

Manipal University Jaipur's Plans to Upgrade Existing Buildings for Higher Energy Efficiency

With growing environmental awareness and the urgent need to combat climate change, institutions of higher education are stepping up their efforts to reduce their carbon footprint. Manipal University Jaipur stands as an exemplary in this regard, is leading the charge by unveiling ambitious plans to revamp its infrastructure for a more sustainable future.

Manipal University Jaipur is recognized as an intellectual hub for innovative thinking, research, and knowledge dissemination. However, with great power comes great responsibility, and the institution is increasingly acknowledging its role in addressing the environmental challenges of our time. Enter the visionary Manipal University Jaipur, an institution that has made a bold pledge to transform its campus into a beacon of sustainability. Recognizing the urgency of climate change, the university has committed to upgrading its existing buildings to higher energy efficiency standards over the next decade. The first step in this ambitious journey is conducting comprehensive energy audits of all existing campus buildings. These audits will provide valuable insights into current energy consumption patterns, identifying areas where improvements can be made. Armed with the audit data, Manipal University Jaipur embarks on a journey of retrofitting and renovating existing structures. This includes upgrading insulation, windows, and HVAC systems to meet modern energy-efficient standards. To further reduce the carbon footprint, Manipal University Jaipur has a plan to integrate renewable energy sources such as solar panels and wind turbines on its campus. This initiative will provide cleaner energy and also serve as an educational opportunity for students. The university aims to transform its buildings into “smart” structures by installing advanced building management systems. These systems will monitor energy usage in real-time, allowing for immediate adjustments and optimization. Recognizing the importance of educating the campus community, Manipal University Jaipur plans to incorporate sustainability and energy efficiency into its curriculum. Workshops, seminars, and awareness campaigns will engage students and staff in the sustainable journey.

The benefits of such a comprehensive sustainability initiative extend far beyond the university campus. By upgrading existing buildings to higher energy efficiency standards, Manipal University Jaipur sets a powerful example for the broader community. It demonstrates that sustainable practices are not only environmentally responsible but also economically viable in the long run.



MANIPAL UNIVERSITY
JAIPUR

Physical Infrastructure



Physical Infrastructure



Student and Faculty Housing
55 Acres

Future Development
33 Acres

Academic Area
66 Acres



AREA STATEMENT – ACADEMIC LAND

PLOT AREA = 2,69,804,00 Sq. Mts. (66.67 ACRES)

SL. NO	PARTICULARS	GROSS BUILT UP AREA in Sq. Mts.	GROSS BUILT UP AREA in Sq. Ft.
1.	UNIVERSITY ADMIN & LIBRARY BUILDING	23,463	2,52,553.63
2.	ACADEMIC BLOCK – 1	30,628	3,29,677.05
3.	FOOD COURT	7,954	85,616.14
4.	SECURITY	230	2,475.70
5.	WORKSHOP (GROUND FLOOR)	1,388	14,940.13
6.	SUBSTATION	120	1,291.67
7.	D.G. BLOCK	307	3,304.52
8.	DISPENSARY	228	2,454.17
9.	VIP SECURITY BLOCK	62	667.36
10.	ACADEMIC BLOCK – 2	31,952	3,43,928.47
11.	AUTOMOBILE SHED	1,050	11,302.11
12.	FIRST FLOOR WORKSHOP BUILDING	1,542	16,597.95
13.	CHEMICAL ENGINEERING LAB-3	369	3,971.88
14.	CHEMICAL ENGINEERING RESEARCH LAB.	100	1,076.39
15.	FURNITURE YARD	1,050	11,302.11
TOTAL		1,00,443	10,81,159.45



AREA STATEMENT- HOSTEL LAND

PLOT AREA = 2,22,475.72 Sq. Mts. (54.97 ACRES = 46.64 GHSPL + 8.0 FH + 0.33 JVVNL)

SL. NO	PARTICULARS	GROSS BUILT UP AREA in Sq. Mts.	GROSS BUILT UP AREA in Sq. Ft.	NO. OF ROOMS
1.	B1 BOYS HOSTEL BLOCK	15,809.16	1,70,168.38	475
2.	B2 BOYS HOSTEL BLOCK	12,494.13	1,34,485.69	430
3.	B3 BOYS HOSTEL BLOCK	6,678.43	71,886.02	208
4.	B4 BOYS HOSTEL BLOCK	6,895.22	74,219.53	241
5.	B5 BOYS HOSTEL BLOCK	4,899.50	52,737.77	186
6.	B6 BOYS HOSTEL BLOCK	7,653.44	82,380.94	276
7.	B7 BOYS HOSTEL BLOCK	10,576.79	1,13,847.62	334
8.	G1 GIRLS HOSTEL BLOCK	12,377.59	1,33,231.26	334
9.	G2 GIRLS HOSTEL BLOCK	4,922.74	52,987.93	163
10.	G3 GIRLS HOSTEL BLOCK	4,500.51	48,443.08	171
11.	G4 GIRLS HOSTEL BLOCK	4,773.82	51,384.97	173
12.	BOYS FOOD COURT	7,070.35	76,104.61	
13.	FACILITY BLOCK	1,753.65	18,876.13	
14.	OVERALL SERVICES	2,300	24,756.99	
15.	FACULTY HOUSING FH-1	3,631.40	39,088.06	
16.	FACULTY HOUSING FH-2	5,444.85	58,586.59	
16.	GUEST HOUSING	1,988.90	21,408.34	
TOTAL		1,13,770.48	12,24,593.96	2991



Sl. No.	Building	Type of Unit (Room/Residence)	No. of Units	Area of Individual Unit (Sq. Mts.)	Gross Built-up Area, including lobby (Sq. Mts.)
1.	MUJ Guest House	Suit Room	5	46	1,988.90 Sq. Mts.
		Executive Room	20	19	21,400.56 Sq. Ft.
2.	Faculty Housing: Block-1 (FH-1)	4 - BHK	1	274.06	3,631.40 Sq. Mts. 39,073.86 Sq. Ft.
		3 - BHK	6	130.06	
		2 - BHK	10	102.19	
		1 - BHK	5	62.80	
3.	Faculty Housing: Block-2 (FH-2)	3 - BHK	5	143.99	5,444.85 Sq. Mts.
		2 - BHK	28	111.48	58,586.59 Sq. Ft.



CLASSROOMS / LABS

SL. NO	PARTICULARS	CLASSROOMS	LABORATORIES
1.	ACADEMIC BLOCK - 1	57	46
2.	ACADEMIC BLOCK – 2	88	40
3.	WORKSHOPS	14	
4.	SMT SHARDA PAI AUDITORIUM	271 (SEATING CAPACITY)	
5.	DR TMA PAI AUDITORIUM	411 (SEATING CAPACITY)	
6.	DR RAMDAS PAI AMPHITHEATRE	1000 (SEATING CAPACITY)	



MANIPAL UNIVERSITY
JAIPUR

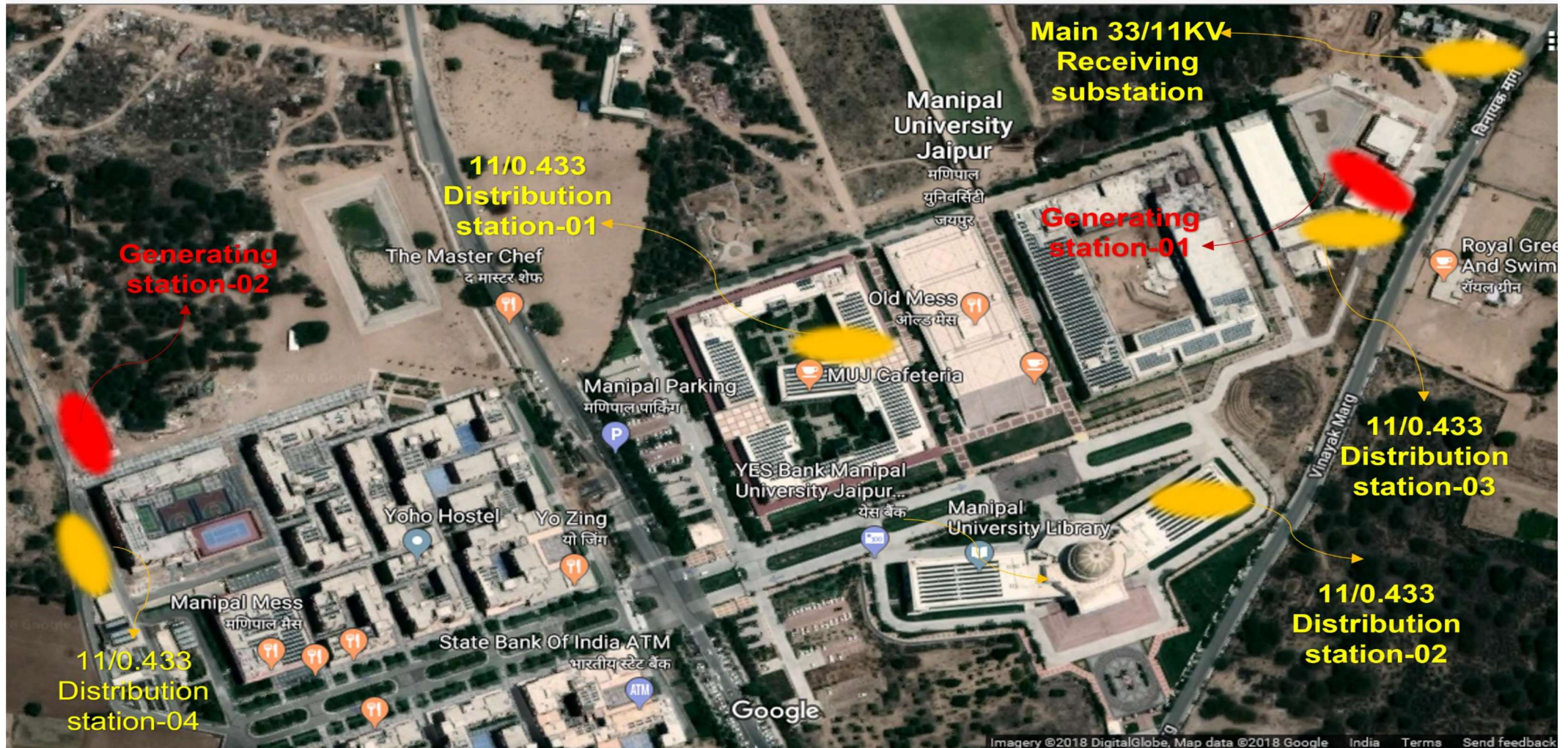
Physical Infrastructure

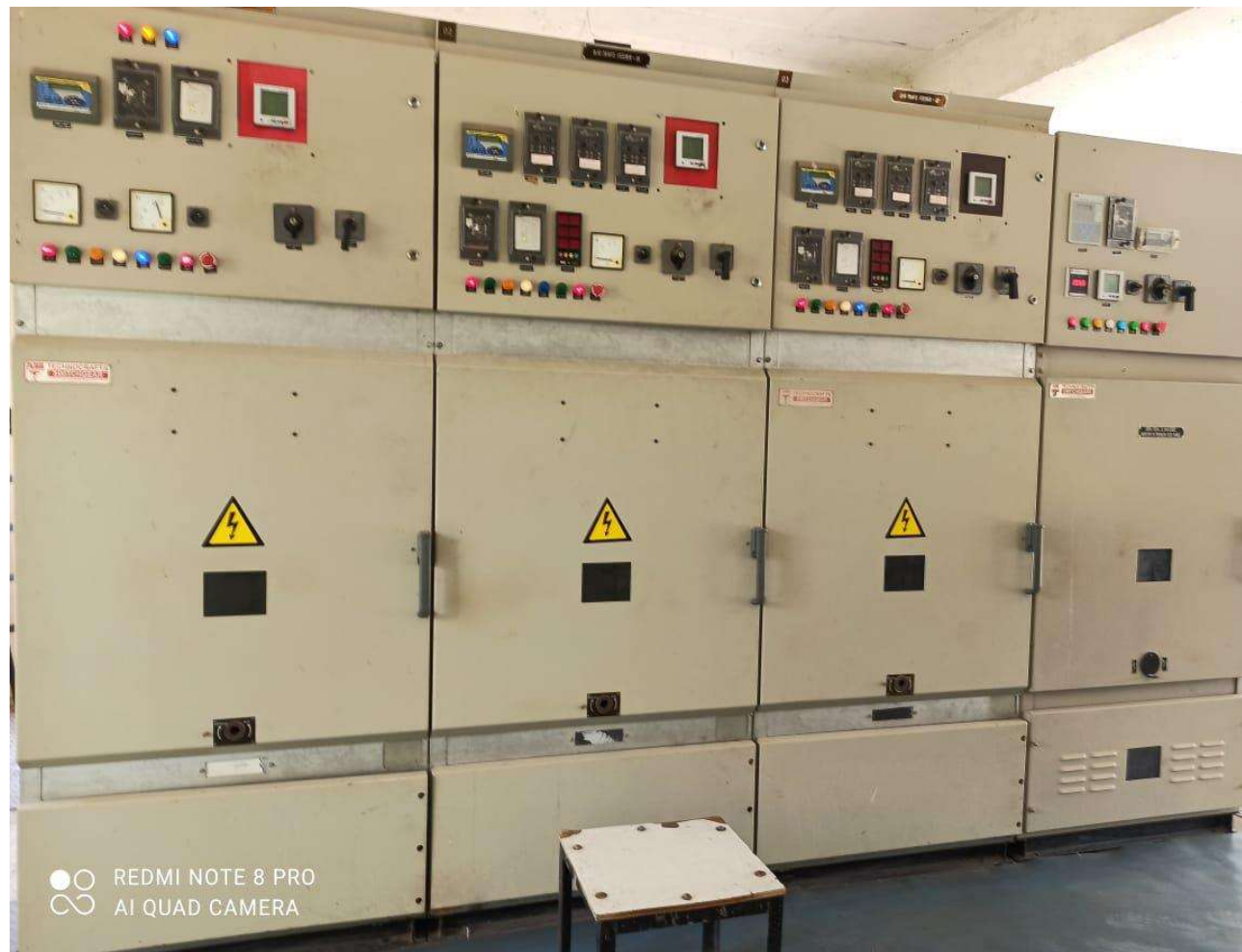


Electricity:

Power Supply : 33KV supply from JVVNL with CMD 4000 KVA
 Connected Load : 7070kW
 DG Back up : 1000 KVA DG Back up (2 Nos. of 500kVA DG set)
 Solar Power : 1527 KW

Sl. No.	Location	Capacity in KWp	Total kWh	By on OPEX	
1	Academic Block 1 (Flat roof)	354	850	M/s. Cleanmax	
2	Admin Block (Flat roof)	200			
3	Academic Block 2	NAB 1 (Flat roof)	200	677.12	M/s. Renew Power
		NAB 2 (Flat roof)	96		
		NAB 3&4 (Flat roof)	80.64		
		NAB 3&4 (Elevated)	145.28		
4	Automobile Lab (Flat roof)	34.56			
5	Car Port A	Near Admin Block	235.2		
6	Car Port B	Near Academic Block 1	181.44		
Total capacity			1527.12		







Solar Infrastructure

Water Source:

Tube wells: 05 Nos. (440 feet depth)

Water Treatment Plant:

WTP: Capacity 200 KLD + 80 KLD

Raw Water Tank –

Filter feed pump – Pressure Sand filter –

Activated Corban filter – Softener – Treated

Tank -

to All Over Head Tanks (Domestic Tanks) by

Domestic water transfer pump



Equipment	Capacity in KLD	Location
WTP	200	Near DG Block
	80	GH
Total	280	

Sewage Treatment Plant:

STP: Capacity 150 & 350 KLD MBR Based Process

Coarse Screen – Collection tank – Fine Screen – Oil Skimmer – Equalization Tank – Mini Screen – Aeration Tank – MBR Tank – Permeate Tank to All Over Head Tanks (Flush Tank) by Flush water transfer pump.

The STP's Treated water has been used for Flush & Drip Irrigation



Equipment	Capacity in KLD	Location
STP	350	Near Estate Office
	150	
Total	500	

OHT Capacity @ MUJ

Block	Zone	Capacity in KL			
		AC	Fire	Domestic	Flush
Administrative Block	Left Wing	10	-	5	8
	Right Wing	10	-	5	8
	Board room	-	-	0.25	0.25
Academic Block 1	Wing A	10	-	10	10
	Wing B	10	-	10	10
Academic Block 2	Phase 1 & 2	-	30	34	17.6
	Phase 3 & 4	-	65	45	20
Total		40	95	109.25	73.85

Tank Capacity (UGR) - MUJ

Blocks	Unit	Raw Water	Treated Water
MUJ Academic - WTP	CUM	680	180

ELEVATORS

1	24 PAX,1632 Kg.	1A
2	24 PAX,1632 Kg.	1A
3	24 PAX,1632 Kg.	1C LW
4	24 PAX,1632 Kg.	1C LW
5	24 PAX,1632 Kg.	1C RW
6	24 PAX,1632 Kg.	1C RW
7	500Kg	Food Court
8	500Kg	Food Court
9	24 PAX,1632 Kg.	2AB
10	24 PAX,1632 Kg.	2AB
11	24 PAX,1632 Kg.	WORKSHOP
12	24 PAX,1632 Kg.	2AB
13	24 PAX,1632 Kg.	2AB
14	24 PAX,1632 Kg.	AUTO WORKSHOP
15	15 PAX,1020 Kg.	FH1
16	15 PAX,1020 Kg.	GH
17	15 PAX,1020 Kg.	FH2
	Total	17 Elevators

Details of Air Conditioning System

		1AB	1C	2AB	FH1 , FH2 and GH	External Area	
Sl No	Type of Equipment	Total capacity in TR	Total capacity in TR	Total capacity in TR	Total capacity in TR	Total capacity in TR	Total
1	Total Chillers	480	240	810			1530
2	Exhaust and AHUs	601	127	422	10.5	25	1185.5
3	Total Cassette Units	170	324.95	966			1461
4	Total Regular Split Unit	24	26.5	17.5		19	68
5	VRV & Inverter Units	105	30	26	236.7		498.7
6	Duct able and Scroll with AUH Units		30				30
	Total Tr ->	900	787.95	1431.5	247.2	44	3409.7

Detail of External Area

1	Security Block
2	Workshop
3	Main Dispensary
4	Food Court
5	VIP Security Block
6	Workshop, Automobile Workshop, Chemical Engineering Lab

HVAC Infrastructure

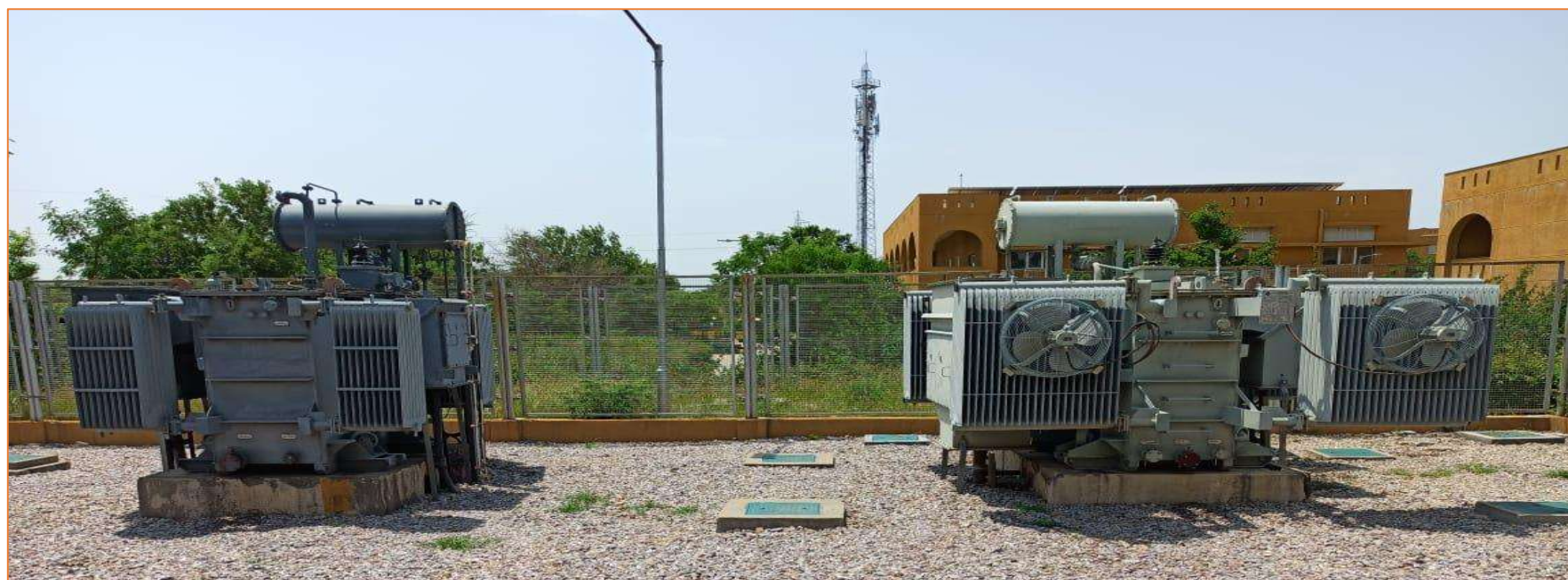


Power Control Panel	Number
33 KVA – 2 Panels	5 VCBs 33 KVA
11 KVA HT Panel – 6 Panels	16 VCBs 11 KVA
DG- EB ATS Panel – 1 Panel	2 VCBs
DG Synchronization Panel – 1 Panel	5 ACBs
LT Panels – 5 Panels	10 ACBs

Power control panels installed in MUJ campus and faculty housing including 1AB, 2AB, Admin, Food Court, Workshop, Security, Estate Office & STP and FH etc.



Sr. No.	Location	Capacity	Rating	Make
1	DG BLOCK	2500KVA	33KV/.415KV	Schneider
2	Sub station	2500kva	33/11KV	VOLTAMP
3	Sub station	2000kva	33/11KV	VOLTAMP
4	DG BLOCK	1500KVA	.415/11KV	
5	DG BLOCK	500KVA	11/.415KV	
6	1AB	1000KVA	11/.415KV	
7	1C	1000KVA	11/.415KV	



Diesel Generator Set

MUJ DG Sets	Make	Capacity
DG1	Greaves Cotton	500 KVA
DG2	Greaves Cotton	500 KVA



Sr No	Location	UPS with Capacity
1	AB 1	30 KVA
2	AB 1	30 KVA
3	AB 1	30 KVA
4	ADMIN	30 KVA
5	ADMIN	30 KVA
6	ADMIN	30 KVA
7	ADMIN	31 KVA
8	AB 2	40 KVA
9	AB 2	40 KVA
10	AB 2	15 KVA
11	AB 2	15 KVA
12	AB 2	5 KVA
13	AB 1 Room 011	20 KVA
14	AB 2 XRD and FESEM	30 KVA (10kVA each)
14	AB 1 Virtual Classroom	7.5 KVA
Total Capacity		382.5 KVA



Uses of UPS supply in campus

1. CCTV Command Center
2. Server, Data and Communication Center
3. Board Room 5th Floor and Third Floor
4. Auditorium AV System
5. Computer Labs and Sophisticated Lab
6. Emergency Light & Power in Buildings



MANIPAL UNIVERSITY
JAIPUR

Academic Block 3





MANIPAL UNIVERSITY
JAIPUR

Academic Block 3





MANIPAL UNIVERSITY
JAIPUR

Academic Block 3





MANIPAL UNIVERSITY
JAIPUR

Academic Block 3

