

**ANNEXURE-IV**

**A. Details of proposed substations and associated lines for 1st Phase of Transmission Scheme of AEGCL (APSDP Phase III)**

SL NO	SCOPE OF WORK	ROUTE LENGTH/ LOAD (CKM/MW)	TYPE OF CONDUCTOR	Remarks (NEW/EXISTING/ AUGMENTATION)	Justification/Approval
1	Establishment of new 220/132 kV (2 X 160 MVA) and 132/33 kV (2 X 50 MVA) S/s at Khumtai			New Substation	5th SCM (220/132kV SS), 132/33kV **
	<b>220 kV:</b>				
	LILO of Mariani-Samaguri (AEGCL-Existing) S/C Line 1 at Khumtai (AEGCL-New) - Samaguri (AEGCL-Existing) - S/C Line	6 kM	ACSR Zebra	New	
	LILO of Mariani-Samaguri (AEGCL-Existing) S/C Line 2 at Khumtai (AEGCL-New) - Samaguri (AEGCL-Existing) - S/C Line	5 kM	AAAC Zebra	New	
	<b>132 kV:</b>				
	LILO of Jorhat (W)-Bokakhat (AEGCL-Existing) at Khumtai (AEGCL-New) S/C Line	5 kM	AAAC Panther	New	
	Khumtai (AEGCL-New) - Sarupathar (AEGCL-Existing) S/C Line	60 kM	AAAC Panther	New	
	Load	20MW	Load	at 33 kV Bus	
2	Establishment of new 220/33 kV (2 X 100 MVA) S/s at Bihpuria			New Substation	24x7-PFA
	<b>220 kV:</b>				

SL NO	SCOPE OF WORK	ROUTE LENGTH/ LOAD (CKM/MW)	TYPE OF CONDUCTOR	Remarks (NEW/EXISTING/ AUGMENTATION)	Justification/Approval
	220KV Bihpuria (AEGCL-New) - Sonabil (AEGCL-Existing) D/C Line ** actual route length is 123 km. 55km line is completed by AEGCL from Sonabil end . Remaining 78 km is to be completed under this project	78km	AAAC Zebra	New	
	Load	30 MW	Load		
3	Establishment of new 220/132 kV (2 X 160 MVA) and 132/33 kV (2 X 50 MVA) GIS Substation at Agamoni			New Substation	
	220 kV:				
	LILO of both ckt of Birpara (PGCIL) - Bongaigaon (PGCIL) D/C line at Agamoni (AEGCL- New)	25 km	ACSR Zebra	New	6th SCM (220/132kV SS), 24X7-PFA (132/33kV)
	132 kV:				
	LILO of Gossaigaon - Gauripur S/C (AEGCL-Existing) Line at Agamoni (AEGCL- New)	10 km	HTLS	New	
	Load	16 MW	Load		
4	Establishment of new 220/132 kV (2 X 160 MVA) GIS Substation at Shankardevnagar			New Substation	
	220 kV:				
	Shankardevnagar (AEGCL-New) - Misa (AEGCL-Existing) D/C Line	25 km	ACSR Zebra	New	5th SCM (220/132kV SS)
	Shankardevnagar (AEGCL-New) -	50 km	AAAC Zebra	New	

SL NO	SCOPE OF WORK	ROUTE LENGTH/ LOAD (CKM/MW)	TYPE OF CONDUCTOR	Remarks (NEW/EXISTING/ AUGMENTATION)	Justification/Approval
	LKHEP (APGCL) D/C Line- (Other Source)				
5	<b>Establishment of new 220/33 kV (2 X 100 MVA) GIS Substation at Boragaon (Jalukbari)</b>			<b>New Substation</b>	24X7-PFA
	<b>220 kV:</b>				
	Boragaon (Jalukbari) (AEGCL-New) - Kukurmara (AEGCL-Existing) D/C Line	21 kM	18 kM OH & 3 kM UG Cable	New	
	Load	30 MW			
6	<b>Establishment of new 220/33 kV (2 X 100 MVA) GIS Substation at Panjabari</b>			<b>New Substation</b>	24X7-PFA
	<b>220 kV:</b>				
	LILO of Sonapur-Sarusajai (AEGCL-Existing) -S/C Line at Panjabari (AEGCL-New)	3 kM	AAAC Zebra	New	
	Load	30 MW			
7	<b>Establishment of new 220/33 kV (2 X 100 MVA) GIS Substation at Jakhlabandha</b>			<b>New Substation</b>	24X7-PFA
	<b>220KV:</b>				
	LILO of 220kv Samaguri-Mariani line 1 (AEGCL-Existing) at Jakhlabandha(AEGCL-New) S/C line	10KW	AAAC Zebra	New	
	Load	18MW			
8	<b>Establishment of new 132/33 kV (2 X 50 MVA) Substation at Dhing</b>			<b>New Substation</b>	24X7-PFA
	<b>132 kV:</b>				

SL NO	SCOPE OF WORK	ROUTE LENGTH/ LOAD (CKM/MW)	TYPE OF CONDUCTOR	Remarks (NEW/EXISTING/ AUGMENTATION)	Justification/Approval
	Dhing (AEGCL- New) - Nagaon (AEGCL- Existing) - S/C Line	35 kM	AAAC Panther	New	
	Load	12 MW			
9	<b>Establishment of new 132/11 kV (2 X 31.5 MVA) GIS Substation at Ghungur (Silchar-2)</b>			<b>New Substation</b>	24X7-PFA
	<b>132 kV:</b>				
	Ghungur (AEGCL- New) - Srikona (AEGCL- Existing) - S/C Line	10 kM	XLPE Armoured Al Cable	New	
	Load	20 MW			
10	<b>Establishment of new 132/33 kV (2 X 50 MVA) GIS Substation at Titabor</b>			<b>New Substation</b>	24x7-PFA
	<b>132 kV:</b>				
	Titabor (AEGCL-New) - Mariani (AEGCL- Existing) D/C Line	20 kM	AAAC Panther	New	
	Load	24 MW			
11	<b>Establishment of new 132/11 kV (2 X 31.5 MVA) GIS Substation at Zoo Road</b>			<b>New Substation</b>	COMMERCIAL AREA WITHIN GUWAHATI
	<b>132 kV:</b>				
	Zoo Road (AEGCL- New) - GMC (AEGCL- Existing) S/C Line	8 kM	XLPE Armoured Al Cable	New	
	Load	25 MW			
12	<b>Establishment of new 132/33 kV (2 X 50 MVA) GIS Substation at Chhaygaon</b>			<b>New Substation</b>	24x7-PFA
	<b>132 kV:</b>				
	Chhaygaon (AEGCL- New) - Boko (AEGCL- Existing) D/C Line	20 kM	AAAC Panther	New	
	Load	28 MW			

SL NO	SCOPE OF WORK	ROUTE LENGTH/ LOAD (CKM/MW)	TYPE OF CONDUCTOR	Remarks (NEW/EXISTING/ AUGMENTATION)	Justification/Approval
13	<b>Establishment of new 132/33 kV (2 X 50 MVA) GIS Substation at Kumarikata</b>			<b>New Substation</b>	** New Proposal
	<b>132 kV:</b>				
	Kumarikata (AEGCL-New) - Nalbari (AEGCL-Existing) S/C Line on D/C Tower	40 kM	AAAC Panther	New	
	Load	10 MW			
14	<b>Establishment of new 132/33 kV (2 X 50 MVA) GIS Substation at Burhigaon</b>			<b>New Substation</b>	**New Proposal
	<b>132 kV:</b>				
	LILO of Rowta-Sipajhar (AEGCL-Existing) S/C Line at Burhigaon (AEGCL-New)	15 kM	AAAC Panther	New	
	Load	15 MW			
15	<b>Establishment of new 132/33 kV (2 X 50 MVA) GIS Substation at Chabua</b>			<b>New Substation</b>	**New Proposal
	<b>132 kV:</b>				
	LILO of Tinsukia (AEGCL-Existing) - Dibrugarh (AEGCL-Existing) S/C Line	8 kM	AAAC Panther	New	
	Load	18 MW			
16	<b>Establishment of new 132/33 kV (2 X50 MVA) GIS Substation at Morigaon</b>			<b>New Substation</b>	**New Proposal
	<b>132 kV:</b>				
	Baghjhap(Existing)-Morigaon(New) D/C Line.	20km	AAAC Panther	New	
	Load	15 MW			

SL NO	SCOPE OF WORK	ROUTE LENGTH/ LOAD (CKM/MW)	TYPE OF CONDUCTOR	Remarks (NEW/EXISTING/ AUGMENTATION)	Justification/Approval
17	<b>Establishment of new 132/33 kV (2 X 50 MVA) GIS Substation at Nagaon-2</b>			<b>New Substation</b>	24x7-PFA
	<b>132 kV:</b>				
	LILO of Samaguri (AEGCL- Existing) - Nagaon (AEGCL- Existing) S/C Line at Nagaon-2 (AEGCL- New)	10 kM	AAAC Panther	New	
	Load	25 MW			
18	<b>Establishment of new 132/33 kV (2 X 50 MVA) GIS Substation at Amayapur</b>			<b>New Substation</b>	**New Proposal
	<b>132 kV:</b>				
	Amayapur (AEGCL- New) - Hajo (AEGCL- Existing) D/C Line	25 kM	AAAC Panther	New	
	Load	15 MW			
19	<b>Establishment of new 132/33 kV (2 X 50 MVA) GIS Substation at Lumding</b>			<b>New Substation</b>	**New Proposal
	<b>132 kV:</b>				
	LILO of Shakardevnagar (AEGCL- Existing) S/C Line - Diphu (AEGCL- Existing) S/C Line at Lumding (AEGCL- New)	10 kM	AAAC Panther	New	
	Load	16 MW			
20	<b>Establishment of new 132/33 kV (2 X 50 MVA) Substation at Serfanguri</b>			<b>New Substation</b>	**New Proposal
	<b>132 kV:</b>				
	Serfanguri (AEGCL- New) - Kokrajhar	18 kM	AAAC Panther	New	

SL NO	SCOPE OF WORK	ROUTE LENGTH/ LOAD (CKM/MW)	TYPE OF CONDUCTOR	Remarks (NEW/EXISTING/AUGMENTATION)	Justification/Approval
	(AEGCL-Existing) D/C Line				
	Load	15 MW			
21	<b>Establishment of new 220/132 kV (2 X 160 MVA) Substation at Rowta</b>			<b>Augmentation</b>	CEA recommendation
	<b>220 kV:</b>				
	Rowta (AEGCL- New) - Rangia (AEGCL- Existing) D/C Line	80 KM	AAAC Zebra	New	
22	<b>Establishment of new 132/33 kV (2 X 50 MVA) Substation at Dhupdhara</b>			<b>New Substation</b>	24x7-PFA
	<b>132 kV:</b>				
	Dhupdhara (AEGCL- New) - Boko (AEGCL- Existing) D/C Line	25 KM	AAAC Panther	New	
	Load	8 MW			
23	<b>Establishment of new 400/220 kV (2 X 500 MVA) Substation at Rangia</b>			<b>New Substation</b>	7th SCM
	<b>400 kV:</b>				
	LILO of 1 ckt of Balipara (PGCIL)- Bongaigaon (PGCIL) Line at Rangia (AEGCL-New)	21 KM	ACSR Twin Moose	New	
	80MVA Line Reactors	2 nos.		New	
	125 MVAR Bus Reactor	2 no.		New	
	<b>220 kV:</b>				
	LILO of 1 ckt of Rangia - Amingaon (Existing- AEGCL) Line at Rangia (AEGCL-New)	10 KM	ACSR Zebra	New	
	Rangia (AEGCL- Existing) - Rowta (AEGCL-New) D/C Line	80 KM	ACSR Zebra	New	

SL NO	SCOPE OF WORK	ROUTE LENGTH/ LOAD (CKM/MW)	TYPE OF CONDUCTOR	Remarks (NEW/EXISTING/ AUGMENTATION)	Justification/Approval
24	Establishment of new 400/220 kV (2 X 500 MVA) Substation at Sonapur			New Substation	5th SCM
	400 kV:				
	LILO of 1 ckt of Silchar (PGCIL)-Byrnihat (Meghalaya) Line at Sonapur (AEGCL-New)	25 kM	ACSR Twin Moose	New	
	63 MVA Line Reactors	1 nos.			
	80 MVAR Bus Reactor	2 no.			

**\*\* New proposal to provide power to remote areas in radial mode, reliable power supply to Tea Estate, Cottage Industries and areas under Rural Electrification**

**B. DETAILS OF COST COMPONENTS OF TRANSFORMER CAPACITY AUGMENTATION OF EXISTING SUBSTATIONS:**

SL. NO.	Name of Substation	Net Capacity Addition in MVA
1.01	<b>Narengi:</b> 2x50 MVA, in place of 2x25 MVA, 132kV	<b>50</b>
1.02	<b>Bornagar:</b> 2x50 MVA, in place of 2x25 MVA, 132/33kV	<b>50</b>
1.03	<b>Moran:</b> 2x50 MVA, in place of 2x16 MVA, 132/33kV	<b>68</b>
1.04	<b>Gauripur:</b> 2x50 MVA, in place of 2x25 MVA, 132/33kV	<b>50</b>
1.05	<b>Dibrugarh:</b> 2x50 MVA, in place of 2x31.5 MVA, 132/33kV	<b>37</b>
1.06	<b>Depota:</b> 2x50 MVA, in place of 2x31.5 MVA, 132/33kV	<b>37</b>
1.07	<b>Kahilipara:</b> 3x50 MVA, in place of 2x31.5 MVA & 1x30 MVA, 132/33kV	<b>57</b>



1.08	<b>Rangia:</b> 2x50 MVA, in place of 2x25 MVA, 132/33kV	<b>50</b>
1.09	<b>Golaghat:</b> 2x50 MVA, in place of 2x25 MVA, 132/33kV	<b>50</b>
1.10	<b>Sankardeb nagar:</b> 2x50 MVA, in place of 2x25MVA, 132/33kV	<b>50</b>
1.11	<b>Panchgram:</b> 2x50 MVA, in place of 2x25MVA, 132/33kV	<b>50</b>
1.12	<b>Boko:</b> 1x160 +1x100 MVA, in place of 1x50 +1x100 MVA, 220/132kV	<b>110</b>
1.13	<b>Agia:</b> 1x160 +1x100 MVA, in place of 1x50 +1x100 MVA, 220/132kV	<b>110</b>
	<b>TOTAL</b>	<b>769.00</b>

### C. Capacity Augmentation of Transmission lines

SI No	Name of Line	Route Length KM	Circuit Type	CkM
1	2	3	4	
<b>1</b>	<b><u>TRANSMISSION LINES</u></b>			
1.01	BTPS (Salekati) – Dhaligaon 132kV D/C line	38	D/C	76
1.02	Kukurmara – Sarusajai 220kV D/C line	24	D/C	48
*1.03	Gossaigaon – Gauripur 132kV S/C line	62	S/C	62
	<b>TOTAL</b>	<b>124</b>		<b>186</b>

\* Re conductoring of this line is recommended by CEA because of overloading of Gossaipur-Gauripur line due to feeding of power from 220KV Agamoni SS by LILoing of this line.

### D. Bay Extension in Existing Substations

SL. NO.	Name of Existing Substation where bay Extension required	No. of Bays
1.01	<b>Azara:</b> Two 220 kV line bays for Azara-Boragaon 220 kV Line	2
1.02	<b>Mariani:</b> Two 132 kV Line bays for Mariani - Titabor D/C line.	2
1.03	<b>Srikona:</b> One 132 kV Line bay for Srikona - Ghungur S/C Cable line.	1
1.04	<b>Baghjap (Jagiroad):</b> Two 132 kV Line Bays for Nagaon - Baghjap D/C line	2
1.05	<b>Nagaon:</b> Three 132 kV Line Bays for Nagaon - Baghjap D/C line.	3
1.06	<b>Moran:</b> Two 132 kV Line Bays for Moran-Betbari S/C Line	2
1.07	<b>Sibasagar:</b> Two 132 kV Line Bays for Moran-Betbari S/C Line	2

1.08	<b>Sarupathar:</b> One 132 kV Line Bay for Khumtai - Sarupathar 132 kV S/C Line	1
1.09	<b>GMC GIS:</b> One 132kV GIS Line Bay for GMC - Zoorad UG Cable line	1
1.1	<b>Nalbari:</b> One 132kV line bay for Nalbari - Kumarikata 132kV line	1
1.11	<b>BOKO:</b> Four line bays for Boko - Chhaygaon 132kV D/C line& Boko – Dhupdhara 132kV D/C line	4
1.12	<b>BOKAJAN:</b> One 132kV line bay for Bokajan-Diphu 132kV S/C line	1
1.13	<b>DIPHU:</b> One 132kV line bay for Bokajan-Diphu 132kV S/C line	1
1.14	<b>HAJO:</b> Two line bays for Hajo - Bogaribari 132kV D/C line	2
1.15	<b>Boko:</b> Two 132 kV line bays for Boko-Dhupdhara 132 kV D/C Line	2
1.16	<b>Kokrajhar:</b> Two 132 kV line bays for Kokrajhar-Serfanguri 132 kV D/C Line	2
	<b>TOTAL BAY EXTENSION</b>	<b>29</b>

#### **E. Conversion of Air Insulated S/S(AIS) to Gas Insulated S/s(GIS)**

<b>SI No</b>	<b>Name of Work</b>	<b>Name Of Substation</b>
1.01	Conversion of Air Insulated S/S(AIS) to Gas Insulated S/s(GIS) (One No.)	<b>132/33KV Gohpur</b>

#### **F. Replacemnet of Ground Wire to OPGW**

<b>SL. NO.</b>	<b>Name of Links</b>	<b>km/nos.</b>
1	Fiber Optics on balance transmission lines of AEGCL,	615km
2	Fiber Optics on Station Equipments at various Substation .	18nos.