

SCOPE OF WORK

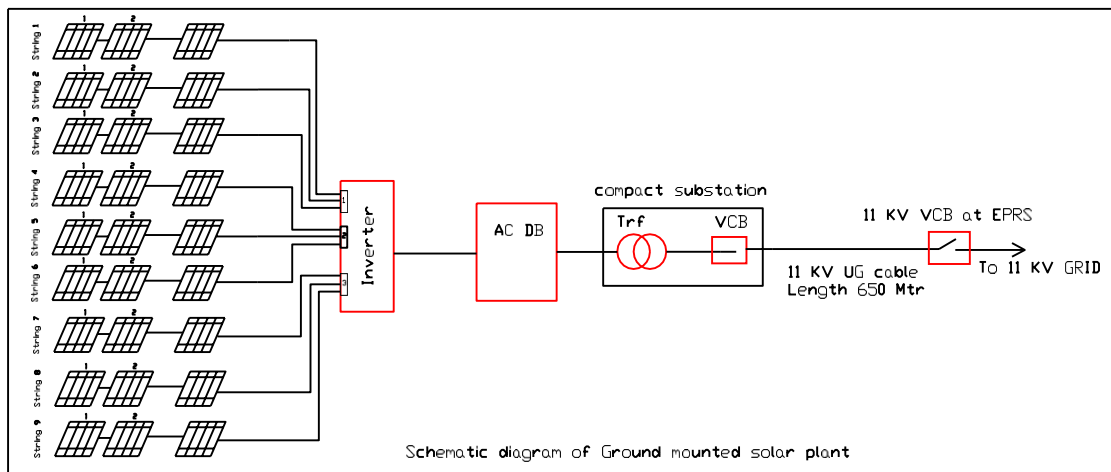
The Indian Institute of Technology Kharagpur is a premier institute of excellence in the country. It is an autonomous body, which was formed by an act of parliament and is under administrative control of the Ministry of Higher Education. The institute has a very big campus consisting of academic, residential and Hostels. It has 33kV/ 11 kV receiving substation and 18 Nos of 11 kV/ 415 Volt substations. The Institute also has solar capacity generation of around 5000 KWp installed both in RESCO and CAPEX mode. In this RFS the Institute desires to install 2900 KWp of roof top solar plant, 225kWp of ground mounted solar plant on elevated structures to serve the purpose of car parking and 1000kWp of ground mounted solar plant of normal height. located at the following locations. The ground mounted solar plant will be located at Balarampur Pump House which has a separate power supply from WBSEDCL at 11kV.

Solar Proposed location with capacity

TABL

SI No.	Location	Type	Proposed Capacity (KW)
1	MT Hall	Roof top	100
2	MS Hall	Roof top	90
3	MMM Hall	Roof top	150
4	BRAH	Roof top	75
5	LLR Hall	Roof top	100
6	KV School	Roof top	150
7	Chemical Engg	Roof top	150
8	Organic Chemistry	Roof top	75
9	Mech Workshop	Roof top	50
10	Mining	Roof top	50
11	Aerospace	Roof top	50
12	E & ECE	Roof top	50
13	Comp Sc & Annex	Roof top	50
14	JCB Hall	Roof top	75
15	V S Hall	Roof top	100
16	Mechanical Office	Roof top	50
17	Chemical Office	Roof top	50
18	Old SMST	Roof top	50
19	1 BR & 2 BR opposite Dreamland	Roof top	150
20	Main bldg	Roof top	40
21	Accounts	Roof top	50
22	B C Roy Hall	Roof top	50
23	VGH	Roof top	50
24	Netajee	Roof top	50
25	CRF (old & New)	Roof top	80
26	Elect. Workshop	Roof top	40
27	DAV School	Roof top	50
28	St. Agness	Roof top	30
29	STEP	Roof top	60
30	RGSOIPL	Roof top	100
31	CWISS	Roof top	30
32	NFA near S/S-12	Roof top	100
33	Aquaculture	Roof top	50
34	32 NFA	Roof top	50
35	66 NFA	Roof top	100

36	Gurukul	Roof top	200
37	2 BR F	Roof top	50
38	A- 16,20,21,31	Roof top	40
39	G+ 7	Roof top	40
40	ABIC	Roof top	25
41	Bomb House	Ground Mounted plant on elevated structures as per Annexure-1	125
42	Near KV School	Ground Mounted plant on elevated structures as per Annexure-1	100
43	Balarampur Pump House	Ground	1000
		Total	4125



The power from the roof tops will be evacuated locally in respective LT panels placed at the Departments.

The institute also has a piece of land of approx. 15000 Sq mtr located out side the institute main campus at Balarampur Pump house area. The LAT, Long of the location is 22deg 19min 21Sec N and 87 deg 17 min 57 Sec. The land has a boundary along the three sides. It would be the responsibility of RESCO agency to build necessary gate and security enclosure in the front side.(Boundary wall is already present) Lighting arrangements would have to be arranged by the agency as per security requirements at its own cost. The draft schematic of the ground mounted solar plant is as follows.

The approximate capacity of the ground mounted solar plant will be 1000 KWp and would be called the **Solar park of IIT Kharagpur**. A LED display titled **1000 KWp Ground mounted Solar park, IIT Kharagpur** would have to be fixed in a conspicuous location. The security of the solar power plant will be the responsibility of the Company. The transformer, VCB at project location and also, at the power evacuation point will be supplied and installed by the SPD. Any building sheds required to be constructed for housing of Electrical equipment would have to be done by the SPD. SPDs are free to consider outdoor Compact substation in place of individual transformer, VCB and LT switchgears

Metering:

The metering at individual rooftop locations will be data communicable. The meters at the solar plants will monitor generation at 415 volts . Though the institute has a LAN network of its own except at the Ground mounted solar plant, it is advisable that the data from all the meters are downloaded in the cloud server(in a GUI) with the user ID and password being shared with institute officials for verification of monthly bills. It is also the responsibility of the SPD to engage a third party agency which should essentially be a NABL accredited lab for yearly calibration and verification of

the meter and submit the report to the institute. The meter at 11kV that would monitor power & energy generated from the ground mounted solar plant and would be located at Balarampur Pump House. The SPD would have to arrange for export import bidirectional meter for the 1000kWp ground mounted solar plant at Balarampur which has a separate power supply at 11kV from WBSEDCL. For the remaining installations, the Institute already has a NET meter installed at 33kV substation.

NOTICE BOARD FOR DISPLAY

The selected SPD will have to put a notice board (at least 180cm x 120cm) at its projectsite main entrance prominently displaying the following message before declaration of COD.

3000 KWp Ground Mounted Grid Connected Solar PV Project

Owned and operated by

----- (insert name of the SPD)

FOR THE INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR

Grid-Connected Solar Power Plant

By

Indian Institute Of Technology, Kharagpur



Kharagpur, District: Paschim Midnapur, State: West Bengal

B .The allocation of the Roof Top or Land by the Indian Institute Of Technology Kharagpur is only tentative. Should there arise a case for vertical extension of the building or construction of building in the allocated land the SPD has to remove the solar plant and install the same at an alternative location indicated by the Institute. The cost for such relocation will be reimbursed by the institute to the SPDs as per actuals.

CLEARANCES REQUIRED FROM THE INSTITUTE

The Solar Power Developers are required to obtain all necessary clearances and permits from the Institute for setting up the Solar Power Projects, including but not limited to the following:

- a) Water Supply from the water Works section to the roof tops. For the Ground mounted solar plant , a deep tube well has to be constructed by the SPD at it's own cost.
- b) Permission from Civil works for roof top plant and ground mounted plant .The permission from Civil Works will require STADPRO analysis of the structure design, load calculation, roof protection scheme and guarantee. The SPD must submit the foundation details, elevation , plan etc for each individual roof top and also the ground mounted project.
- c) Electrical power connection for construction work is under chargeable basis. The Location of the ground mounted solar plant is at a little distance from the Institute power source from where temporary power supply can be arranged. If the SPD can make arrangement for the temporary cable and its laying for

construction purpose only, the power supply can be arranged. The temporary supply will be metered and paid to the Institute by the SPD. Alternatively the SPD can avail temporary power supply from the WBSEDCL at its own cost.

The above clearances, as applicable for the Project, shall be required to be obtained from INDIAN INSTITUTE OF TECHNOLOGY, KHARAGPUR prior to commissioning of the Project. In case of any of the clearances as indicated above being not applicable for the said Project, the SPD shall submit an undertaking in this regard, and it shall be deemed that the SPD has obtained all the necessary clearances for establishing and operating the Project. Any consequences contrary to the above shall be the responsibility of the SPD.

Note: The SPD shall apply for all the necessary approvals, permits and clearances not more than 90 days from the Effective Date of the PPA, which shall be complete in all respects, incorporating the clarifications/changes as required by the concerned authorities. The above timeline shall be adhered to, in order to examine cases where the SPD faces delay in grant of the necessary approvals and permits, for a period substantially greater than the standard period of grant of approval by the respective organizations.

- d) The following points have to be adhered for roof top solar plants .
- The minimum bottom clearance for the roof top installations $\geq 600\text{mm}$
 - Liability of water proofing of the roof or terrace and subsequent defect liability shall be of the agency for damages caused by them during installations.
 - Water for cleaning of the SPVs may be arranged by the agency for roof top from existing source and by means of deep tube well for the ground mounted site
 - Modifications of existing structures shall be after the approval of competent authority. Any damage to existing structures will be the responsibility of the agency who will be responsible for mending the damage.
 - Security of the land mounted solar power plant will rest on the agency.

ANNEXURE-1

Front Elevation Of Ground Mounted solar Plant On Elevated structure

