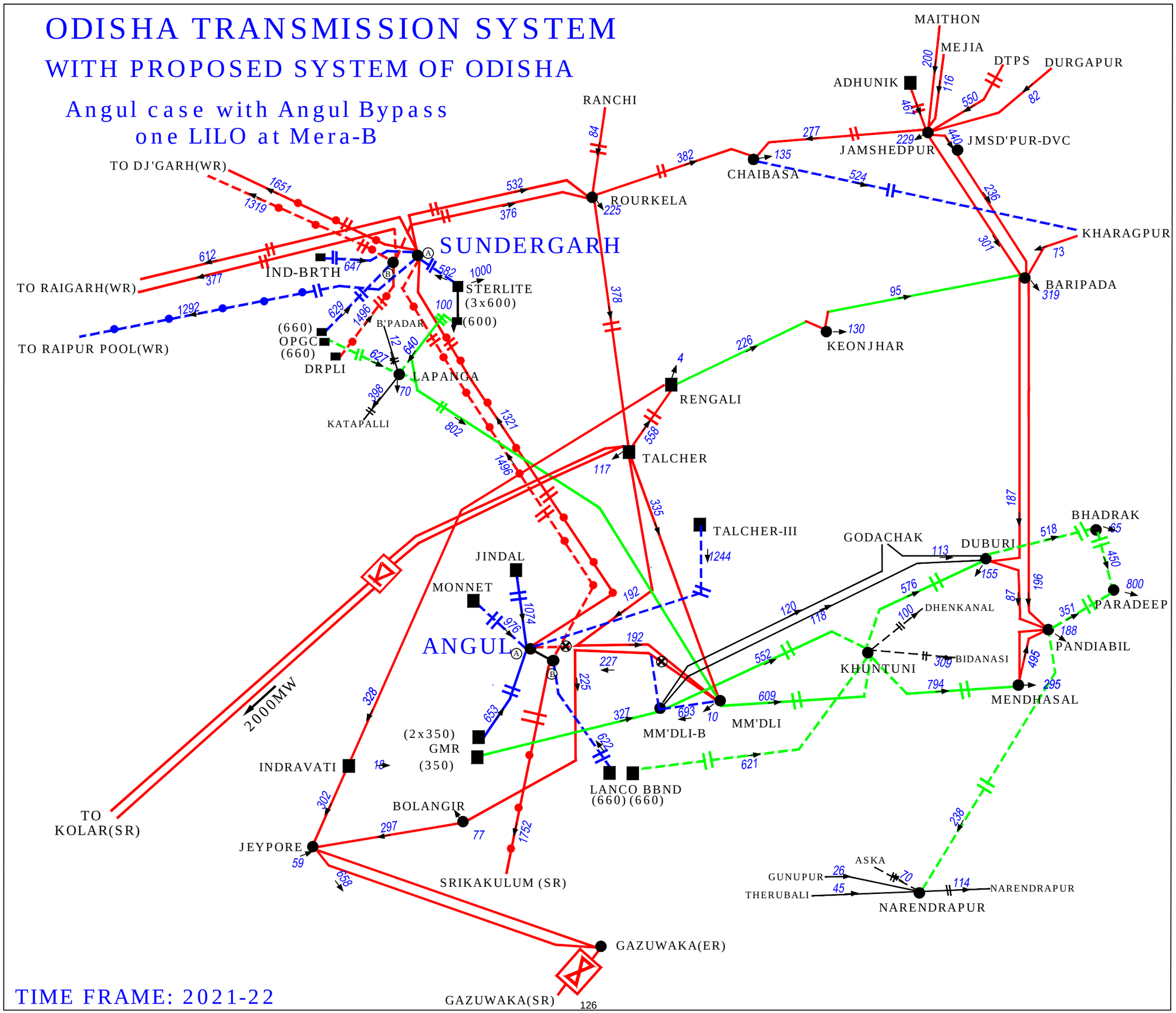
TIME FRAME: 2021-22

ODISHA TRANSMISSION SYSTEM

WITH PROPOSED SYSTEM OF ODISHA

Angul case with Angul Bypass
one LILO at Mera-B

Case A3



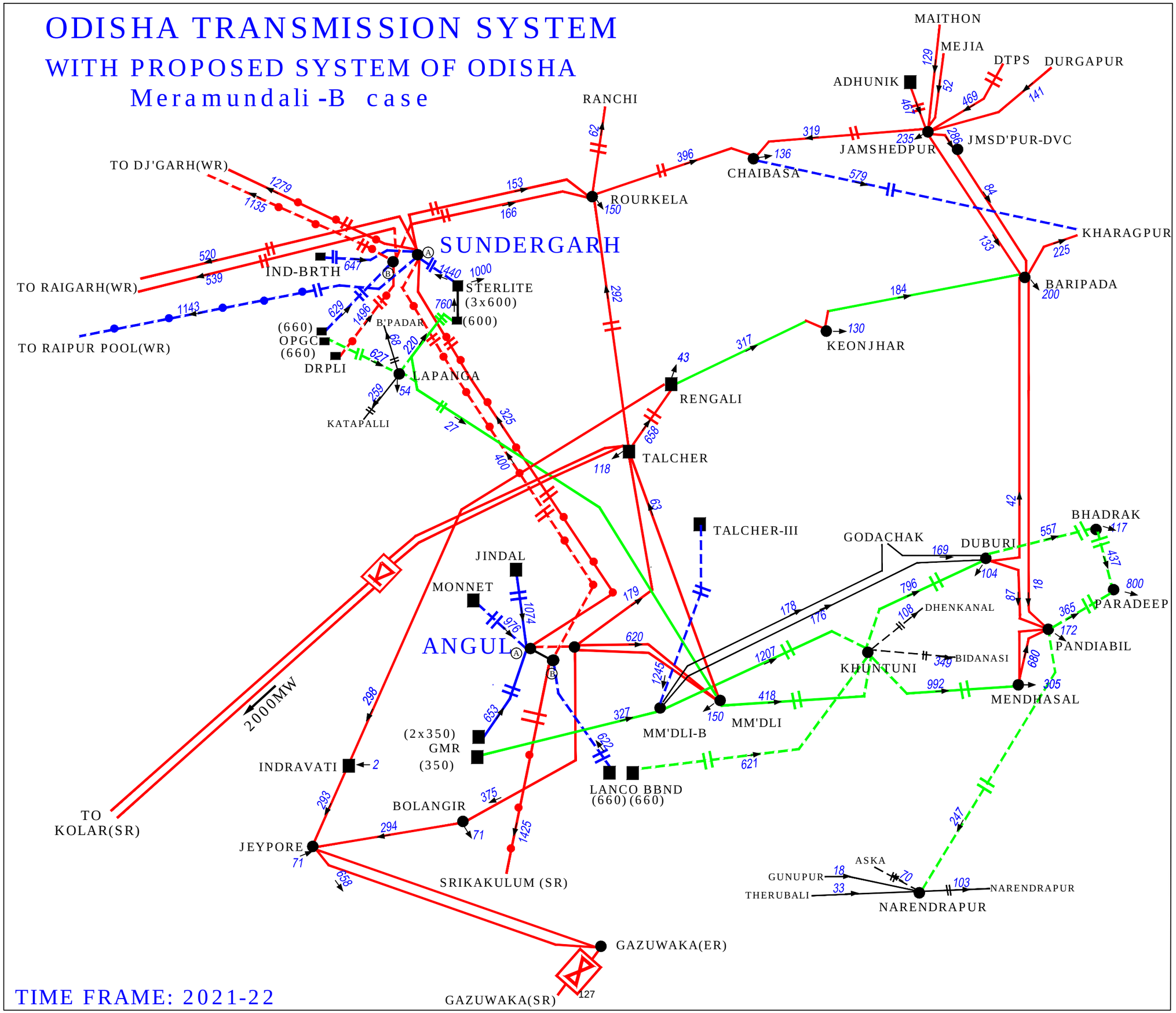
TIME FRAME: 2021-22

Case B1

ODISHA TRANSMISSION SYSTEM

WITH PROPOSED SYSTEM OF ODISHA

Meramundali -B case



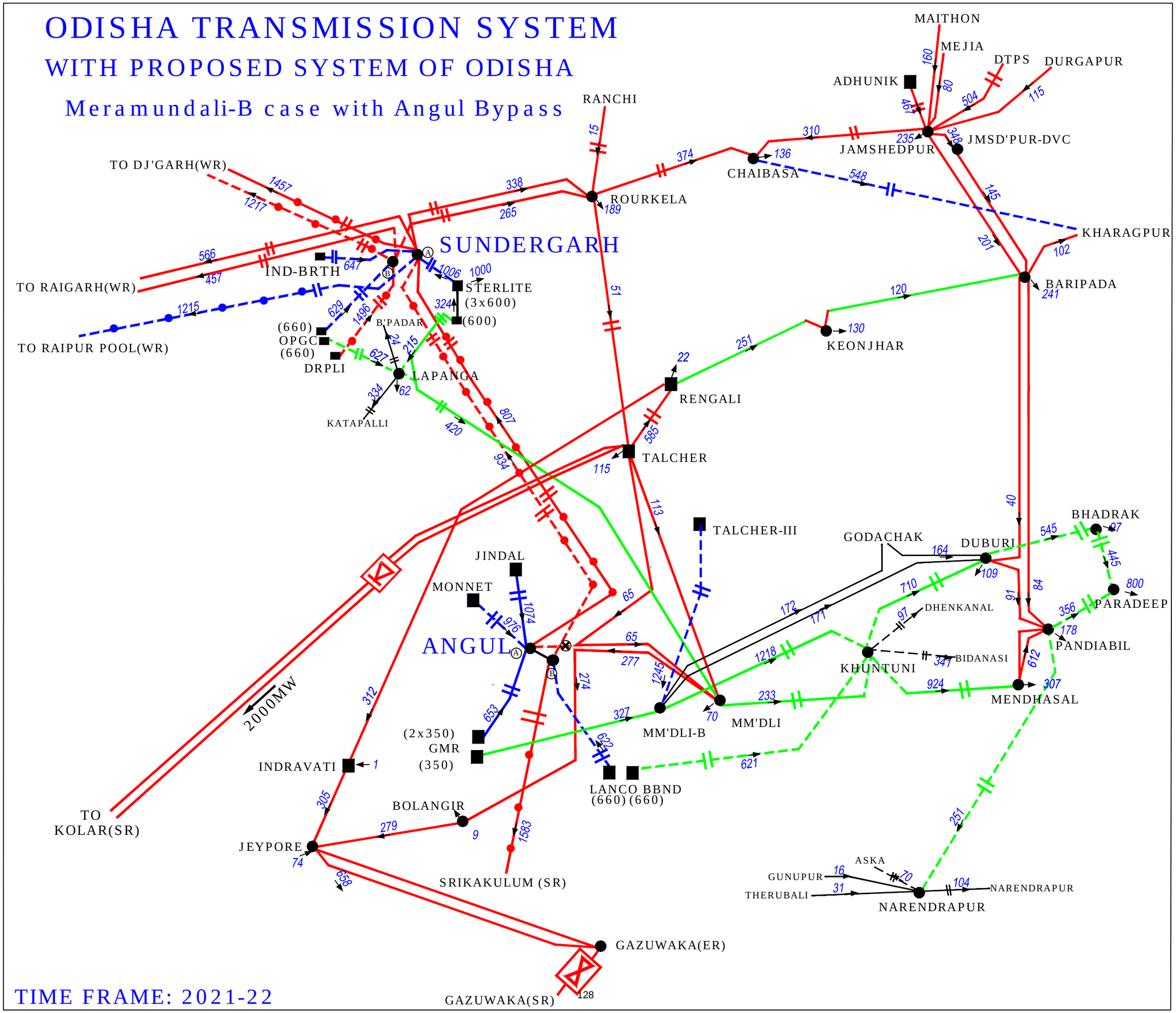
TIME FRAME: 2021-22

ODISHA TRANSMISSION SYSTEM

WITH PROPOSED SYSTEM OF ODISHA

Meramundali-B case with Angul Bypass

Case B2



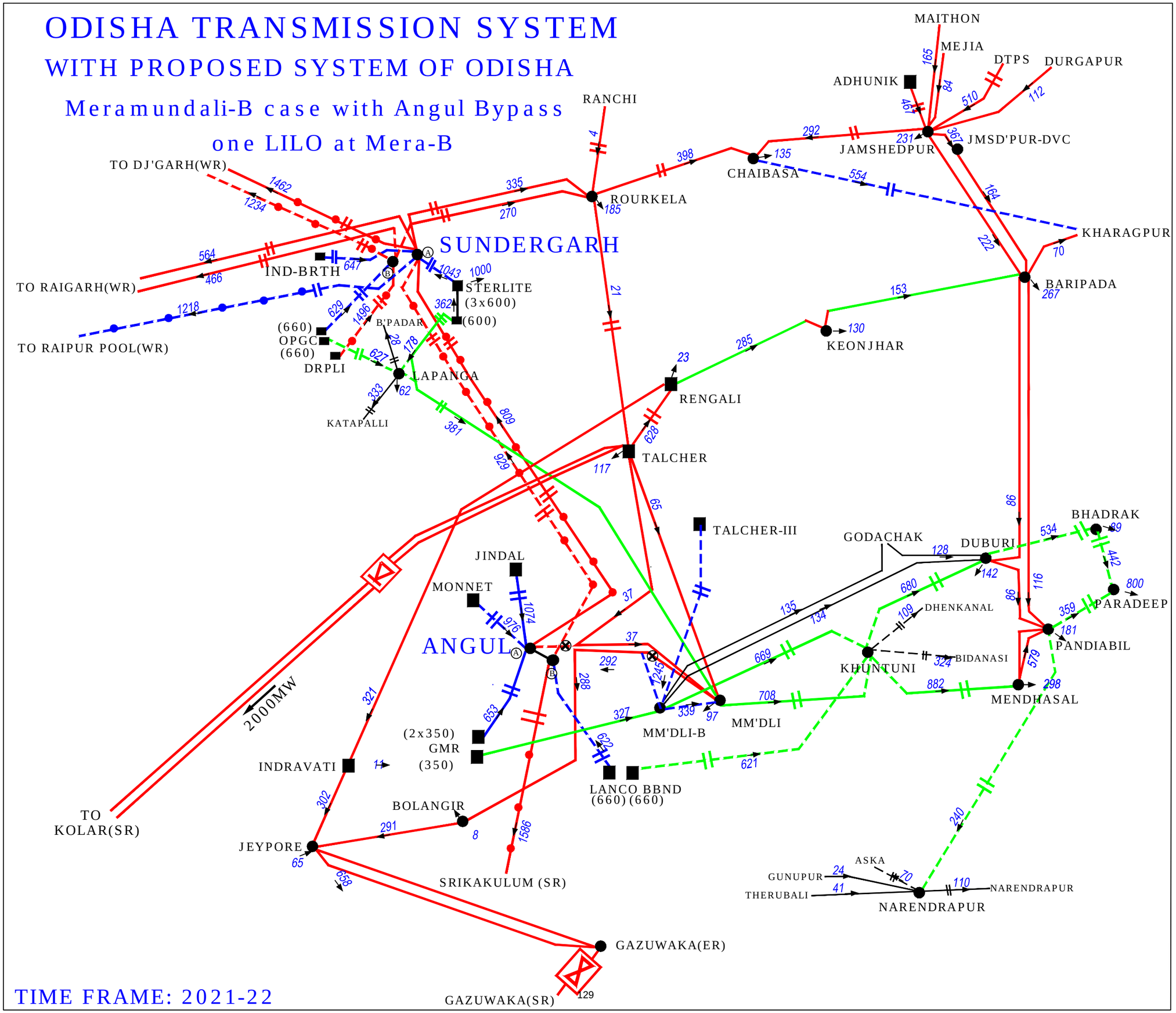
ODISHA TRANSMISSION SYSTEM

WITH PROPOSED SYSTEM OF ODISHA

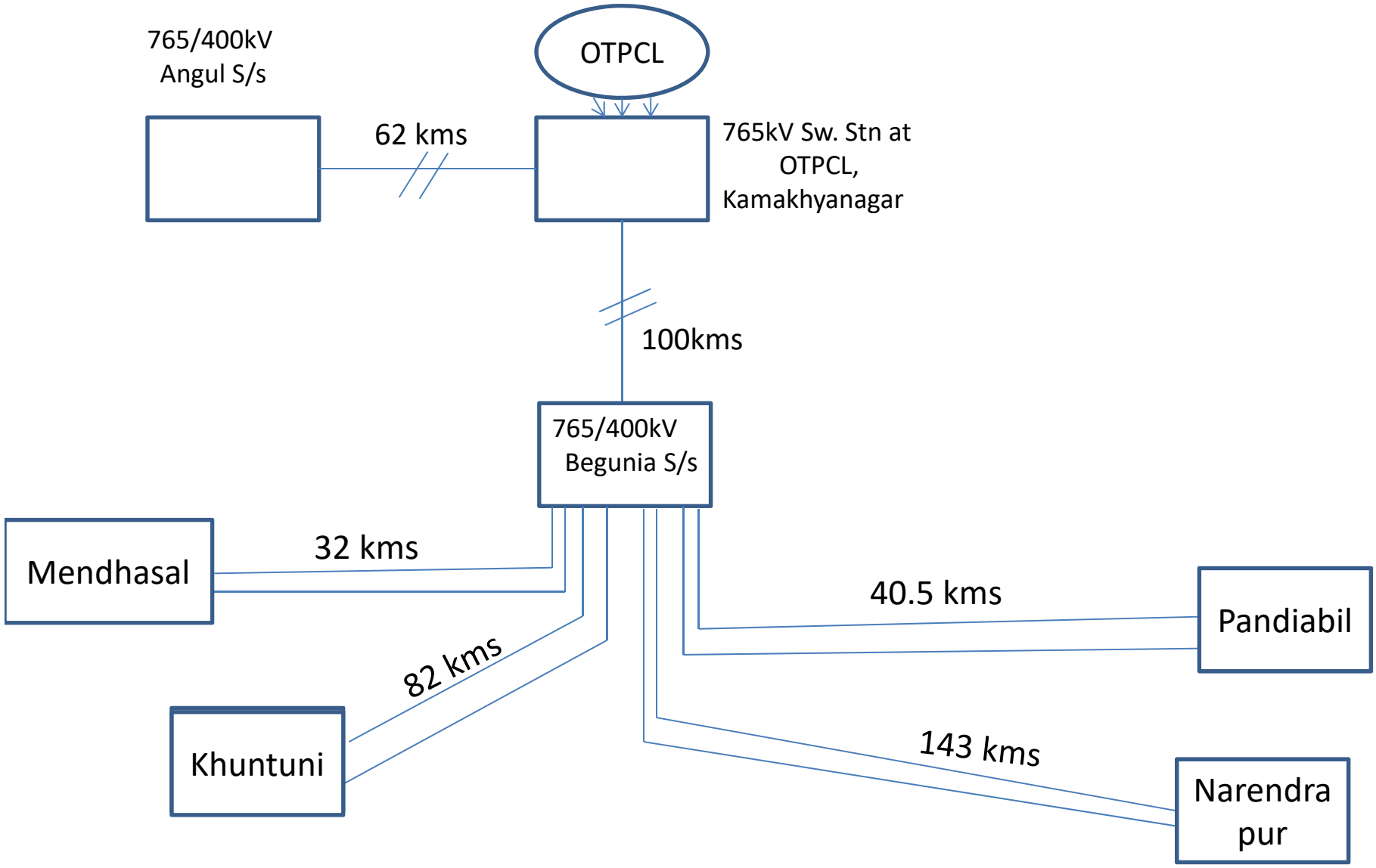
Meramundali-B case with Angul Bypass

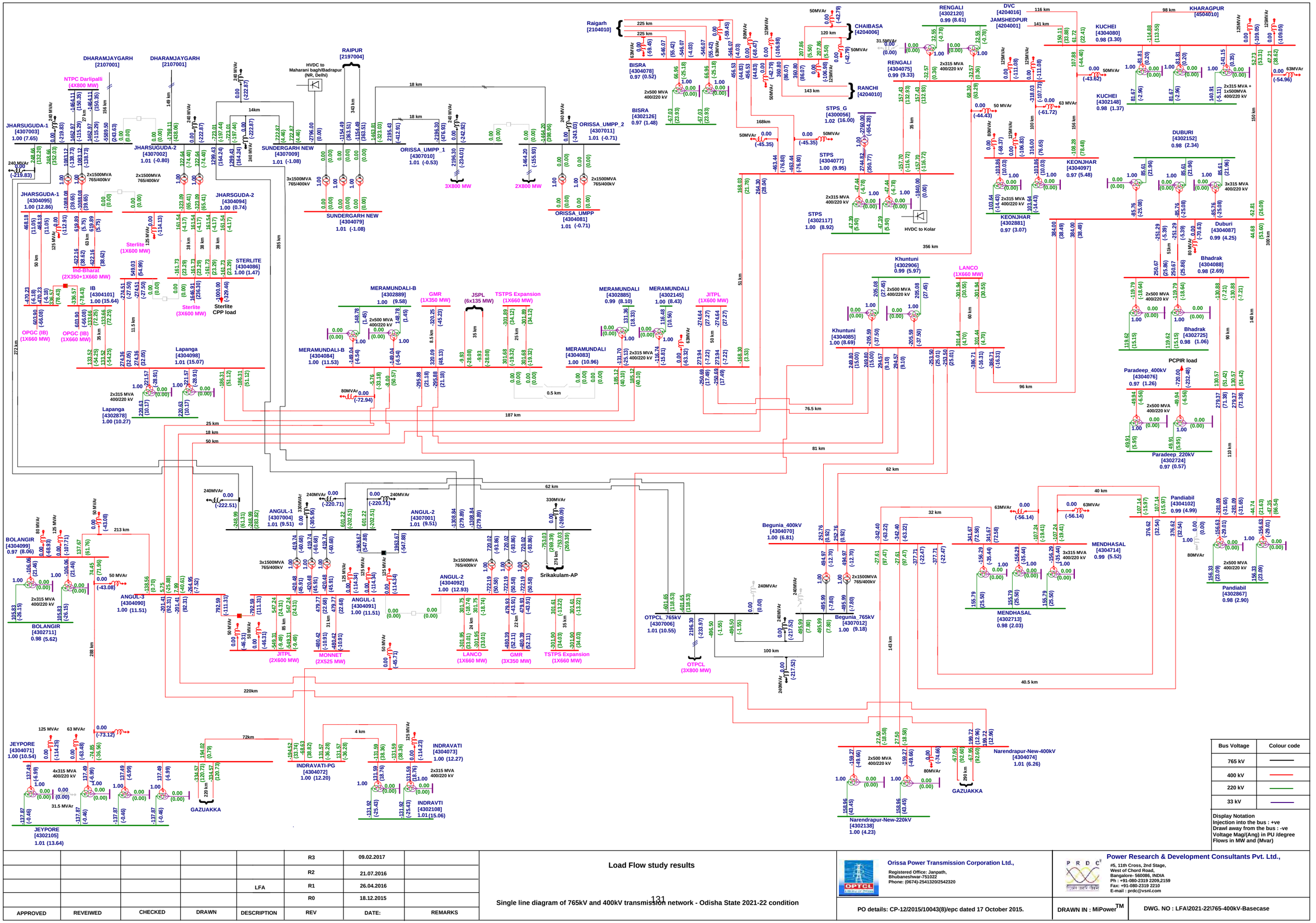
one LILO at Mera-B

Case B3



TIME FRAME: 2021-22


765/400kV
Angul S/s
OTPCL
62 kms
765kV Sw. Stn at
OTPCL,
Kamakhyanagar
100kms
765/400kV
Begunia S/s
Mendhasal
32 kms
40.5 kms
Pandiabil
82 kms
Khuntuni
143 kms
Narendra
pur



					R3	09.02.2017	
					R2	21.07.2016	
				LFA	R1	26.04.2016	
					R0	18.12.2015	
APPROVED	REVEIWED	CHECKED	DRAWN	DESCRIPTION	REV	DATE:	REMARKS

Load Flow study results

Single line diagram of 765kV and 400kV transmission network - Odisha State 2021-22 condition

Orissa Power Transmission Corporation Ltd.,
Registered Office: Janpath,
Bhubaneshwar-751022
Phone: (0674)-2541320/2542320

Power Research & Development Consultants Pvt. Ltd.,
#5, 11th Cross, 2nd Stage,
West of Chord Road,
Bangalore- 560086, INDIA
Ph : +91-080-2319 2209,2159
Fax: +91-080-2319 2210
E-mail : prdc@vsnl.com

PO details: CP-12/2015/10043(8)/epc dated 17 October 2015.

DRAWN IN : MiPower™

DWG. NO : LFA\2021-22\765-400kV-Basecase

Annexure 37.3

Odisha Proposal with 765kV strengthening, Angul-Narendrapur-Gazuwaka, Talcher-III (2x660MW) and Kamakhayanagar (3x800MW)

A. Base case

The base case has been prepared (with low hydro in southern Odisha) by-passing of 400kV LILOs of Talcher –Meramundali & Meramundali – Bolangir at Angul (to limit fault level of Meramundali) and with LILO of Meramundali – Angul/Bolangir at Meramundali-B (for even loading on Meramundali-Khuntuni and Meramundali-B – Khuntuni lines).

B. Case A + Narendrapur – Theruvali – Jeypore 400kV D/c (Triple Snowbird)

To strengthen the Gazuwaka HVDC system presently operating at 650MW to its full capacity of 1000MW, intrastate system of Narendrapur – Theruvali – Jeypore 400kV D/c (Triple Snowbird) has been studied. The power flow on this line is observed to be about 150MW. The fault level of Gazuwaka bus is about 4.8kA.

B'. Case A + Angul – Narendrapur – Gazuwaka 400kV D/c (triple Snowbird)

To strengthen the Gazuwaka HVDC system presently operating at 650MW to its full capacity of 1000MW, ISTS system of Angul – Narendrapur –Gazuwaka 400kV D/c (Triple Snowbird) has been studied. In this scenario, Narendrapur gets connected to two 400kV S/s for reliable supply of power. The power flow on Narendrapur - Gazuwaka is observed to be about 550MW. The fault level of Gazuwaka bus is about 7.4kA.

C. Case B + Angul – Begunia 765kV D/c (Hexa Zebra)

In the absence of 400kV LILOs of Talcher –Meramundali and Meramundali – Bolangir at Angul, major load centres of Odisha (Meramundali, Duburi, Pandiabil and Mendhasal) are fed through long lines from Lapanga and Baripada. To relieve the loading of these lines, Odisha's proposal of Angul – Begunia 765kV D/c line (via Kamakhyanagar - however without generation) has been studied. A new 2x1500MVA 765/400kV S/s has been created at Begunia with Angul – Begunia 765kV D/c line along with LILO of Pandiabil – Narendrapur 400kV D/c line and Khuntuni – Mendhasal 400kV D/c lines. About 1500MW of power flows from Angul to Begunia, out of which about 450-500MW flows to each Pandiabil and Mendhasal and about 600-650MW flows to Narendrapur. With this power

flow further increases on Narendrapur – Theruvali – Jeypore 400kV D/c line to about 300MW.

D. Case C + Talcher-III System

The evacuation system of Talcher-III is Talcher-III – Meramundali/ Meramundali-B 400kV D/c (triple Snowbird) line (one circuit terminated at Meramundali and other circuit terminated at Meramundali-B). In this case, there is no power evacuation problem from Talcher-III and loading on the corridors are within safe limits.

E. Case D + 3x800MW Kamakhyanagar generation of Odisha

Odisha is setting up 3x800MW generation at Kamakhyanagar. The evacuation system of Kamakhyanagar generation as proposed by Odisha is LILO of Angul – Begunia 765kV D/c line at generation switchyard. In this case, about 700MW of power flows towards and Angul and about 1500MW flows towards Begunia. About 300MW power is observed to flow from Theruvali to Jeypore. The fault level of Gazuwaka is expected to be about 5.1kA.

E'. Case E with Angul – Narendrapur – Gazuwaka system in place of Narendrapur – Theruvali – Jeypore

As compared to case E, about 550MW power is observed to flow from Narendrapur to Gazuwaka. The fault level of Gazuwaka is expected to about 7.8kA (compared to 5.1kA in previous case).

E''. Case E with Rourkela – Talcher – Behrampur – Gazuwaka system in place of Narendrapur – Theruvali – Jeypore

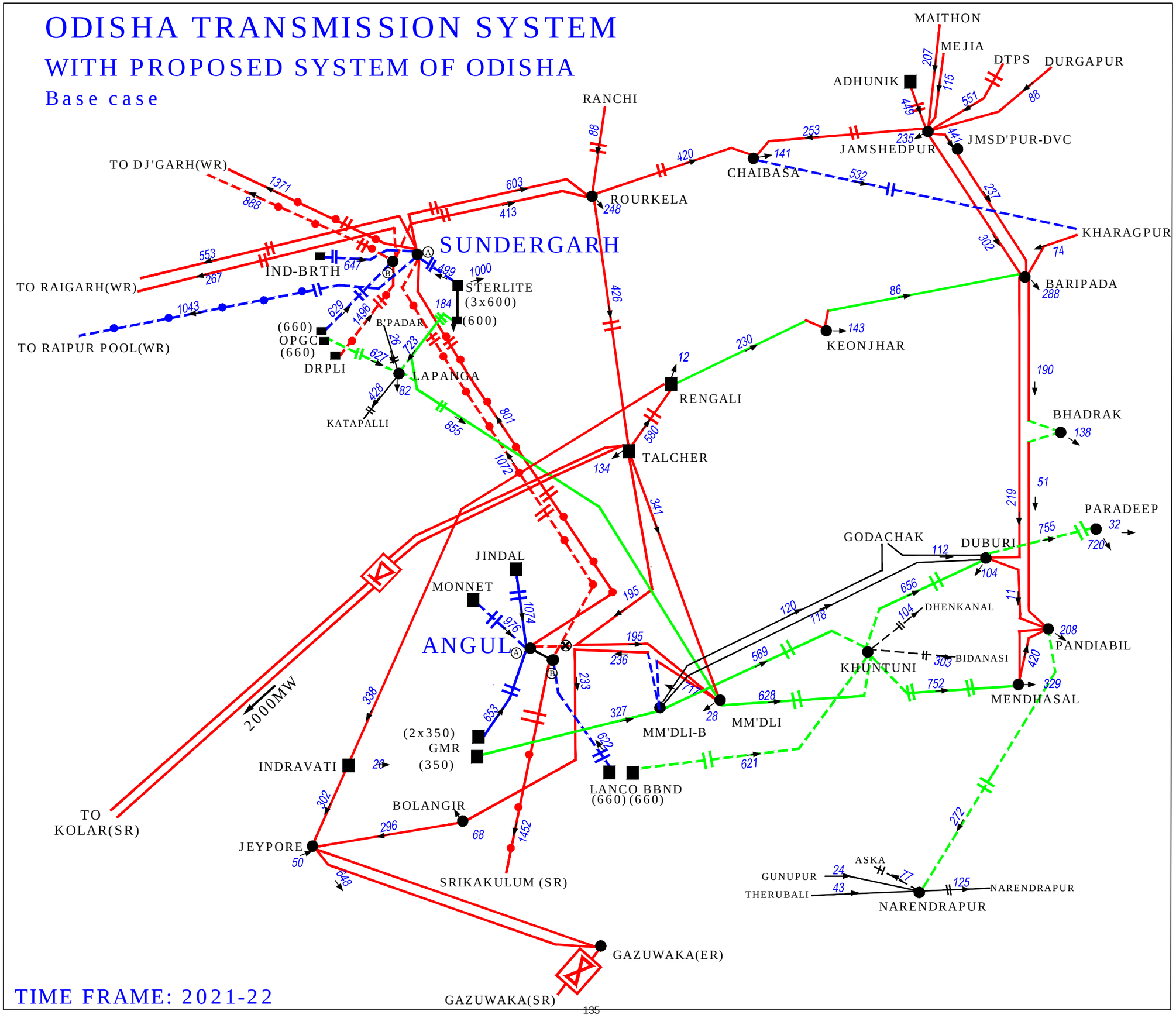
In case the Reliance system revives, case E with Rourkela – Talcher – Behrampur – Gazuwaka 400kV has been studied. About 450MW power is expected to flow from Behrampur to Gazuwaka and the fault level of Gazuwaka is expected to about 6.7 kA.

Fault Current (in kA)								
	Case A	Case B	Case B'	Case C	Case D	Case E	Case E'	Case E''
	Base case	Case A + Theruvali	Case A + Angul Gazuwaka	Case B + Angul Begunia	Case C + Talcher-III	Case D + kamakhyanagar	Case E + Angul Gazuwaka minus Theruvali	Case E + Talcher-Behrampur minus Theruvali
400 kV								
JEYPORE	6.8	8.7	9.1	9.5	9.6	9.7	9.5	8.9
JHARSUGUDA	40.5	40.5	40.5	40.6	40.7	40.9	40.9	41.1
ANGUL	38.6	38.6	42.1	41.0	41.2	43.7	46.2	43.6
BEGUNIA	-	-	-	27.0	28.0	29.3	30.9	28.3
MERAMUNDLI	26.9	27.0	28.6	31.3	37.3	37.6	38.2	38.3
MERAMNDLI-B	26.4	26.4	28.0	30.6	36.5	36.9	37.5	37.5
JHARSU-SPLI	47.8	47.8	47.9	47.8	48.2	48.6	48.6	48.7
GAZUWAKA-ER	4.2	4.8	7.4	5.0	5.1	5.1	7.8	6.7
TALCHER-III	-	-	-	-	30.9	31.1	31.5	31.5
NARENDRAPUR	6.2	8.4	13.8	11.3	11.5	11.6	16.4	9.2
765 kV								
ANGUL	26.8	26.8	27.9	30.4	30.7	35.0	35.3	34.9
JHARSUGUDA	36.9	36.9	37.1	37.4	37.5	38.2	38.3	38.3
BEGUNIA	-	-	-	16.7	17.0	19.2	19.2	18.9
KAMAKHYANAG	-	-	-	22.2	22.4	27.9	27.9	27.8
JHARSU-SPLI	29.3	29.3	29.4	29.7	29.8	30.5	30.5	30.5

ODISHA TRANSMISSION SYSTEM

WITH PROPOSED SYSTEM OF ODISHA

Base case

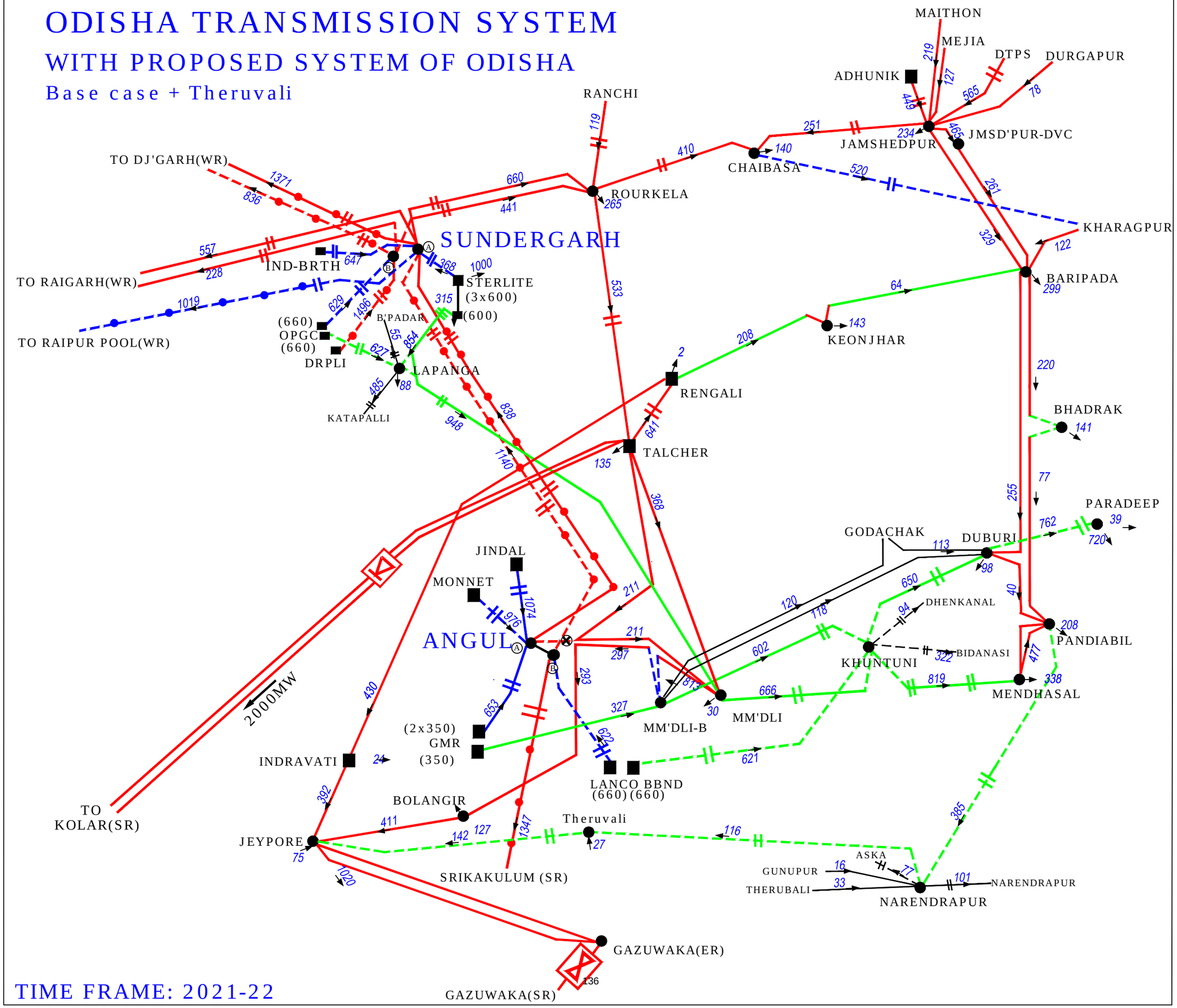


TIME FRAME: 2021-22

ODISHA TRANSMISSION SYSTEM

WITH PROPOSED SYSTEM OF ODISHA

Base case + Theruvali

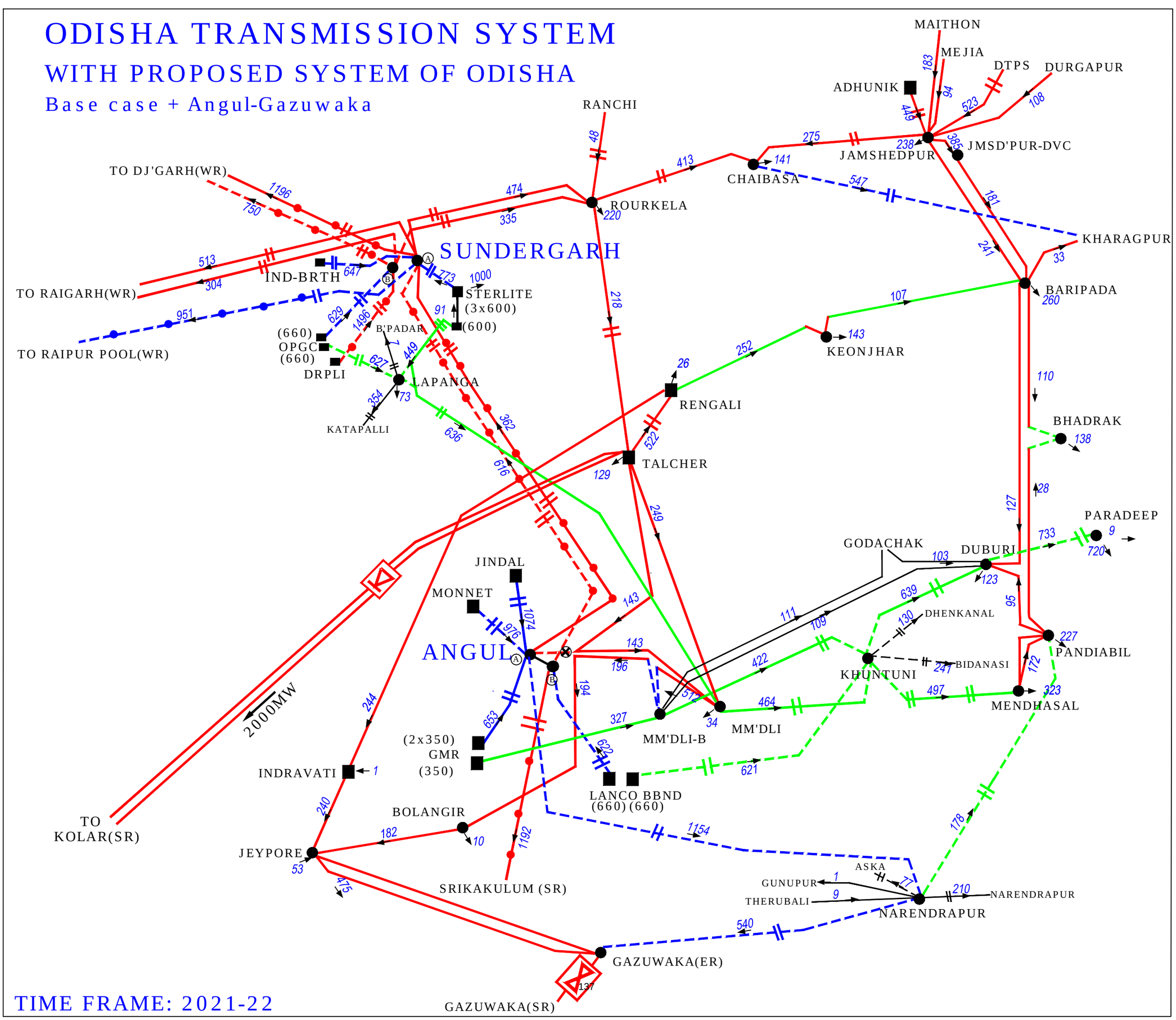


TIME FRAME: 2021-22

ODISHA TRANSMISSION SYSTEM

WITH PROPOSED SYSTEM OF ODISHA

Base case + Angul-Gazuwaka

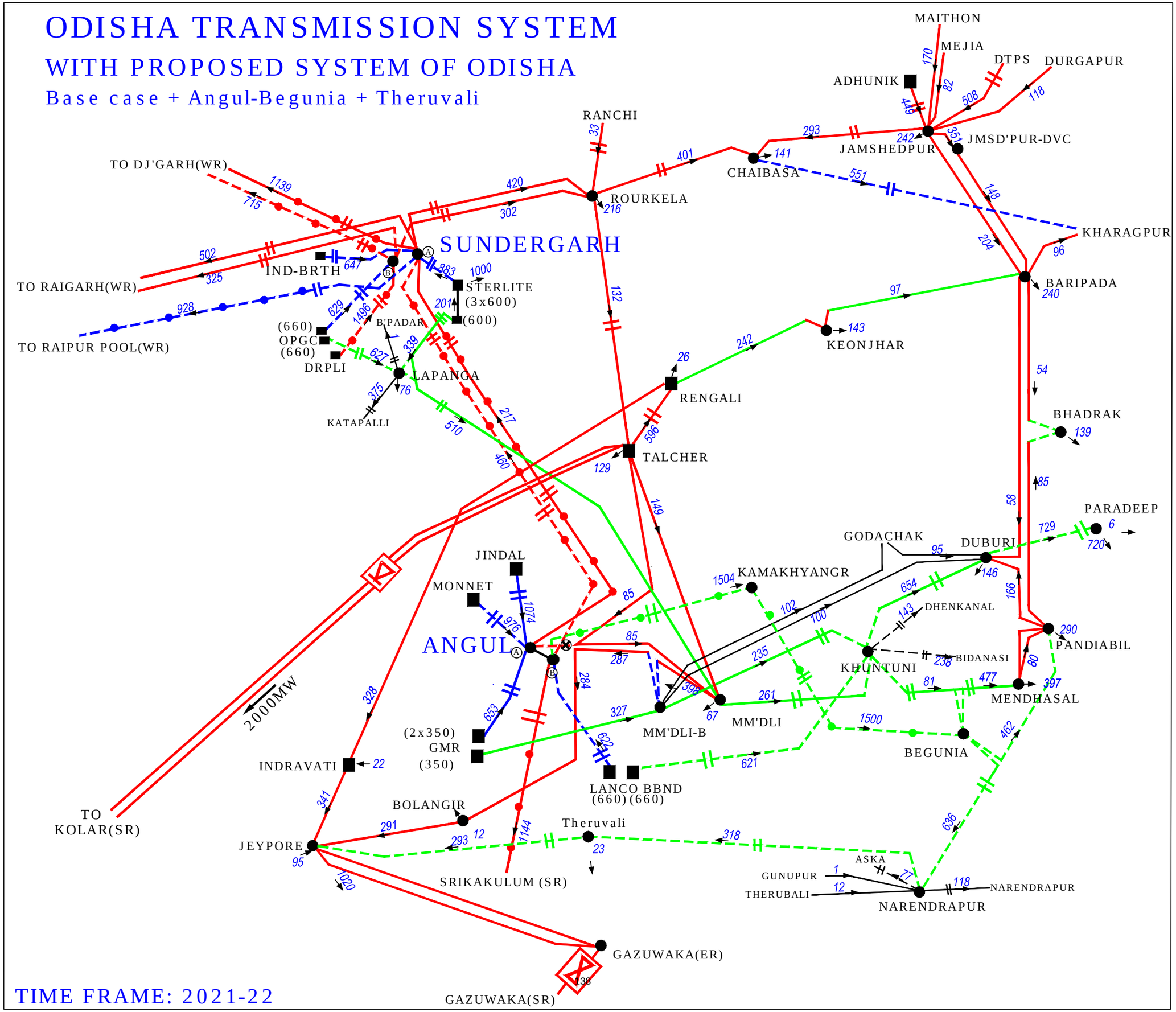


TIME FRAME: 2021-22

ODISHA TRANSMISSION SYSTEM

WITH PROPOSED SYSTEM OF ODISHA

Base case + Angul-Begunia + Theruvali

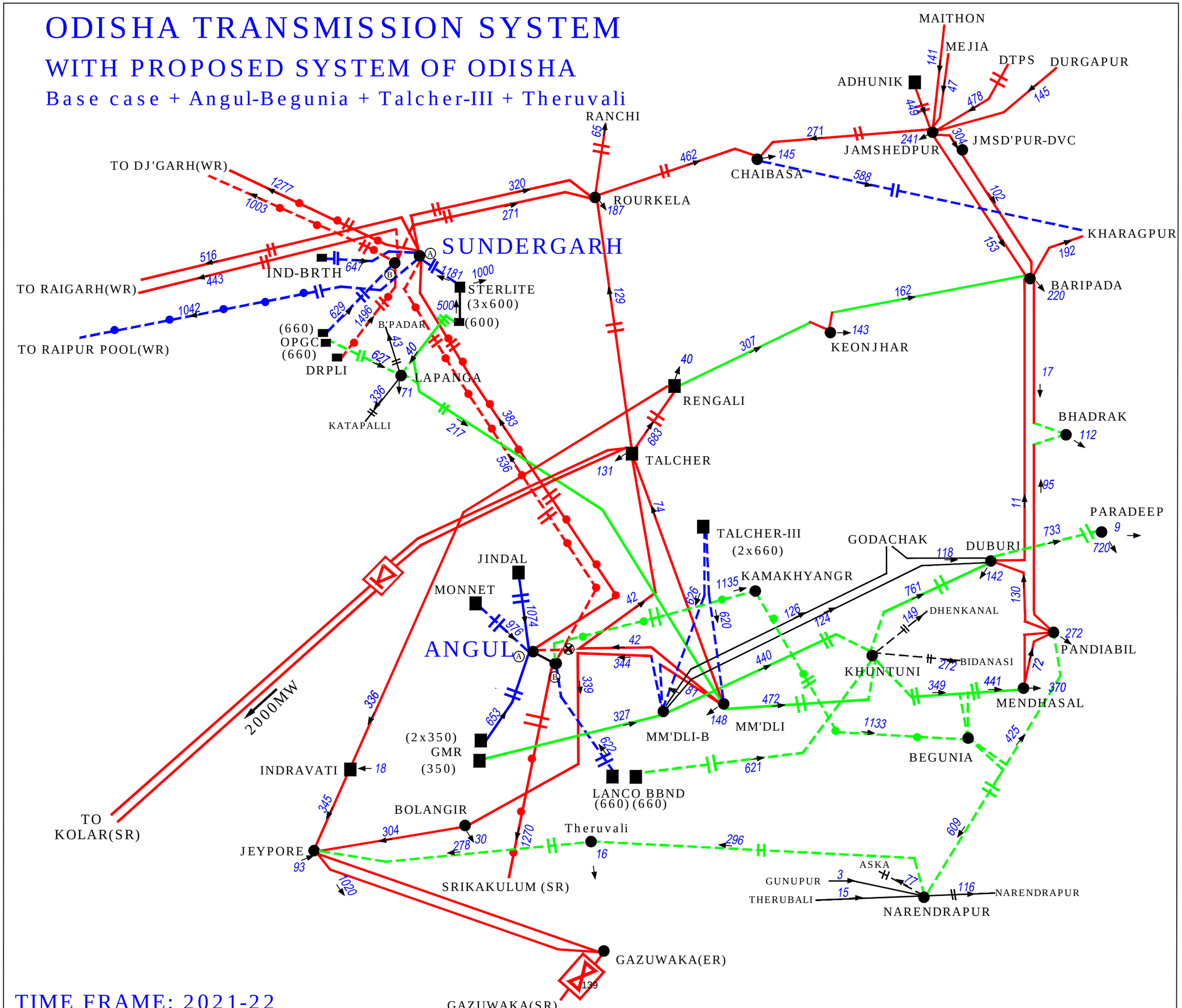


TIME FRAME: 2021-22

ODISHA TRANSMISSION SYSTEM

WITH PROPOSED SYSTEM OF ODISHA

Base case + Angul-Begunia + Talcher-III + Theruvali

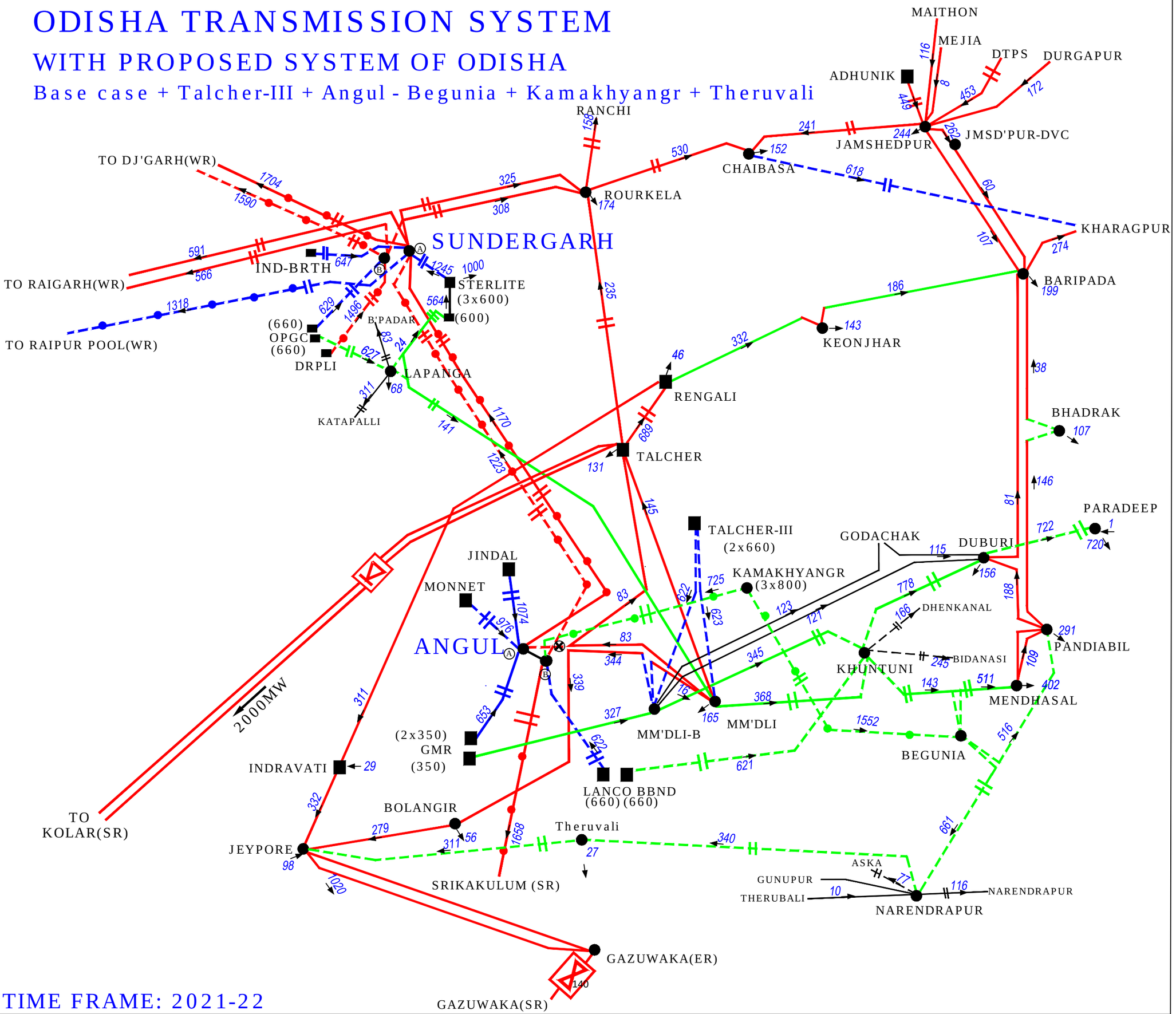


TIME FRAME: 2021-22

ODISHA TRANSMISSION SYSTEM

WITH PROPOSED SYSTEM OF ODISHA

Base case + Talcher-III + Angul - Begunia + Kamakhyangr + Theruvali

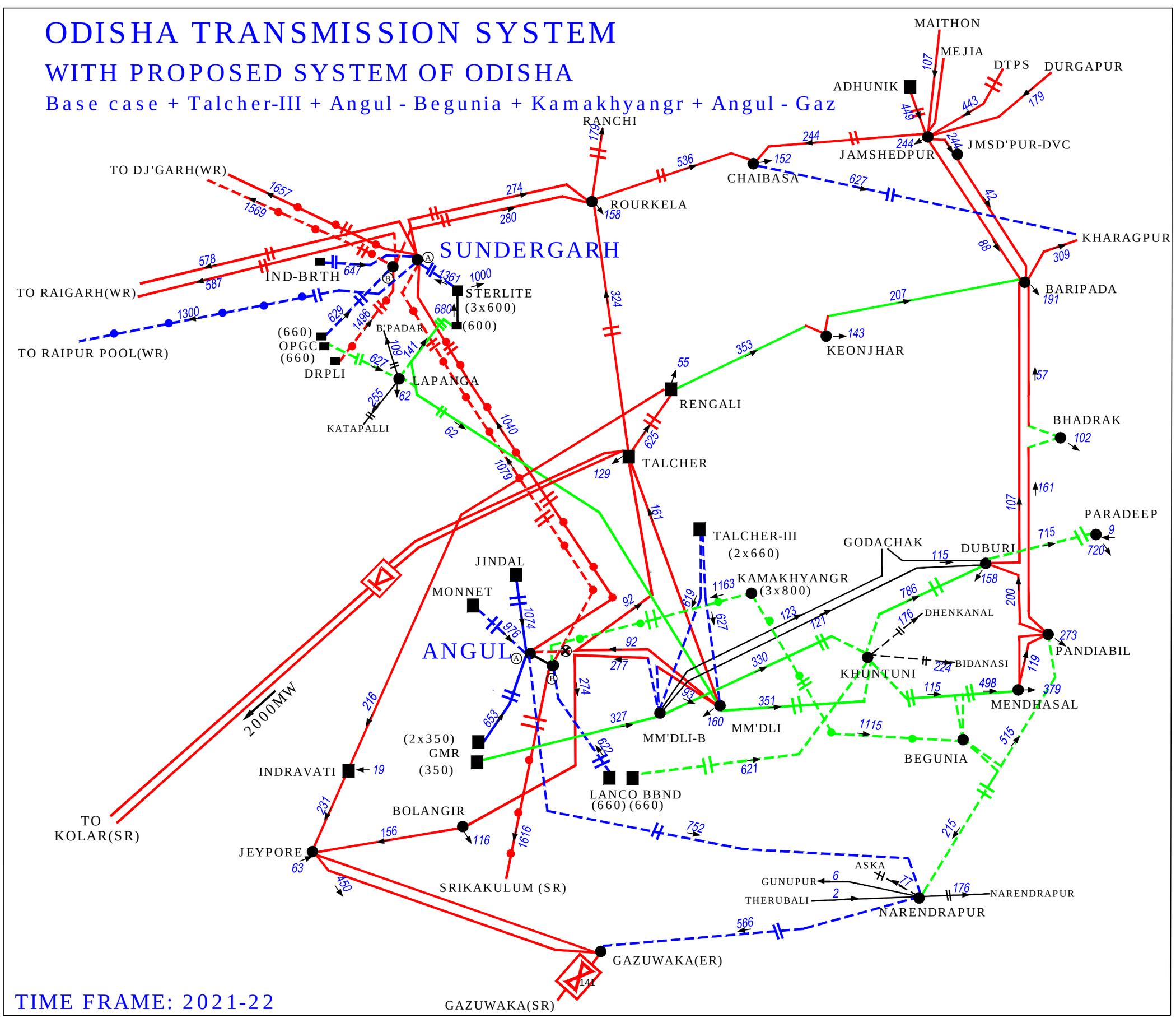


TIME FRAME: 2021-22

ODISHA TRANSMISSION SYSTEM

WITH PROPOSED SYSTEM OF ODISHA

Base case + Talcher-III + Angul - Begunia + Kamakhyangr + Angul - Gaz

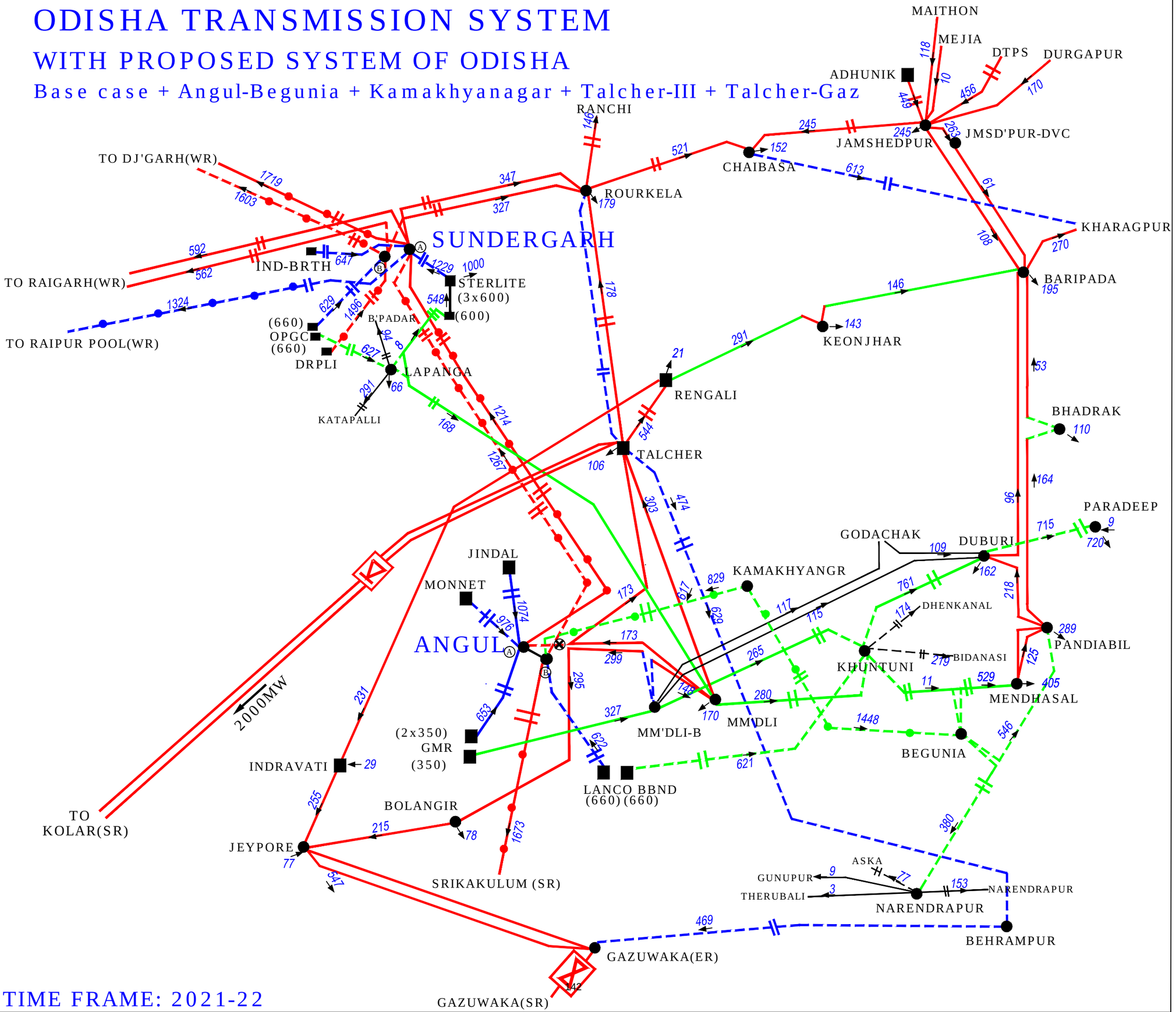


TIME FRAME: 2021-22

ODISHA TRANSMISSION SYSTEM

WITH PROPOSED SYSTEM OF ODISHA

Base case + Angul-Begunia + Kamakhyanagar + Talcher-III + Talcher-Gaz



TIME FRAME: 2021-22