महापारेषण

MAHARASHTRA STATE ELECTRICITY TRANSMISSION COMPANY LIMITED

(CIN No. : U40109MH2005SGC153646)

Name of Office: Office of the Chief Engineer (State Transmission Utility)	**To,** **The Secretary ,** **Maharashtra State Electricity Regulatory Commission,** **13 Floor, World Trade Centre,** **Cuffe Parade, Mumbai6ty70**
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Ref: MSETCL/CO/STU/STU PLAN/ 3176 **Date:** 3/9/2020

Sub: Submission of State Transmission Utility Plan Five Year 2019-20 to 2024-25.
Transmission Plan of Maharashtra State –At a Glance Sheet thereof.

Ref:
1) Electricity Act 2003,
2) MERC State Grid Code,2006

Respected Sir,

As per clause 39 of Electricity Act & Regulation 8, of MERC (State Grid Code) Regulations - 2006, State Transmission Utility has prepared Five Year Transmission Plan (2019-20 to 2024-25) for the State of Maharashtra after considering all aspect as per Act, Regulations and comments /suggestions from the utilities incorporated in the plan.

A copy of At a Glance Sheet year wise and zone wise of STU Five Year Plan is herewith enclosed & submitted to the Hon'ble Commission for information and further needful please.

Subsequently the detailed booklet of STU Five Year Transmission plan will be submitted to the Hon'ble commission soon & shall be made available on website of MAHATRANSCO for reference of all stake holders,

With regards,

Encl: At a Glance Sheets

(S S Jewalikar)
Chief Engineer (STU)

Copy s. w. r. s. to:
1. Chairman & Managing Director, MSETCL, Corporate Office, Mumbai.
2. The Director (Projects/Operations), MSETCL, Prakashganga, Mumbai.
3. The Director (Finance), MSETCL, Prakashganga, Mumbai
4. The Director (Projects/Operations) MSEDCL, Prakashgad, Mumbai
5. Adanai Electricity Mumbai ltd, 220kV Aarey ,Mumbai
6. The Tata Power Co. Ltd-Transmission , Dharavi receiving station, Mumbai

AMRAVATI ZONE

Sr. No.	Particulars	Vol level	2019-20 (Current Year)	2020-21	2021-22	2022-23	2023-24	2024 - 25
A-1	Substation (10)	220 kV		Pandharkawda (2X100) 220/132 Yavatmal (Strengthening)			220/132/33 kV Lonar (Strenthening/ MSEDCL) Buldhana	
			220/33 kV Ner (Watfali) (MSEDCL) Yavatmal					
				220/132 Warud (Strengthening) Amravati (Spillover)				
			220/132 kV Malkapur (Strengthening) Buldhana (Spillover)				132/33 kV Mukutban (MSEDCL) Yavatmal	
		132 kV	132/33 kV Ralegaon (MSEDCL/Tribal) Yavatmal			132/33 kV Karanja (Ramzanpur) (MSEDCL) Akola		
						132/33 kV Babhulgaon (MSEDCL) Yavatmal		
						132/33 kV Karajgaon (MSEDCL) Amravati		
A-2	Associated Lines	220kV		Wani – Pandharkawada D/C Line - 60 kms			220 kV Malegaon - Lonar DC line - 42 kM	
			220 kV SC line on DC towers from 220 kV Badnera to Ner - 49 kms					
				220 kV Kalmeshwar - Warud DC Line– 171.27 ckm for Warud ss				
			LILO one one ckt of 220 KV M/C line from 220 kV Paras – Balapur at Malkapur - 80 kms					
		132kV	LILO on 132 kV Yavatmal -Pandharkawada line at Ralegaon -40 kms				LILO on 132 kV Malegaon - Mehekar SCDC Line at Lonar	
			Reorientation of 132 kV lines) LILO on 132 kV Malkapur – Paras circuit & 132 kV Malkapur – Khamgaon circuit (M/C line on M/C tower) –10 kms for Malkapur ss				LILO on one ckt of 132 kV Dusarbid - Mantha line at Lonar	
			LILO on one circuit of 132 kV Malkapur – Bhusawal (Khadka) circuit to Malkapur ss (D/C line on D/C tower) – 10 kms				132 kV SCDC line from Lonar - Risod	
						132 kV DC line from 220 kV Dhamangaon to 132 kV Babhulgaon – 27 kms	LILO on one ckt of 132 kV DCDC line from Pandharkwda - Mukutban TSS at Mukutban - 6 km	
						LILO on 132 kV Chandur Bazar - Achalpur line at Karajgaon - 20 kms		
						132 kV D/C line from 220 kV Balapur – Karanja - 25 kms		

AMRAVATI ZONE

Sr. No.	Particulars	Vol level	2019-20 (Current Year)	2020-21	2021-22	2022-23	2023-24	2024 - 25
B	Link Lines	220 kV		Wardha (PG) - Yavatmal DC Line	Yavatmal – Ghatodi			
		132 kV	LILO of Amravati - Morshi at Nandgaon Peth (	Bhokardan - Dhad		Murtizapur - Karanja SC DC line - 38 kms	Deolgaon Raja - Jafrabad SCDC line	
				Yavatmal - Yavatmal MIDC line at Darwha				
C -1	2nd ckt stringing	132 kV	Malegaon - Mehekar			Nepanagar(Pipalpani) - Dharni		
			Durgwada - Anjangaon					
			Washim - Jambazar					
			Akot - Hivarkhed					
C-2	Reorientation	132 kV						
C-3	HTLS	132 kV						
C-4	Conversion of SC to DCDC	132 kV						
D-1	Creation of New Level	220 kV			Dhamangaon (2X100) 220/132	Warud (2X25) 220/33		
D-2	ICT - Addition	400 kV		Akola (3x167) 400/220				
		220 kV	Balapur (1x100) 220/132	Malegaon (1x100) 220/132			Nandgaon Peth 2nd ICT (1x100) 220/132	
				Anjangaon (1x100) 220/132				
D-3	ICT - Replacement	400 kV						
		220 kV						
D-4	Transformers - Addition	132 kV	Durgwada (1X25) 132/33	Dharni(1X25) 132/33	Motala (1X25) 132/33			
			Dhad (1X25) 132/33		Risod (1X25) 132/33			
			Lalkhedi (1X25) 132/33		Buldhana (1X25) 132/33			
					Karanaja (1X25) 132/33			
					Dusarbid (1X25) 132/33			
					Washim (1X25) 132/33			
D- 5	Transformers - Replacement	220 kV	Akola 1X(50-25) 132/33					
		132 kV		Gunj 1X(50-25) 132/33	Pandharkawda 2X(50-25) 132/33			
					Chandur Bazar 2X (50-25) 132/33			
E-1	Reactor - New	400 kV	Akola 1 X125					
E-2	Reactor-Shifting	400 kV						
F	Capacitor	33 kV	11 No's S/S - 130 MVAR					
			10 NO's S/S - 115 MVAR (Spillover)					
		132 kV		9 No's. S/s- 270 MVAR (p4)				

AURANGABAD ZONE

Sr No	Particulars	Vol. level	2019-20 (Current Year)	2020-21	2021-22	2022-23	2023-24	2024-25
A 1	Substation (9)	220 kV	220/132/33 kV Narangwadi (Strengthening) Osmanabad	220/132 kV Kurunda (Strengthening) Hingoli			220/33 KV Bidkin DMIC project (MIDC) Aurangabad	
				220/33 kV Shendra DMIC Project (MIDC) Aurangabad			220/132 kV Narsi	
			220/132 kV Georai (Strengthening) Beed					
		132 kV			132/33 kV Ner (Seoli) / Utwad (Ramnagar) (MSEDCL) Jalna			
						132/33 kV Mahur (MSEDCL) Nanded		
						132/33 kV Barashiv (Hanuman Nagar/Aundha) (MSEDCL) Hingoli		
A2	Associated Lines	220 kV	220 kV DC line from 400 kV Solapur (PG) – Narangwadi – 140 ckt kms.	220 kV DC line from 400 kV Nanded (Kumbhargaon) to Kurunda - 50 kms			220 kV DC line from Aurangabad (PG) to Bidkin DMIC - 40 ckt kms	
				LILO on one circuit of 220 kV DC line from 400 kV Aurangabad (PG) – Shendra at 220kV Shendra (AURIC) (DMIC Project) – 8 Km			220 kV DC line from 220 kV Krishnoor to 220 kV Narsi S/s - 15 kms	
			220 kV DC line from 400 kV Thapti Tanda (400 kV Aurangabad II) s/s to Georai with bays – 70 kms.	LILO on 220 kV Girawali - Hingoli line at Kurunda - 25 kms				
		132 kV	LILO on 132 kV Nilanga - Omerga at Narangwadi – 30 ckt kms	132 kV interconnection of LV side (132 kV) of 220/132 kV ICT with existing 132 kV Kurunda AIS bus – 1.5 km.	LILO of 132 kV Jalna Old (Kanhaiyanagar) - Partur line at Ner (Seoli) S/s			
			LILO on 132 kV Killari - Omerga at Narangwadi – 14 ckt kms	Reorientation of 132 kV lines on MCMC towers at 220 kV Kurunda with bays. – 15 kms.		LILO of 132 kV Kurunda - Hingoli line at Barashiv S/s		
			LILO on one ckt of 132 kV Beed – Georai line at 220 kV Georai with bays - 10 ckt kms.			132 kV Gunj - Mahur SCDC line - 25 kms		
			132 kV Georai – Majalgaon SCDC line with bays -25 ckt kms.			132 kV Kinvat - Mahur SCDC line - 45 kms		
							LILO of 132 kV SCDC Mukhed - Kundalwadi line at 220 kV Narsi S/s - 12 kms	
							LILO of 1 ckt of 132 kV DC Narsi - Degloor line at 220 kV Narsi S/s (Proposed) - 2 kms	
			LILO on 132 kV Georai – Mahakala line at 220 kV Georai – 5 km.				LILO of 132 kV SC line from 220 kV Waghala – 132 kV Narsi at 220 kV Narsi S/s (Proposed) – 5 kms	

AURANGABAD ZONE

Sr No	Particulars	Vol. level	2019-20 (Current Year)	2020-21	2021-22	2022-23	2023-24	2024-25
B	Link Lines	400 kV		Bhusawal-II - A'bad-I at Tapthitanda				
		220 kV	Parli - Harangul line at Parli (PG)	Interlinking of Waluj - Chitegaon with Padegaon Sawangi (Spillover)	Nagewadi Bhokardan			
					LILO on one circuit of 220 kV D/C Chikhali - Jalna line at 220 kV Jalna MIDC (Nagewadi) – 30 ckt kms ***(Remaining scope of Nagewadi Work)***			
			Parli - Osmanabad at Parli (PG)		220kV Patoda-Sonewadi DC link -80 ckm			
		132 kV	Bhokar - Himayatnagar		Ambad – Ghansawangi at Partur.		Patoda - Raimoha SCDC (GEC)	
			Garware - Bajaj	Kharda - Ashti (GEC)		Majalgaon – Pathri	Jintoor - Yeldari at Partur.	
			Bhokar - Tamsa			132 kV line from 220 kV Georai - Mahakala	Kharda - Ashti at Patoda (GEC)	
			Kagzipura - Kannad at Deogaon Rangari			132 kV line from 220 kV Partur - to Mantha		
			Jalna - Jalna Old at Nagewadi	LILO on 132 kV Chakur - Ahmedpur SCDC line at 220 kV Jalkot – 50 ckt kms ***(Remaining scope of Jalkot Work)***				
C -1	2nd ckt stringing	220 kV	Padegaon - Sawangi			Ghatodi - Hingoli		
		132 kV	Beed - Georai (GEC)	Nilanga - Omerga	Kandhar - Mukhed			
			Ambad – Ghansawangi		Umri - Kundalwadi			
			Narsi - Degloor					
			Himayat nagar - Kinwat.					
			Telgaon - Majalgaon					
			Bhokardhan - Rajur					
			Parbhani - Pathri					
			Bhokardan - Jafrabad					
C-2	Reorientation	220 kV						
C-3	HTLS	132 kV	Shendra Chikalthana ACSS					
C-4	Replacement of old conductor	132 kV	Latur - Ujani - Naldurg - Solapur DC line renovation using 0.2 ACSR Conductor (GEC)					

AURANGABAD ZONE

Sr No	Particulars	Vol. level	2019-20 (Current Year)	2020-21	2021-22	2022-23	2023-24	2024-25
D-1	Creation of New Level	400 kV						
		220 kV		Shendra (2X100) 220/132	Shendra DMIC (2X100) 220/132			
				Patoda (2X100) 220/132 (GEC)				
				Manjarsumba (2X100) 220/132 (GEC)				
		132 kV		Jalkot (2X25) 132/33				
D-2	ICT - Addition	400 kV				Thaptitanda (3X 167) 400/220		
		220 kV	Hingoli (1X100) 220/132		Tuljapur 1x(200)220/132kV			
			Chitegaon (1X100) 220/132					
D-3	ICT - Replacement	400 kV						
D-4	Transformers - Addition	400 kV			Waluj (1 X 50) 220/33			
		220 kV						
		132 kV		Harshul (1X50) 132/33	Vaijapur (1X50) 132/33			
				Jafrabad (1X25) 132/33				
				Deolai (1X25) 132/33				
				Nilanga (1X50) 132/33				
				Akhada Balapur (1X25) 132/33				
D-5	Transformers - Replacement	220 kV	Jalna 2X(100-50) 220/33-33					
		132 kV	Elichpur 2 X (50-25) 132/33		Udgir 1X(50-25) 132/33			
			Ambad 1 X (50-25) 132/33					
E- 1	Reactor - New	400 kV	1X125 MVAr at Nanded	1 x (125-50) MVAr at Girawali				
			1X125 MVAr at Waluj					
E- 2	Reactor - Shifting	400 kV						
F	Capacitor	33 kV	6 Nos. S/S - 60 MVAR	10 Nos.S/s - 285 MVAr				
			12 Nos. S/S - 110 MVAR					

KARAD ZONE

Sr. No.	Particulars	Voltage level	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
A1	Substation (1)	220 kV				220/33 kV Kasbe Digraj (MIDC) Sangli		
A2	Associated Lines	220				LILO on Karad-Miraj S/S line at Kasbe Digraj -10 km		
B	Link Lines	220 kV		LILO of one ckt of 220 kV Mhaishal - Jath line at Alkud – 46 ckt kms (GEC II) (Remaining scope of Alkud work)	Karad - Koyna			
		132 kV	Ambheri - Aundh	Kudal - Kankawali				
		110 kV	Ogalewadi - Mayani	Mudshingi (Kolhapur) - Puikhadi	Kavathe M'kal - Jath (GEC)	Conversion of Miraj - Tasgaon SCSC to DCDC	Conversion of 110 kV Vishram - Borgaon	
			Kavathe Mahankal - Sawlaj (GEC)	Dudhganga - Radhanagri at Bidri	Niwaliphata - Ratnagiri	Jaysingpur - Kurundwad		
			Tap to LILO at Ashta	Peth - Borgaon				
			Interlink Jath - Jath			Wathar - Kale (T)		
C-1	2nd ckt stringing	220 kV	Miraj - Tilawani (Icchalkaranji) (GEC)					
		132 kV	Aundh-Dahiwadi (GEC)					
		110 kV		Kale (T) - Warana				
C-2	Reorientation	220 kV						
C-3	HTLS	110 kV						
C-4	Replacement of conductor	110 kv						
D-1	Creation of New Level	220 kV	Peth (1X100) 220/110 (Spill Over)					
D-2	ICT - Addition	400 kV		New Koyna (3x105) 400/220	Alkud (1X500) 400/220 (Remaining Scope)			
		220 kV	Satara MIDC (1X100) 220/132	Peth (1X100) 220/110				
				Niwali (1X100) 220/132-110				
D-3	ICT - Replacement	400 kV	Talandge 3X(167-105) 400/220					
D-4	Transformers - Addition	220 kV	Kharepatan (1X25) 220/33	Miraj (1X50) 110/33	Satara MIDC (1X50) 132/33			
				Phaltan MIDC (1X25) 220/33				
		132 kV	132 Wai (1X25) 132/33					
		110 kV	Gokulshirgaon (1X50) 132-110/33					
D-5	Transformers - Replacement	132 kV			Phaltan 2X (50-25) 132/33			
		110 kV	Ichalkarnji 1X(50-25) 132-110/33	Ratnagiri 1 X (50-25) 110/33				
			Ashta 2X(50-25) 132-110/33					
			Sankh 2 X (50-25) 110/33					
E	Reactor	400 KV						
F	Capacitor	33 kV	12 Nos - 125 MVAr (Phase - III)					
			8 Nos. - 80 MVAr					

NAGPUR ZONE

Sr. No.	Particulars	Voltage level	2019-20 (Current Year)	2020-21	2021-22	2022-23	2023-24	2024-25
		220 kV				220 /33 kV Sakoli (MSEDCL) Bhandara	Evacuation arrangement for GMR EMCO	0
				220/132/33 kV Uppalwadi (Ring Main Strengthening) Nagpur				
				220/132/33 kV Naghbid (Tribal/MSEDCL) Chandrapur	220/132/33 kV Mankapur (Strengthening) Nagpur	Evacuation arrangement for 2X660 MW generation of Koradi	220/33 kV Pachgaon (Kuhi) MSEDCL, Nagpur	0
				220/132/33 kV New Pardi (Ring Main Strengthening) Nagpur			220/33 kV Kadholi (MSEDCL) Nagpur	
A-1	Substation (17)		220/132/33 kV Karanja (Strengthening) Wardha		132/33 kV Bazargaon (MSEDCL) Nagpur			
		132 kV	132/33 kV Chamorshi (Tribal/MSEDCL) Gadchiroli		132/33 kV Sironcha (MSEDCL/Tribal) Gadchiroli			
			132/66 kV Allapally (MSEDCL/Tribal) Gadchiroli	132/33 kV Kolari (MSEDCL) Chandrapur	132 /33 kV Lendra Park (GIS) (MSEDCL) Nagpur		132/33 kV Mihan (MSEDCL) Nagpur	
						132/33 kV Deori (MSEDCL/Tribal) Gondia		
					132/33 kV Jat Tirodi (MSEDCL) Nagpur			
		220kV				220 KV Sakoli Bhandara DC line-40 kM	LILO of one ckt of 220kV Kanhan – Umred DCDC Line for Pachgaon s/s 15 km	
				220 kV DC line from 220kV Umred S/s - 46 Km for 220kV Nagbhid	220 kV DC Uppalwadi-Mankapur U/G-9 Km			
				220 kV Koradi-II to Uppalwadi DC line OH 3.5 KMs, UG Cable 4 kms	LILO on 132 kV Ambazari-Amravati line for 132kV Bazargaon - 5 kms		LILO of one ckt of 220 kV Kanhan - Bhandara line for 220 kV Kadholi - 10 km	
			220 kV DCMC towers by making LILO on 220 kV Ambazari-Amravati SC line at 220 kV Karanja s/s–02.0 kMs	220 kV Uppalwadi - Pardi DC UG cable line 15.5 (Route Km)	132 kV SCDC line from Kistampeth (Telangana) for 132kV Sironcha -35 ckt kms			
A-2	Associated Lines	132kV		LILO of one ckt of 132 kV Asgaon - Bramhapuri line at 220kV Nagbhid S/stn - 21 Km	Reorientation of 132 kV lines at Mankapur OH line 2 Kms U/G Cable 0.2 Km			
			LILO on 132 kV Mul- Ashti line at 132kV Chamorshi–15 kM		LILO on Mankapur - Hingana I- for 132 kV Lendra ss - 7.746 kM (O/H-3.25km,U/G-4.5km)			
			132 kV SCDC line from 132 kV Ashti to 132kV Allapally - 60.126 kms.	LILO at loc no. 20/0 of 132 kv LILO line for Mokhabardi LIS project at Kolari s/s-10 kms		LILO of 132 kV Amgaon - Gondia for 132 kV Deori ss - 41 km		
			LILO on both ckts of 132 kV Amravati - Ambazari DC line at 220 kV Karanja s/s – 2 kMs	Interconnection between 220 kV New Pardi and 132 kV Pardi s/s-2 ckt KM			LILO on 132 kV Hingna II to Khapri line for Mihan S/s - 1 kms	
					132 kV DC undergroundcable from 132 kV Pardi s/s to Jat Tarodi s/–10.0 kms			

NAGPUR ZONE

Sr. No.	Particulars	Voltage level	2019-20 (Current Year)	2020-21	2021-22	2022-23	2023-24	2024-25
B	Link Lines	400 KV				Koradi I - Akola LILO at Koradi II		
						Bhadravati-Chandrapur D/C (Ckt 3 &4) at Chandrapur-II.		
		220 KV				Koradi-II to Mankapur (U/G)- 6kms (Evacuation of Koradi Gen)	220kV DCDC UG cable from GMR S/S to Sai Wardha S/S- 3.5 Km (Evacuation of GMR EMCO Gen)	
		132 KV	Sindewahi - Brahmpuri	LILO of Wardha II-Deoli at Pulgaon				
				132 kV Hingna-I to Hingna-II- 4 Km				
				Sicom to Mul-25km				
C -1	2nd ckt stringing	132 kV	Brahmpuri - Sindhewahi					
			Asgaon – Brahmpuri					
			Mul – Sindewahi					
			Wardha - II - Seloo					
C-2	Reorientation	220 kV						
C-3	HTLS	132 kV		Kaulewada - Gondia	132kV Khapari-Butibori DC line-22km			
C-4	Replacement	132 kV						
D-1	Creation of New Level	400 kV	Khaparkheda (1x25) 220/33				1 x 315 MVA 400/220kV at GMR S/s.	
		220 kV		Ambazari (2 X 25) 132/33				
			Purti (Co –Gen) (2X25) 220/33	Sicom (1 X 100) 220/132				
			Wardha-I (2X50) 220/33					
D-2	ICT - Addition	220 kV		Sicom (1 X 100) 220/132				
D-3	ICT - Replacement	220 kV	Bhandara 1X(200-100) 220/132	Butibori I 2 X (200-100), 220/132	Gadchiroli 1 X (100-50) 220/132			
D-4	Transformers - Addition	400 kV			Khaparkheda (1x25) 220/33			
		220 kV	Sicom (1X50) 220/33		Umred (1X25) 220/33			
		132 kV	Ashti (1X25) 132/33		Hingna I (1 X 50) 132/33			
			Seloo (1X25) 132/33		Hingna II (1 X 50) 132/33			
			Bhandara (1X25) 132/33		Morgaon Arjuni (1X 25) 132/33			
					Gosikhurd (1X 25) 132/33			
					Ambhora (1X25) 132/33			
					Gondia (1 X 50) 132/33			
D-5	Transformers - Replacement	220 kV		Warora (1 X 50-50) 220/66 by 220/33	Kaulewada 2 X (50-25) 220/33			
		132 kV			Bharshinghi 2 X (50-25) 132/33	Deoli 1X(50-25) 132/33		
E-1	Reactor (New)	400 KV	1X125 MVAr, Chandrapur -II	1X125 MVAr, Koradi -II				
			1X125 MVAr, Khaparkheda					
E-2	Reactor (Shifting)	400 KV						
F	Capacitor	33 kV	6 N0's S/S - 40 MVAR					
		132 kV	01 N0's S/S - 30 MVAR					

NASHIK ZONE

Sr. No.	Particulars	Volt level	2019-20 (Current Year)	2020-21	2021-22	2022-23	2023-24	2024-25
A 1	Substation (15)	400 kV			400/220 kV Karjat (Bhose) (Strengthening) Ahmednagar	400/220 kV Pimpalgaon (Strengthening) Nashik		
					Evacuation arrangement for 1X660 MW generation of Bhusawal (ICT Cost)			
		220 kV		220/132 kV Amrapur (Pathardi) (Strengthening) Ahmednagar		220/132/33 kV Nandurbar (MSEDCL/Tribal) Nandurbar	220/33 kV Devasne (MSEDCL) Nashik	
				220/132 kV Pimpalgaon (Strengthening) Nashik		220/132/33 kV Supa MIDC (MIDC) Ahmednagar		
			220 kV Manmad (Strengthening) Nashik				132/33kV Dhanora	
		132 kV			132/33 kV Karkee (MSEDCL) Jalgaon		132/33 kV Lakhmapur (MSEDCL) Nashik	
				132/33 kV Kothali (MSEDCL) Jalgaon			220/33kV Shrirampur	
			132/33 kV Dhadgaon (MSEDCL/Tribal) Nandurbar	132/33 kV Sinnar (Shaha) (Strengthening) Nashik				
A2	Associated lines	400kV			400 kV MC line on MC tower by making LILO on both Ckts of 400 kV Lonikand - II (ckt-I & Ckt-II) - Girawali Line at Karjat - 6 kms.	LILO 400kV A'bad PG-Boisar (PG) DC line at 400 kV Pimpalgaon -3 km		
		220kV				220 kV DC line from 220 kV Dondaicha - Nandurbar – 80 ckt kms		
					220 kV DC line on DC towers from 220 kV Jeur s/s to 400 kV Karajat s/s- 52 kms.	LILO of one circuit of 220 kV Ahmednagar - Bhose DC line at Supa - 40 ckt Km	LILO on 220kV Nasik-Navsari one ck at Devsane / Gholsi phata-15 km	
					220 kV DC line on MC towers by making LILO on 220 kV Bhigwan-Kurkumb line at prop. 400 kV Karjat S/S-18 kms.			
			ROW of 132kV Malegaon-Manmad SCSC line to 220kV DC Malegaon-Manmad line-36Km	220 kV DC line from 400 kV Taptitanda S/s to Amrapur – 75 Km				
				LILO on both ckts of 132 kV Shevgaon – Pathardi DC line at 220 kV Amrapur (Pathardi) S/stn – 5 Km		LILO of both circuits of 132 kV Supa –Vadjire (WIP) DC line at Supa – 20 ckt kms		
				220kV DC line from Pimpalgaon to GCR & ECR Eklahre - 44 km	LILO on one ckt of Nagar - 220 kV Bhose line at 400 kV Karjat s/s - 38 kms.			
		132kV				LILO on one ckt of 132 kV Dondaicha - Nandurbar line at 220 kV Nandurbar MIDC - 10 ckt kms	LILO on 132 kV Kalwan - Dindori at 132kV Lakhampur – 20 ckt kms	
				LILO on 132 kV Babhaleshwar-Kopargaon line at 132 kV Shaha S/s - 31 Kms	132kV Muktainagar to Karkee DC line 20 km	LILO on one ckt of 132 kV Nandurbar - Visarwadi line at 220 kV Nandurbar MIDC - 10 ckt kms.	LILO on 132kV Yawal-Chopda 2nd ckt- 8ckm	
				LILO of one circuit of 132 kV Chalisgaon – Pachora (D/C) Line at 132kV Kothali ss. - 3 Kms		Interconnection between 400 kV Pimpalgaon & 220 kV Pipalgaon S/s - 1 kms	LILO on 220kV Bhenda-Babhleshwar SC line 5 ckm	
			Reorientation of 132kV Chandwad-Lasalgaon line & 132kV Chalisgaon-Pimparkhed line for 220 kV Manmad S/s	132 kV SCDC line from Pimpalgaon to 132 kV Ranvad S/s - 17 kms		Reorientation of 220 kV Eklahre - Pimpalgaon line at 400 kV S/s - 1km		
			132 kV DC line from 132 kV Taloda S/S to 132kV Dhadgaon – 40 kms	132 kV DC line from Pimpalgaon to Dindori S/s - 17 kms				

NASHIK ZONE

Sr. No.	Particulars	Volt level	2019-20 (Current Year)	2020-21	2021-22	2022-23	2023-24	2024-25
B	Link Lines	220 kV		Babhleswar - Kopargaon		Pimpalgaon - Ranvad		
		132 kV	Bhose - Karjat		Ahmednagar - Ahmednagar MIDC DC line	Erandol - Parola	Samsherpur - Nandurbar	
				Bhabhleshhwar-Rahuri- A'nagar **(GEC)**	Raymond - Adgaon at Mhasrul (LILO Shift)			
			Pimpalgaon - Dindori	132 kV DC line from 220 kV Jamner (Kekatnimbhora) to 132 kV Pahur s/s - 20 ckt kms (remaining scope of work)	LILO on 132kV Shivajinagr-Dhule at Sakri -10 ckm			
			Ozhar Chandwad at Pimpalgaon **(GEC)**	Ahmednagar - Supa **(GEC)**				
C -1	2nd ckt stringing	220 kV	Jamde - Valve **(GEC)**	Bhenda - Vishwind DC **(GEC)**				
			Dondaicha - Shahada					
		132 kV	Malegaon - Nampur	Pathardi – Shevgaon **(GEC)**	Eklahare -Sinnar	Shevgaon - Ghodegaon **(GEC)**		
			Belwandi- Shrigonda	Manmad - Yeola **(GEC)**		Benda - Shevgaon **(GEC)**		
			Nandurbar - Visarwadi (GEC)		Bhenda - Newasa	Nagar - Nagar via Nimbalak TSS		
			Parola - Amalner			Sinnar Old - Nashik GCR		
			Taloda - Shahada					
			Amalner - Nardane					
			Amalner-Chopda					
C-2	Reorientation	220 kV						
C-3	Replacement	132 kV			Chalisgaon - Dhule (Replacement)			
C-4	HTLS/	132 kV	GCR-Ambad link line	Raymond-Ambad				
			Eklahare (OCR) - Takli (ACSS)	Conversion of 132 kV Babhleshwar - Sangamner SCSC line into DCDC				
D-1	Creation of New	220 kV		Amalner (2X25) 220/33				
				Pimpalgaon (2 X 50) 132/33				
				Bhose (2X50) 220/33				
D-2	ICT - Addition	400 kV		Khadka (3X105) 400/220				
		220 kV	Kalwan (1X100) 220/132					
			Chalisgaon (1X200) 220/132					
D-3	ICT - Replacement	400 kV	Dhule 3 X (167-105) 400/220	Babhleshwar 3x(167-105) 400/220				
		220 kV						

NASHIK ZONE

Sr. No.	Particulars	Volt level	2019-20 (Current Year)	2020-21	2021-22	2022-23	2023-24	2024-25
D-4	Transformers -	220 kV		Bhenda (1X50), 220/33	Malegaon (1x50) 220/33			
				Kalwan (1X50), 220/33				
				Babhleshwar (1X50), 220/33				
		132 kV	Ahmednagar (1X50) 132/33	Ramache pimplas (1x25) 132/33	Newasa (1x25) 132/33			
			Supa (1X50) 132/33	Rashin (1x25) 132/33	Dindori (1 X 50) 132/33			
			Chalisgaon (1X50) 132/33	Visarwadi (1x25) 132/33	Kedgaon (1 X 50) 132/33			
				Taloda (1X25) 132/33	Khandke (1X25) 132/33			
				Rahuri (1X50) 132/33	Samsherpur (1X25) 132/33			
D-5	Transformers - Replacement	220 kV	Pahur 1X(50-25) 132/33		Sayane 1 X(50-25) 220/33			
		132 kV	Mhasrul 1X(50-25) 132/33		Chandwad 2 X (50-25) 132/33			
E- 1	Reactor - New	400 kV	1 X 125 MVAr, Bhusawal -II (Deepnagar)					
		220 kV	1 X 125 MVAr Dhule	1 X 25 MVAr, Dhule (GEC)				
E- 2	Reactor-Shifting	400 kV						
F	Capacitor	33 kV	23 N0's S/S - 420 MVAR	13 N0's S/S - 375 MVAR				
			20 N0's S/S - 340 MVAR					

PUNE ZONE

Sr. No.	Particulars	Voltage level	2019-20 (Current Year)	2020-21	2021-22	2022-23	2023-24	2024-25
A1	Substation (8)	400 kV			400/220 kV Hinjewadi (MIDC) Pune (Back Charge)			
		220 kV	220/132/22 kV Chinchwad - II (Strengthening) Pune			220/22 kV Bhugaon (MSEDCL) Pune	220/33 kV Marunje / Balewadi (MSEDCL) Pune	
					220/33 kV Khed City (Retwadi)/Kanhersar (MSEDCL) Pune	220/132 kV Waghdari		
		132 kV	132/33 kV Nimboni (MSEDCL) Solapur (Back Charge)				132/33 kV Bibwewadi (MSEDCL) Pune	
A2	Associated line	400kV			LILO on Lonikand I - Koyna Stage IV at Hinjewadi-			
		220kV	220 kV DC line from 220 kV Hinjewadi II - Hinjewadi III - 5 kms			Bhugaon - Pirangut line 15 km	LILO on 220kV Chinchwad - Parvati SC line for 220kV Marunje ss - 5 km	
			220 kV D/C line for reorientation of existing line at 220 kV Chinchwad–II -12 ckt kms (Chakan Telco,Parvati, Urse,Hinjewadi I & Flagship)		LILO on one ckt. of 220kV Lonikand-I – Kathapur DC line at Khed City- 5 kms	LILO on both ckts of 220 kV Solapur PG - Narangwadi at 220 kV Waghdari		
							LILO on Kothrud-Phursungi by UG cable for Bibwewadi ss - 0.75 km	
		132kV	LILO of 132 kV Pandharpur – Mangalwedha SC line - 22 kms for Niboni ss					
					132 kV D/c line for reorientation at 220 kV Chinchwad–II - 6 ckt kms (Chakan,Markal,Bajaj,Ganeshkhind ,Rahatani Talegaon)			

PUNE ZONE

Sr. No.	Particulars	Voltage level	2019-20 (Current Year)	2020-21	2021-22	2022-23	2023-24	2024-25
B	Link Lines	400 KV		LILO of Karad - Lonikand at Jejuri		765 kV Shikrapur(PG) to 400kV Lonikand II DC Line		
		220 kV		Solapur (PG) - Bale DC Line	Chinchwad Apta for Talegaon (PG)	LILO of Chinchwad - Telco at Chakan II		
					LILO of 220 kV Pandharpur - Malinagar at Bhalawani (Remaining scope of 220 kV Bhalawani S/s)	Jejuri - Lonand		
					Urse - Chinchwad	220 kV DC line from 765 kV Shikrapur PG to 220 kV Khed City - 18 kms		
				Biltgraphic - Lonideokar	Chinchwad - Kandalgaon	220 kV DC line from 765 kV Shikrapur PG to 220 kV Ranjangaon S/s using existing corridor - 10 kms		
					Jeur-Paranda DC line -35km	Reorientation of 220 kV Babhleshwar - Ranjagaon ckt & Lonikand - Ranjangaon Ckt at Khed City - 1 kms		
		132 kV		Parvati - Kothrud		220kV TalegaonPG-Chakan DC-6km	LILO of Mahindra Forge-Vignhar at Pimpalgaon	
			Ganeshkhind - Pawana at Rahatani		NCL-Rahatani	LILO of Indapur -Ujani at Lonideokar		
			Akkalkot - Karajgi		Chinchwad-Khopoli (Andralake)		Zuari - Chettinad	
			Chinchwad - Rahatani	Ranjangaon - Kuruli	132 kV Walchandnagar - Bawda SCDC line - 35 kms (Remaining scope of 220 kV Walchandnagar)			
			Magarpatta - Rasta Peth	Ranjangaon - Shirur	132 kV Akkalkot - Waghdar SCDC line - 25 Kms (remaining scope of Waghdari S/s)			
			Theur- Sanaswadi & Kharadi - Markal at LNKND-II		Conversion of 132 kV Phursungi - Mundhwa SC to DC line - 12 km			
				Rahatani - Varasgaon at Flagship	Conversion of 132 kV Theur - Yavat - Daund SC to DC line			
				132kV Chakan to Chakan II ss	NCL-Kothrud -Phursungi			

PUNE ZONE

Sr. No.	Particulars	Voltage level	2019-20 (Current Year)	2020-21	2021-22	2022-23	2023-24	2024-25
C -1	2nd ckt stringing	220 kV	Degaon –Mandrup (GEC)	Lamboti-Vairag	Rahatani –Varasgaon			
			Tap to LILO Volks Wagon					
		132 kV	Malinagar to Velapur	Jeur - Parewadi	Bale -MIDC Solapur	Mohol - Puluj		
			Velapur - ShankarNagar	Naldurg - Waghdari	Waghdari-Akkalkot			
			Purandwade Tap on Bawada Nira Bhima-Walchandnagar	Tap to LILO at 132 kV Bajaj Auto (Chinchwad - Chakan)				
C-2	Reorientation	220 kV						
C-3	HTLS	220 kV	Lonikand - Theur					
		132 kV		Theur - Kharadi			Chinchwad - Narayangaon HTLS	
C-4	Conversion/ Replacement	132kV	Pandharpur - Puluj - Degaon					
D-1	Creation of New Level	400 kV		Lonikand II (2X200) 220/132				
		220 kV		Flagship (2X200) 220/132				
D-2	ICT - Addition	400 kV		Lamboti (Solapur) (3X167) 400/220				
		220 kV		Chakan (1X315) 400/220				
				Rajangaon (1X100) 220/132				
D-3	ICT - Replacement	400 kV						
		220 kV	Magarpatta 2x(200-100) 220/132	Pandharpur 1X(200-100) 220/132-100				
				Jeur 1X(200-100) 220/132				
				Walchandnagar 1X(200-100) 220/132				
D-4	Transformers - Addition	400 kV		Lonikand (1X50) 220/22				
		220 kV		Nanded City(1x50) 220/22	Pirangut (1X50) 220/22			
				Pandharpur (1x50), 220/33	Urse (1X50) 220/22			
		132 kV	NCL (1X50) 132/22	Sanaswadi (1x50) 132/22				
			Kamthadi (1X50) 132/33	Kharadi (1x50) 132/22				
D-5	Transformers -	220 kV	Hinjewadi II 1 X (100-50) 220/22-	Bhalawani 2 X (50-25) 220/33	Telco 1X (100-50) 220/22			
				Tembhurni 1 X (50-25) 220/33	Bhigwan 1 X (50-25) 220/33			
					Vairag 2 X (50-25) 220/33			
		132 kV	Indapur 1 X (50-25) 132/33	Purandvade 1 X (50-25) 132/33				
			Bawda 1X (50-25) 132/33	Walchandnagar 1X(50-25) 132/33				
				Markal 2x(50-25) 132/33				
				Velapur 2 X (50-25) 132/33				
E-1	New Reactor	400 KV	1X125 MVAr, Lonikand - II					
E-2	Reactor	400 KV						
F	Capacitor	220 kV						
		33 kV	13 Substations- 130 MVAr					
			8 Substations - 150 MVAr					
		132 kV	5 substations - 50 MVAr					

VASHI ZONE

Sr. No.	Particulars	Voltage level	2019-20 (Current Year)	2020-21	2021-22	2022-23	2023-24	2024-25
		400 kV			400/220 kV Padghe - II (Kudus) **(Strengthening) Palghar (Spill Over)**		400/220 kV Kalwa -II with 2x500MVA,400/200kV ICT (By Bus Splitting)	400/220 kV Velgaon
		220 kV		220 kV GIS Switching Station **Kharghar/Wagiwali (MSEDCL/NMIA) Raigad**	220/33 kV New Timber Market GIS / Panvel-II **(MSEDCL) Raigad**		220/22 kV Horizon Devlopers/Dombivali (W) **(MSEDCL) Thane**	220/22 kV Palaspe
					220/33 kV Abhitghar **(Wada) (MSEDCL)** Thane	220/22 kV Mankoli / Bhiwandi **(MSEDCL) Thane**	220/22 kV Manor	220/22 kV Dhokali/Pachpakhadi
				220 kV GIS Switching Station Khandeshwar **(MSEDCL/NMIA) Raigad**				220/22 kV Bhaindarpada
					220/22 kV Pawane **(MIDC) Thane**			220/22 kV Pale
A-1	Substation (27)				220/33 kV Ulwe Node GIS **(MSEDCL/NMIA) Raigad**	220/22 kV Virar (West) / Chikhal Dongri **(MSEDCL)** Palghar **(Spillover 18-19)**	220/33 kV Panchanand/Taloja **(MSEDCL)** Raigad	220/33-22 kV Goregaon Filmcity **(MSEDCL) Mumbai**
							220/22 kV Virar (East) **(Kopari) (MSEDCL)**	
				220/132/33 kV Palghar **(MSEDCL/Tribal) Palghar**				
		132 kV		132/33 kV Jawhar **(MSEDCL/Tribal) Palghar**	100/22 kV Kaman (Vasai)/Kharbahv **(MSEDCL) Palghar**		132/33 kV Dapchari **(MSEDCL/Tribal)** Palghar	
		110/100 kV						110/22 kV Urane Puranik
							110/22 kV Gaikwad Pada **(Ulhasnagar) (MSEDCL) Thane**	100/22 kV Dighi(Agardanda/Murud) **(MIDC) Raigad**
		400 kV			400 kV D/C Babhaleshwar-Kudus line- 200 km			LILO on Tarapur-Kudus II DC line
								LILO BoisarPG-Borivali DC
								LILO on Dahaun-Ghodbubdr DC
								LILO Dahanu-Versova SX
								LILO Boisar-Versova SC
					LILO on both ckts of 400 kV Tarapur-Padghe line at Kudus- 15 km			LILO Tarapur-Borivali SC
		220 kV			LILO on 220 kV Tarapur-Borivali & Boisar- Ghodbunder line at Kudus - 10 kms		LILO on 220 kV Boisar (PG)-Vasai on D/C / M/C towers for 220 kV Kopari - 5 km	LILO on 220 kV Kharghar - Kandalgaon line at 220 kV Palaspe S/s
					LILO on 220 kV Padghe-Wada & 220 kV Kolshet-Wada at 400 kV Kudus - 10 km	LILO on 220 kV Boisar (PG)-Vasai line for 220 kV Chikhal Dongri - 4 km	LILO on 220 kV Baapgaon - Kalwa line at Horizon Developers /Dombivali S/s	LILO on 220 kV Temghar - Colourchem line at 220 kV Dhokali /PachpakhdaiS/s

VASHI ZONE

Sr. No.	Particulars	Voltage level	2019-20 (Current Year)	2020-21	2021-22	2022-23	2023-24	2024-25
A-2	Associated Lines			LILO at Panvel end on both ckt of UG cable sec. of 220 kV Kandalgaon - Kharghar line for Khandeshwar - 3 km	LILO on 220 kV Kandalgaon-Kharghar U/G for 220 kV Timber Market - 3km	LILO on 220 kV Kalwa-Bapgaon for 220 kV Mankoli - 300 m	Reorientation of existing 220 kV lines at Kalwa II S/s	LILO on 220 kV Dahanu - Ghodbunder line at 220 kV Bhainderpada S/s
					LILO on one ckt of 220 kV TIFIL-Kalwa U/G cable for 220 kV Pawane - 0.7 km			LILO on Aarey (AEML) - Borivali (AEML) UG cable for Goregaon Film City - 5 km
					LILO on 220 kV Padghe-Wada line for 220 kV Abhitghar - 9 km		LILO on 220 kV Kalwa-Taloja UG cable for 220 kV Panchanand/Taloja - 0.5 km	220 kV DC line from 220 kV Jambhul S/s to Pale S/s
					LILO at Ulwe end on both ckt of UG cable sec. of 220 kV Uran-Kharghar line for 220 kV Ulwe Node - 3 km		220 kV DC line from 220 kV Boisar PG S/s to Manor S/s	
				LILO on 220 kV Boisar (PG)-Nalasopara for Palghar-10 km				
		132 kV		LILO on one ckt of Boisar MIDC-Dahanu line at Palghar- 15 km			132 kV DC Boisar II - 132 kV Dapchari - 25km	
				132 kV D/C Suryanagar/Kawdas-Jawhar line 40 km				
		100 kV						LILO on 110 kV Bhivpuri - Neral line
					LILO on 100 kV Padghe-Vasai for 100 kV Kaman U/G - 1.5 km		LILO on 110 kV Kalyan (TPC) - Ambernath (TPC) UG cable for 110 kV Gaikwad Pada - 1 km	DC line from 100 kV Mashala S/S to Dighi S/S - 45 km
B	Link Lines	400 kV					Padghe - Padghe PG DC Line	
		220 kV	Borivali - Boisar (M) M/C line at Boisar PG					
		100 kV					LILO of 100 kV Ambernath – Mohone at Jambhul	
C -1	2nd ckt stringing	100 kV	Kandalgaon- Mhasala.					
			Jithe – Thal to Gail					
C-2	Reorientation	400 kV	Kalwa - Padghe Ckt 3					
		220 kV	Padghe – Jambhul					
		110 kV	Pal-Dombivali Tap on Taloja (Restoration of Kalwa-Khopoli D/C)					
C-3	HTLS/ Re - conductoring /	400 kV				Conversion of 400 kV Kalwa - Padghe line ckt I into Monopole DC line	Conversion of 400 kV Kalwa - Padghe line ckt II into Monopole DC line	
		220 kV	Kalwa- Mulund- II		Padghe - Temghar Ckt I & II	Conversion of 220 kV Kalwa - Trombay DC line into 220 kV MC HTLS line		

VASHI ZONE

Sr. No.	Particulars	Voltage level	2019-20 (Current Year)	2020-21	2021-22	2022-23	2023-24	2024-25
	Replacement		Mulund - Trombay					
			Kharghar- Trombay					
			Sonekhar-Trombay					
			Boisar (M)-Boisar PG D/C					
		132 kV	Boisar-II-Lupin- MIDC	Boisar MIDC - IOL				
		100 kV	Padghe-Bhiwandi D/C					
D-1	Creation of New Level	220 kV		Jambhul (2 X 50) 220/22 kV				
D-2	ICT - Addition	400 kV						
D-3	ICT - Replacement	400 kV		Padgha 1 X (500-315) 400/220	Nagothane 1 x (500-315)			
					Kharghar 1 x (500-315)			
		220 kV		Taloja 1 X (200-100) , 220/100 kV **(Interchanged with Apta)**				
				Apta 1 X (100-200) 220/100 **(Interchanged with Taloja)**				
				Boisar 1X (200-150) 220/132				
D-4	Transformers - Addition	400 kV		Kharghar (1 X 50) 220/33				
		220 kV		Sonkhar (1X50) 220/33	Nerul (1X100) 220/33-33	Airoli Knowledge Park (1X 50) 220/33		
				Kolshet (1x50) 100/22	Nalasopara (1 X 50) 220/22	Baapgaon (1X50) 220/22		
					ONGC Panvel (1X50) 220/22			
		132 kV				Palghar (1X50) 132/33		
		100 kV		Nocil (1X 50) 100/22	Mohane (1X50) 100/22			
				Neral (1x25), 110/22kV	Ambernath (1x25) 100/22			
D-5	Transformers - Replacement	220 kV	Temghar 1 X (100-50) 220/22-22 kV	Nalasopara 1 X (100-50) 220/22 kV	Colourchem 2 X (100-50) 220/22-22	Mahape 2X(100-50) 220/22-22		
					Kolshet 1 X (100-50) 220/22-22			
					Temghar 1 X (100-50) 220/22-22			
					Mulund 2 X (100-50) 220/22-22			
		132 kV			Boisar MIDC 1 X (50-25) 132/33			
		100 kV	Roha 1 X (50-25) 100/22 kV		Patalganga 1 X (50-25) 100/22 kV			
					Mhasala 1 X (50-25) 100/33 kV			
E	Reactor	400 kV		(1 X 125 MVAr at Kudus)				
F	Capacitor							
G	Series Compensation	220 kV				220 kV S/C Boisar (PG)-Borivali line- 2x250 Mvar		
						220 kV S/C Boisar (M)-Borivali line- 2x250 Mvar		
	Special Project HVDC						Upgradation of existing HVDC control & Protection of C'Pur-Padghe HVDC Bipole link	

STU 5 Year Plan at Glance- AEML-T

S. N.	Particulars	Voltage Level	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
A1	EHV Substations	220kV			220/33 kV GIS EHV S/s at BKC (Golibar)	220/33 kV GIS EHV S/S at Malad		220/33 kV GIS EHV S/S at Khardanda
					220KV Switching S/s at Ghodbunder (Augmentation of Borivali-Ghodbunder-Boisar LILO line) (20-21)	220/33 kV GIS EHV S/S at Dahisar (21-22)		**1000 MW HVDC Terminal Stations at Kudus & Aarey **(Pl. Refer Note)**
						220/33 kV GIS EHV S/S at Kandivali (21-22)		
		400kV	NIL					
A2	Associated Lines	220kV	220kV Cable Connectivity between AEML Aarey – MSETCL Borivali - 30 km		220KV Chembur BKC EHV S/s D/C Line (U/G cable) - 10.5 km (20-21)	LILO of 220kV AEML Aarey-Borivali OH line at Malad by laying 220kV D/C Underground Cable - 1 km		220kV D/C Versova - Khardanda line by Underground Cable -8 km
						220 KV Ghodbunder - Dahisar D/C Line (U/G cable) - 6.5 km (21-22)		**HVDC Cable link lines between Kudus-Aarey **(Pl. Refer Note)**
						LILO of 220kV Boisar-Versova Line at Kandivali - 2 km (21-22)		
		400kV	NIL					
B1	Link Lines	220kV		2nd Feed Chembur LILO of 220 kV MSETCL Nerul-Trombay Line at AEML-T 220 kV Chembur EHV S/Sby U/G cable- 2.5 km			220 kV D/C cable connectivity Between 220 kV AEML-T BKC(Golibar) and 220 kV AEML-T Aarey - 15 km (22-23)	
							220kV D/C cable Connectivity Between Dahisar EHV Station – 220kV AEML-T Borivali EHV S/S - 6 km (22-23)	
C1	2nd Ckt Stringing	220kV	NIL					
C2	Reorientation	220kV	NIL					

S. N.	Particulars	Voltage Level	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
C3	Insulator Replacement	220kV		Replacement of polymer Insulators of AEML - T 220 kV lines (New)				
C4	HTLS		NIL					
D1	Creation of New level	110kV	NIL					
D2	ICT-Addition	220kV	NIL					
D3	ICT-Replacement	220kV	NIL					
D4	Transformers – Addition	220kV		03rd, 220/33 kV, 125 MVA Transformer at Borivali EHV S/s				
D5	Transformers – Replacement	220kV	NIL					
E2	Reactor - Installation	220kV			100-120 MVAR Reactor at Gorai EHV S/s (New)			
F	Capacitor	220kV	NIL					
G	Additional Schemes	220kV & 33kV	CAPEX Scheme at AEML-T Versova EHV Station	33kV AIS to GIS conversion at Versova, Aarey & Ghodbunder 220 kV EHV S/s (22-23)			220kV AIS to GIS Conversion at Versova & Ghodbunder EHV S/s (New) (21-22)	

Note:

<u>1000 MW HVDC Terminal Stations at Kudus & Aarey and HVDC Link</u> -**

Two HVDC schemes were part of STU plan 2018-19 to 2023-24 with a note that consolidated detail study will be carried out considering all Mumbai related schemes separately. Subsequent STU study indicated that with inclusion of 400 kV Velgaon, 400 kV Kalwa Switching, 400 kV Kalwa-Padghe M/C line etc., these HVDC schemes will not be required. However in view of earlier CEA study in this regard and as HVAC schemes were not refered to CEA, the STU study including these HVAC schemes has been now refered to CEA for their comments. Hence 1000 MW Kudus-Aarey HVDC link is included in the year 2024-25 of this STU five year plan (2019-20 to 2024-25) is subject to averse comments if any by CEA in the matter may lead to deletion of the scheme from STU five year plan.

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Sr. No.	Particulars	Voltage level	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
A	Substation	220 kV		220/33 kV Antop Hill S/S			220/33 kV Worli S/S	220/33 kV Vile Parle (22-23)
				220 kV Karanjade/NMIA Switching Station			220/33 kV Goregaon S/S (22-23)	220/33 kV New Dharavi (23-24)
				220 kV Waghivli /NMIA Switching Station				220/33 kV MbPT S/S (New)
		110 kV						
		Total						
B	Associated Lines	220 kV		Tapping of 220 kV Trombay–Dharavi# 9 Line at Antop Hill- 1.5 km			LILO of 220 kV Dharavi-Mahalaxmi Line by U/G cable at Worli - 2 km	220 kV D/C Versova-Vile Parle U/G cable- 2 km (22-23)
				220 kV Trombay - Antop Hill S/C line- 7 km			220 kV Tata-Borivali RS - Goregaon RS S/C line - 8 km (22-23)	220 kV Sahar-Vile Parle- 7 km (New)
							220 kV Sahar RS - Goregaon RS S/C line - 8 km (22-23)	LILO of 220 kV Trombay Dharavi Lines at New Dharavi RS - 1 km (23-24)
								LILO on 220 kV Trombay-Carnac at MbPT (D/C) U/G cable - 2 km (New)
		110 kV						
		Total						
C-1	Link Lines	220 kV		Trombay to Dharavi and Salsette (Interconnection with Saki) (Multi-circuit) -96 km	220 kV Kalwa - Salsette line # 5 - 10 km			
				AEML Versova S/S to TPC Versova (D/C) U/G Cable - 8 km (19-20)	MSETCL Waghivali - Tata Waghivali (D/C) U/G Cable- 2.5 km (22-23)			
					LILO of 220kV Trombay-Salsette-Backbay by U/G cable line at Carnac -0.5 km (22-23)			
		110 kV				110 kV Dharavi RS to BKC RS (S/C) U/G cable - 4 km (New)		
						110 kV Saki RS to Kurla RS (S/C) U/G cable - 5 km		
						110 kV Salsette RS to BKC RS (S/C) U/G cable - 16 km		
		Total						
C-2	2nd ckt stringing	220 kV					220 kV Salsette-Carnac line by U/G cable -21 km (New)	
							220 kV Trombay-Backbay line by U/G cable - 30 km (New)	
		110 kV				110 kV Backbay RS to Carnac RS (S/C) U/G cable - 5 km (21-22)		

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Sr. No.	Particulars	Voltage level	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
		Total						
C-3	Reorientation	220 kV						
		110 kV						
C-4	HTLS/ Cable Replacement of Conductor	220 kV						220- kV Trombay-Dharavi 5, 6 Underground section by U/G cable - 7 km (New)
							Replacement of Trombay-Carnac -5 and 6 OF cable by XLPE cable- 7 km (New)	
		110 kV				Replacement of 110 kV Trombay Parel # 3 OF Cable XLPE Cable- 4 km	Replacement of 110 kV Malad-Versova OF cable by XLPE cable - 9 km (New)	Replacement of cable of 110 kV Parel-Grant Road (New)
						Replacement of 110 kV Trombay Chembur # 1,2, 3 and Khopoli Chembur OF Cable by XLPE Cable - 8 km	Replacement of 110 kV Trombay Carnac # 3 OF cable by XLPE cable - 8 km (22-23)	Replacement of cable of 110 kV Carnac-Grant Road (New)
						Replacement of 110 kV Carnac-Backbay#1and 2 U/G OF Cable by XLPE cable- 10 km (New)		
						Replacement of 110 kV Parel-Mahalaxmi#1 U/G OF Cable by XLPE cable - 6 km (21-22)		
						Replacement of 110 kV Dharavi-Mahalaxmi OF cable by XLPE cable- 6 km (21-22)		
		Total						
D-1	Creation of New Level	220 kV		220 kV level creation at 110 kV Versova, 2x125 MVA T/Fs (19-20)				
D-2	ICT - Addition	400 kV						
		220 kV					2 x 250 MVA 220 / 110 kV at Vikhroli with 220 kV Cable (New)	
D-3	ICT - Replacement	400 kV						
		220 kV						
D-4	Transformers - Addition	220 kV						
		110 kV	1x 125 MVA , 110/33-22 kV (BKC)					
		220 kV			2x 60 MVA 110/22 KV and 1 x 75 MVA 110/22 kV Transformers by 2 X 125 MVA 220/33-22 kV Transformers **(Dharavi) (20-21)**			

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Sr. No.	Particulars	Voltage level	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
D-5	Transformers - Replacement	110 kV	(90 – 75) MVA, 110 kV / 33-22 kV Transformer#3 **(Mahalaxmi)**	2 x (60 – 30) MVA, 110 kV / 22 kV Transformers # 1&3 **(Ambernath) (22-23)**	2 x (60 – 30) MVA, 110 kV / 22 kV Transformers#1 & 2 **(Mankhurd)**	2 x (90 – 30) MVA, 110 kV / 22 kV Transformers # 1&2 **(Kolshet)**		
			1 x 90 MVA 110/22 kV Transformer by 125 MVA, 110/33 kV **(Mahalaxmi)**	(125 – 75) MVA, 110 kV / 22 kV Transformer#2 **(Malad)**	(125 – 90) MVA, 110 kV / 33 kV Transformer#1 **(Versova)**	(125 – 75) MVA, 110 kV / 33-22 kV Transformer# 5, 6 **(Parel) (21-22)**		
				(125 – 75) MVA, 110 kV / 33-22 kV Transformer#3 **(Saki)**	(125 – 75) MVA, 110 kV / 22 kV Transformer#2 **(Kalyan)**			
				(125 – 75) MVA, 110 kV / 33-22 kV Transformer#7 **(Borivli) (19-20)**	(125 – 90) MVA, 110 kV / 33 kV Transformer#7 **(Carnac) (20-21)**			
		Total						
E-1	Reactor	220 kV				1 x 125 MVAR **(220 kV Salsette)**		
		110 kV						
		22 kV						
E-2	Reactor-Shifting	400 kV						
F	Capacitor	33 kV	1 No. 15 MVAR (Versova)					
		22 kV	1 No. 15 MVAR (Borivali)					
		Total						
G	Switchgear replacement by GIS)	220 kV			10 nos. 220 kV GIS Bays at Borivali S/S (New)		15 nos. 220 kV GIS Bays at Salsette S/S (New)	
					7 nos. 220 kV GIS Bays at Carnac (22-23)		13 nos. 220 kV GIS Bays at Dharavi (New)	
		110 kV			20 Nos. 110 kV GIS Bays at Vikhroli S/S	30 Nos. 110 kV GIS Bays at Dharavi S/S		
					18 Nos. 110 kV GIS Bays at Carnac S/S	28 Nos. 110 kV GIS Bays at Parel S/S (New)		
		22 kV	2 Bus sections (Carnac)	2 Bus sections (Dharavi)	2 Bus sections (Vikhroli)			
			3 Bus sections (Borivali)	2 Bus sections (Malad)	2 Bus sections (Chembur) (20-21)			
				4 Bus sections (Salsette)	2 Bus sections (Kalyan) (New)			
				2 Bus sections (Parel)	1 Bus Section (Saki) (New)			
		Total						
I	Miscellaneous		Installation and replacement of protective equipment	Installation of Fire protection system	Replacement of Old Unified SCADA System in Transmission (New)	Replacement of Towers in creek area		

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Sr. No.	Particulars	Voltage level	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25
				Life enhancement of Transmission Towers				