



पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)



केन्द्रीय कार्यालय: "सौदामिनी" प्लॉट सं. 2, सेक्टर-29, गुरुगांव-122 001, (हरियाणा) दूरभाष: 0124-2571700-719, फैक्स: 0124-2571762.
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C/CP/IAIRSS,NR-WR(B)/WR/421.

Date: 29th December 2014

MEMORANDUM

Sub: Investment approval for Inter-Regional System Strengthening Scheme in WR and NR (Part-B)

The Board of Directors of POWERGRID, in exercise of powers delegated to it by the Department of Public Enterprises (DPE), Ministry of Heavy Industries and Public Enterprises, Government of India through its Office Memorandum No. 26(3)/2005-GM-GL-92 dated 1st May, 2008 and Office Memorandum No. DPE/11(2)/97-Fin. dated 22nd July, 1997 (modified subsequently through Office Memorandum No. 18(24)/2003-GM-GL.64 dated 5th August, 2005), have accorded investment approval for Inter-Regional System Strengthening Scheme in WR and NR (Part-B) in its 308th meeting held on 24th December, 2014, as per details given below:

1. Scope of Project

Scope of work covered under the project is attached at Annex-I.

2. Project Cost and Funding

Estimated cost of the project is ₹6517.36 Crore (including IDC of ₹403.93 Crore) based on October, 2014 price level. The abstract cost estimate is attached at Annex-II.

The project is proposed to be funded through Asian Development Bank (ADB) Loan/ Domestic Borrowings/ External Commercial Borrowings (ECBs) and POWERGRID's Internal Resources with Debt : Equity ratio of 70:30.

3. Implementation Schedule

The project is scheduled to be commissioned within 40 months progressively from the date of approval of Board of Directors.

This is issued in pursuance of 308th meeting of Board of Directors of POWERGRID held on 24th December 2014.

29.12.14
(Sathish Kumar J.)
DGM (CP)

S.K. Singh
18/12/14

S. K. Singh

पंजीकृत कार्यालय: बी-9, कुतब इस्टीट्यूशनल सराय, कटवारिया सभाग, नई दिल्ली-110016 दूरभाष: 011-26560112, 26560121, 26564812, 26564892, फैक्स: 011-26601081
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Powergrid, Allgarh

स्वहित एवं राष्ट्रहित में ऊर्जा बचाए

Save Energy for Benefit of Self and Nation

Scope of Inter-Regional System Strengthening Scheme in WR and NR (Part-B)

Scope of the project is given below:

Transmission line

- 1) Jabalpur Pooling station - Orai 765 kV D/c line : 419 km
- 2) Orai - Aligarh 765kV D/c line *Part 1* 71.55 KM : 300km
- 3) Orai - Orai(UPPTCL) 400kV D/c (Quad) line : 38 km
- 4) LILO of one circuit of Satna-Gwalior 765 kV 2xS/c line at Orai S/s : 80 km
- 5) LILO of Agra-Meerut 765 kV S/c line at Aligarh S/s : 35km
- 6) LILO of Kanpur - Jhatikara 765 kV S/c at Aligarh S/s : 35km

Substation

- 1) Extension of 765/400 kV Jabalpur Pooling Station

765kV

- Line Bay : 2 nos.
- Line reactors -330MVAR : 2 nos.

- 2) Establishment of 2x1000MVA, 765/400KV substation at Orai (GIS)

765kV

- Line Bays : 6 nos.
- Transformer bays : 2 nos.
- 1000 MVA, 765/400KV transformer : 2 nos.
- Bus Reactor bay : 2 nos.
- Bus reactors -330MVAR : 2 nos.
- Line reactors -330MVAR : 2 nos.
- Line reactors -240MVAR : 3 nos.

400kV

- Line Bays : 2 nos.
- Transformer bays : 2 nos.

- 3) Establishment of 765kV Switching station (GIS) at Aligarh

765kV

- Line Bays : 6 nos.
- Bus Reactor bay : 2 nos.
- Bus reactors - 330MVAR : 2 nos.
- Line reactors - 240MVAR : 2 nos.
- Switchable Line reactor - 330MVAR : 1 no.

- 4) Extension of 765kV Jhatikara substation.

Line reactor at Jhatikara end for Kanpur - Jhatikara 765kV S/c line to be converted into switchable line reactor.

- 5) Extension of 400kV Orai (UPPTCL) substation.

400kV

- Line Bay : 2 nos.

- 6) Extension of 765kV Gwalior Substation

Existing Line reactor at Gwalior end of Satna-Gwalior line which is to be LILOed at Orai to be converted into switchable line reactor.

S.K. Singh
18/01/18
S. K. Singh

D.G.M.

Deputy Director, Aligarh

Reactive Compensation

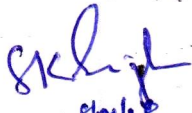
		Line length(approx.)	Line Reactor-From bus	Line Reactor-To bus
	Line Reactors			
1.	Jabalpur Pooling station - Orai 765 KV D/c	419km	330 MVAR	330 MVAR
2.	Orai - Aligarh 765kV D/c line <i>Part-1</i>	300km 71.55 KM	240 MVAR	240 MVAR
3.	Orai - Orai(UPPTCL) 400kV D/c (Quad	38km	-	-
4.	LILO of one circuit of Satna-Gwalior 765 KV 2xS/c line at Orai	80km		
	Existing Satna-Gwalior 765kV S/c	350km	240 MVAR (Switchable)	240 MVAR*
	Satna-Orai 765kV S/c	320km	240 MVAR (Switchable)- To be retained	240 MVAR
	Orai-Gwalior 765kV S/c	130km	-	-
5.	LILO of Agra-Meerut 765 kV S/c line at Aligarh	35km		
	Existing Agra-Meerut 765kV S/c	270km		240 MVAR (Switchable)
	Agra-Aligarh 765kV S/c	130km	-	-
	Aligarh-Meerut 765kV S/c	200km		240 MVAR (Switchable)
6.	LILO of Kanpur - Jhatikara 765 kV S/c at Aligarh S/s	35km		
	Existing Kanpur-Jhatikara 765kV S/c	465km	330 MVAR (Switchable)	330 MVAR (Fixed)
	Kanpur-Aligarh 765kV S/c	330km	330 MVAR (Switchable)	330 MVAR (Switchable)
	Aligarh-Jhatikara 765kV S/c	190km		330 MVAR (presently fixed to be made Switchable)
	Bus Reactors			
7.	2x1000MVA, 765/400KV substation at Orai GIS S/s	2x330MVAR bus reactor		
8.	765KV Switching Station at Aligarh (GIS)	2x330MVAR bus reactor		

* Existing non-switchable line reactor at Gwalior end of Satna-Gwalior line which is to be LILOed at Orai shall be converted into switchable line reactor.

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D.G.M.

Powergrid, Aligarh

ABSTRACT COST ESTIMATE		
(BASE COST)		
INTER-REGIONAL SYSTEM STRENGTHENING SCHEME FOR WR AND NR - PART-B		
(Cost updated to OCTOBER 2014 price level)		
Sl. No.	DESCRIPTION	AMOUNT (Rs. in Crs.)
A	Preliminary Survey & Soil Investigation	2.77
B	Land Acquisition for Substation and R & R Compensation	63.45
C	Cost of Compensation for Transmission Lines	
	i) Compensation towards Crop, Tree & PTCC	49.34
	ii) Compensation towards Forest	9.62
D	<u>Civil Works</u>	
	i) Infrastructure for substations	29.00
	ii) Non-Residential Buildings	71.13
	iii) Colony for Substation	58.83
E	<u>Equipment Cost</u>	
	a) Trans. Lines	3936.11
	b) Sub-Stations	1311.39
F	Sub Total A TO E	5529.64
G	Incidental Expenditure During construction (IEDC) @ 5% of [F - C(ii)]	276.00
H	Contingencies @ 3% of [F - C(ii)]	165.60
I	Centages & Contingencies @ 8% on Compensatory Afforestation (considering Rs. 1,40,000 per Ha) for 72.711 Ha	0.081
J	Customs Duty @ 20.6036% plus 2% handling charges	141.60
K	Overheads payable to SEBs	0.50
	Sub Total (A TO K)	6113.43
L	Interest During Construction(IDC)	403.93
GRAND TOTAL		6517.36


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