Dossier of the Project "Construction of 200 KWP capacity solar rooftop PV Project (Gird connected scheme) In Shri Krishnayan Desi Gauraksha avam Golok dham Sewa samity Gandikahata Haridwar Uttarakhand".

Sl. No.	Description	Details	Remarks if any
1	2	3	4
1.	Name of Project	Construction of 200 KWP capacity solar rooftop PV Project (Gird connected scheme) In Shri Krishnayan Desi Gauraksha avam Golok dham Sewa samity Gandikahata Haridwar Uttarakhand	
2.	Project Code	066/2017-18/Solar rooftop/Gaindikhata/Haridwar/A&W/30.90	
3.	Name of Implementing Unit and Unit Code	CSR Unit (Rishikesh)	
4.	Name of Implementing Agency	Shri Krishnayan Desi Gauraksha avam Golok Dham Sewa samity Bhagirathi Dham Surajpur Colony haripur Kalana Haridwar.	
5.	Project Cost	Rs.30.90	
6.	Date of Start	15-01-2018	
7.	Date of Completion	14-01-2019	Work Completed
8.	Location/Area of operation of the Project	Gandikhata Haridwar.	
9.	Activity covered in the Project and Activity Code	Animal Welfare	
10.	Targeted Group	Shri Krishnayan Desi Gauraksha avam Golok dham Sewa samity Gandikahata Haridwar Uttarakhand	
11.	Number of people benefitted from the project	Desi cow 2600 & Golokdham staff 75 as per information of Golokdham Management.	
12.	Quantification of benefit accrued from the project, as derived from the Impact Assessment Report/evaluation report by independent agency. If any	----------	
13.	Documentary proof like Photo\video\news items etc. If any	As Detailed Below	

DETAILED PROJECT REPORT ON SOLAR PHOTOVOLTAIC SYSTEM

Proposal for Development of grid connected solar rooftop project under SECI 500 MW Grid connected rooftop solar PV system Scheme

Site Location: Village- Naurangabad, Gaindikhata Pargana – Jawalapur, Tehsil – Haridwar, District – Haridwar, Uttarakhand

Submitted By

Shree Krishnayan Desi Gaurakshashala Evam Gaulok Dham Sewa Samiti

January'2017

Contents

PART-A: General Details of the Project

1. **Title of the Project:** Detailed Development of grid connected rooftop solar PV power projects under SECI 500 MW grid connected rooftop solar PV system Scheme.

Total SPV Capacity: 200 KWp Grid Connected.

2. **Name of the Project Proponent:**

Shree Krishnayan Desi Gaurakshashala

Evam Gaulok Dham Sewa Samiti,

Village - Naurangabad, Gaindikhata, Paragna Jawalapur,

Tehsil – Haridwar, District – Haridwar, Uttarakhand

Authorized Representative of Firm:

Mr. Surendar Agarwal

Shree Krishnayan, Surajpur Colony,

Haripur Kalan, Near Prem Vihar Chowk,

Haridwar- 249205

Contact no- +91 9760202306

E-mail: surendar@bhagirathi.com

Category of Project Proponent: Individual

Allotted Registration No. N/A

3. Executive Summary of the Proposal

Uttarakhand was formed on the 9th November 2000 as the 27th State of India, when it was carved out of northern Uttar Pradesh. Located at the foothills of the Himalayan mountain ranges, it is largely a hilly State, having International boundaries with China (Tibet) in the north and Nepal in the east. On its north-west lies Himachal Pradesh, while on the south is Uttar Pradesh. It is rich in natural resources especially water and forests with many glaciers, rivers, dense forests and snow-clad mountain peaks

It is blessed with a rare bio-diversity, inter-alia, 175 rare species of aromatic & medicinal plants are found in the State. It has almost all major climatic zones, making it amenable to a variety of commercial opportunities in horticulture, floriculture and agriculture. It has a vast tourism potential in adventure, leisure, and eco-tourism.

With levels of literacy higher than the national average, the State has abundant availability of quality human resources. Within a short span of its existence, Uttarakhand has emerged as a significant destination for investments in manufacturing industry, tourism and infrastructure. Emphasis is on stimulating all three sectors of its economy (agriculture, industry and services), to their fullest potential in tandem with the geographic profile of the state. The Government of Uttarakhand has undertaken several policy measures and incentives in order to encourage inflow of investment into the various sectors of its economy.

Districts of Uttarakhand

Garhwal Division

- Dehradun
- Haridwar
- Chamoli
- Rudraprayag
- Tehri Garhwal
- Uttarkashi
- Pauri Garhwal

Kumaoun Division

- Almora
- Nainital
- Pithoragarh
- U S Nagar
- Bageshwar
- Champawat

About Haridwar

Haridwar is a highly revered city in the state of Uttarakhand. The holy town is a major attraction for the pilgrims around the world. The city has a very rich popularity among the pilgrimage destinations. The Haridwar city is also known as the "Gateway to the Lord". The word Haridwar is combined of two words 'Hari' stands for Lord and 'dwar' stands for gate. That is why this sacred site is famous as "Gateway to the Lord". This worthy place is located on the bank of sacred river Ganga. There are many shrines, temples and ashrams to offer the prayer and for pilgrimage. This is a hustling site with crowded markets.

Haridwar is the Gateway of Chardham yatra too. People from all over the world visit the devoted site every year to perform the Chardham yatra. The Chardham yatra adds Yamunotri, Gangotri, Badrinath and Kedarnath the sacred destinations of devotion. According to the Hindu mythology it is said that the religious professionals named this holy site Haridwar. The city also very popular for the well known fair Kumbh Mela that happening once after every 12 years and Ardha Kumbh Mela after six years. Countless people take a part in this Mela. Different types of stalls and shops having religious aspects are the major attractions for the pilgrims. At a distance of 10 kilometer there is a 'Rajaji National Park" great for wild life lovers.

The place Haridwar occupies an area of 12 sq. kilo meter and elevated 1030 ft. high above the sea level. And the Haridwar district capture an area of 2360 sq. kilo meter, located at the Northern India. Rishies, pundits, men, women and sages comes to Haridwar to take a holy dip into the holy River Ganga. In Hindu mythos the most Sacred River Ganga has a rich status for the Hindus or devotees. The place is also very famous for arts, science and culture. There are many institutions of arts, science and culture, student reach here and take

admission to learn these. Rishikesh, Dehradun and Mussoorie are great tourist attraction. Tourist comes here every year to spend their holiday vacation here during September to June.

The Haridwar city is well connected with air, train and road. Jolly Grant is the nearest airport in Dehradun town which is accessible to reach Haridwar easily, without facing any traffic problem. Haridwar situated at a distance of 214 km from Delhi and 386 from Agra. It is well connected all most all the major towns of India, it has a railway station to reach here conveniently. The Haridwar city is connected with national highway no. 45 with Delhi. These three ways to Haridwar is easily accessible to reach here. Haridwar is the headquarters and the largest city of the district. Today, the city is developing beyond its religious importance, with the fast developing industrial estate of State Industrial Development Corporation of Uttarakhand (SIDCUL), and the close by township of Bharat Heavy Electricals Limited in Ranipur, Uttarakhand as well as its affiliated ancillaries.

About SECI

Solar Energy Corporation of India Ltd. (SECI) is a CPSU under the administrative control of the Ministry of New and Renewable Energy (MNRE), set up on 20th Sept, 2011 to facilitate the implementation of JNNSM and achievement of targets set therein. It is the only CPSU dedicated to the solar energy sector. It was originally incorporated as a section-25 (not for-profit) company under the Companies Act, 1956.

However, through a Government of India decision, the company has recently been converted into a Section-3 company under the Companies Act, 2013. The mandate of the company has also been broadened to cover the entire renewable energy domain.

In the present outlook of the RE sector, especially solar energy, SECI has a major role to play in the sector's development. The company is responsible for implementation of a number of schemes of MNRE, major ones being the VGF schemes for large-scale grid-connected projects under JNNSM, solar park scheme and grid-connected solar rooftop scheme, along with a host of other specialized schemes such as defence scheme, canal-top scheme, Indo-Pak border scheme etc. In addition, SECI has ventured into solar project development on turnkey basis for several PSUs. The company also has a power-trading license and is active in this domain through trading of solar power from projects set up under the schemes being implemented by it.

About Project Proponent

Shree krishnayan Desi Gaurakshashala, Haridwar was set up in 2011 on large plot of land on the bank of Maa Ganga, surrounded by forest from three sides of Gaindikhata, Basochandpur and Haridwar. Having started with 11 old and week Desi Gau saved from the hands of butchers, this Gaurakshashala currently provided care and protection to more than 2000 Desi Gau vansh by 70 gau sewak and has become the largest of its kind in the state of Uttarakhand.

4. Benefits of the Project:

Harnessing of non polluting renewable energy resources to control green house gases is receiving impetus from the government of India. The solar mission, which is part of the National Action Plan on Climate Change has been set up to promote the development and use of solar energy in for power generation and other uses with the ultimate objective of making solar energy competitive with fossil-based energy options. The solar photovoltaic device systems for power generation had been deployed in the various parts in the country for electrification where the grid connectivity is either not feasible or not cost effective as also some times in conjunction with diesel based generating stations in isolated places and communication transmitters at remote locations.

With the downward trend in the cost of solar energy and appreciation for the need for development of solar power, solar power projects have recently been implemented. A significant part of the large potential of solar energy in the country could be developed by promoting grid connected solar photovoltaic power systems of varying sizes as per the need and affordability coupled with ensuring adequate return on investment. It has been proposed to set up a **200 kWp** grid interactive solar photovoltaic power plant at the land of **Shree Krishnayan Desi Gaurakshashala Evam Gaulok Dham Sewa Samiti, village Basochandpur Gaindikhata, Paragna Jawalapur, Tehsil – Haridwar, Dist. – Haridwar, Uttarakhand** under the project of Solar Energy Corporation of India Limited (SECI) for Uttarakhand.

The 200 kWp Grid Interactive SPV Power Plant at the roof of Shree Krishnayan Desi Gaurakshashala Evam Gaulok Dham Sewa Samiti is estimated to annual energy generation of 2,90,000 units and operates at a plant capacity factor of ***16.5%.*** The SPV system estimated to cost Rs. 110 Lacs but beneficiary share is only Rs. 77 Lakhs would have to serve a non-interrupted power supply to his usage and surplus electricity sale to

grid. It will also make a role model for other Organizations as well as Individuals in Haridwar City of Uttarakhand.

PART-B: Details of the Project

1. Details of Project Site:

Shree Krishnayan Desi Gaurakshashala Evam Gaulok Dham Sewa Samiti, village Basochandpur Gaindikhata, Paragna Jawalapur, Tehsil – Haridwar, District. – Haridwar, Uttarakhand Pin 246663

Accessibility to site: - On Haridwar Nazibabad National highway.

Nearest Bus Stand: 20 KM from Haridwar Bus Stand.

Nearest Railway Station: 21 KM from Haridwar Railway station.

Nearest Airport: 43 Km from Joly Grant Airport, Dehradun.

Distance from New Delhi: 230 KM by Road.

Altitude: 264 mt. above sea level.

Latitude & Longitude of Site: 29°47'0.18"N 78°14'19.37"E

2. Details of Project Beneficiary/ Organization

Shree Krishnayan Desi Gaurakshashala

Evam Gaulok Dham Sewa Samiti,

Village Basochandpur Gaindikhata, Paragna Jawalapur,

Tehsil – Haridwar, District – Haridwar, Uttarakhand

Contact no- +91 9760202306

E-mail: surendar@bhagirathi.com

3. Details of Proposed Power Plant

i. Proposed capacity of the SPV Power Plant (kWp) – **200 KWp.**

ii. Availability of shadow free south facing Roof area for the power plant

= 2000 sq. mts. are available on firm Roof.

iii. Roof is normal and level ok, but before Installation roof must be check again for better strength and angle fixing of solar panels.

iii. Expected annual energy generation **= 2, 90,000 units/year**

iv. Distance of nearest HT. line11/0.44 KV from proposed solar site is 150 mt. And Substation of 33/11 KV is 7.5 KM approx.

4. Details of Electrical load where the Plant is to be installed

I.	**Contract Load at Site:**	200 KW
II.	**Monthly Avg. Electricity Consumption:**	10500 Units

Running of Air Conditioner and water heater only for 3-4 months in a year and max. for few hours per day. Occupancy of persons in building is also very less so that all Lights and Fan not working simultaniously.

Site Photographs

5. Technology Description & System Design /Specification

SYSTEM DESIGN

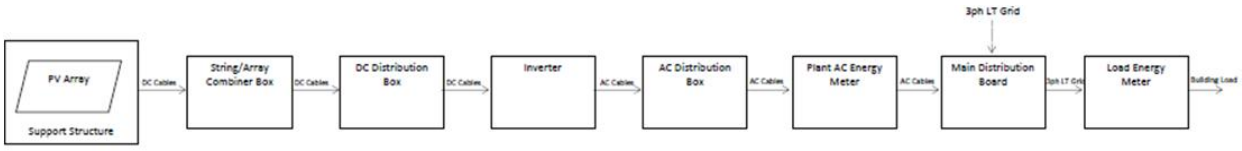
CUSTOMER REQUIREMENT

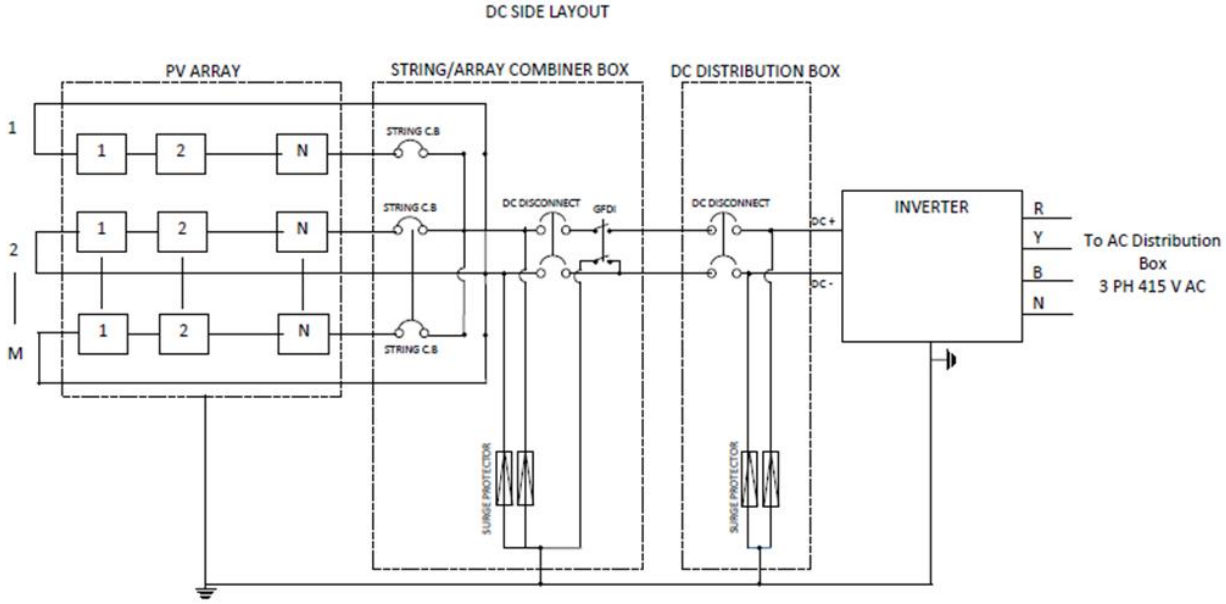
The Customer Shree Krishnayan Desi Gaurakshashala Evam Gaulok Dham Sewa Samiti, village Basochandpur, Gaindikhata, Paragna Jawalapur, Tehsil – Haridwar, District – Haridwar, Uttarakhand would like to install 200 kWp On Grid Sola rooftop Power Plant at their property premises.

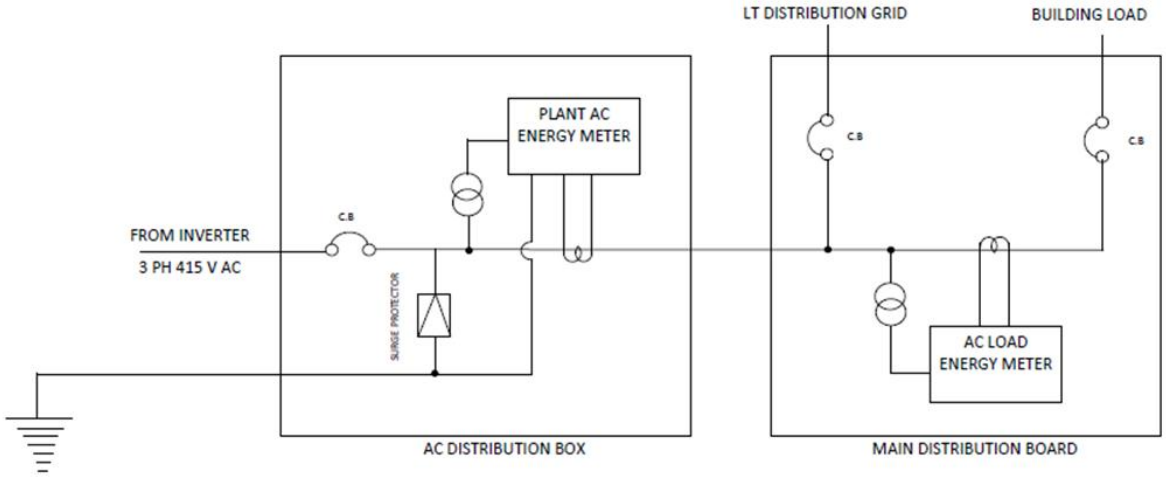
Scope of Proposal

- System Design as per load requirement.
- Equipment delivery at site
- Installation & Commissioning
    - Integration of system
    - Civil Works at site
    - Testing of equipment
    - Testing of the entire system.

Line Diagram







LT DISTRIBUTION GRID SUPPLY SCHEMATIC DIAGRAM

Salient Features

1. SPV Power Plant

i. Output 200 KWp
ii. No. of modules: **310 Wp X 645 Nos.**

2. Technical details of a SPV Modules

(a) **PV Module type** Poly crystalline

(b) **Physical Dimensions**

i. Length with frame : 1955 mm
ii. Width with frame : 982 mm
iii. Thickness : 36 mm

(c) **Electrical Parameter**

i. Maximum Power Rating : 310 Wp
ii. Rated Current (I_{mpp}) : 8.14 A
iii. Rated Voltage (V_{mpp}) : 38.1 V
iv. Short Circuit Current(I_{sc}) : 8.81 A
v. Open Circuit Voltage (V_{oc}) : 45.7 V

3. Mounting Arrangement

i. Mounting Fixed Type
ii. Surface azimuth angle of PV Module 180 Degree
iii. Tilt angle(slope) of PV Module 20 Degree

4. Inverter/ Power Conditioning Unit (PCU)

i. Number of units : 4 (50KVA)
ii. Rated Capacity : 50 KVA
iii. Frequency : 50Hz ± 3Hz
iv. Efficiency : 98%

5. Annual Energy Generation

Annual Energy 2, 90,000 Units

Solar PV Module

Solar Power Plant Size	200 KWp	
Module Size	310 Wp	
Maximum Power at Standard Test Conditions (STC) irradiance of 1,000 W/m², solar spectrum of AM 1.5 and module temperature at 25°C.	(Pmax)	310 Wp
Power Output Tolerance-PMAX (%)	%	+/-5
Open Circuit Voltage	(Voc)	45.7
Short Circuit Current	(I_{SC})	8.81
Maximum System Voltage	V	1000 V
Operating Temperature		-40°C to +85°C
Storage Temperature		0°C to +85°C
Nominal Operating Cell Temperature (NOCT)		44°C (±2°C)
Temperature Coefficient of P_{MPP}		-0.41%/°C
Temperature Coefficient of V_{OC}		- 0.31%/°C
Temperature Coefficient of I_{SC}		0.052%/°C
Solar Cell		Polycrystalline
Solar Cell Shape		Square
Cell Geometry		156mm x 156mm
Module Dimensions	Mm	1956X992X50.04
Module Weight	Kgs	20.5 Kg
Cable length (G)	Mm	1200 (Typical).
Glass		High Transmission, Low Iron, Tempered Glass

Frame		Anodized Aluminum frame
Junction Box		IP65/IP67 rated, with bypass diodes
Minimum Number of Bypass Diodes		3 Pcs

Power Conditioning Unit/ Inverter

Grid Support Conditioner (GSC) is designed to operate as a multi function power conditioning unit combining the functionality of a grid interactive solar inverter with a true on line single conversion UPS. The GSC system allows the option of combining renewable energy sources on priority with the functionality of an industrial UPS system. Based on the solar power available, connected load state of charge the unit configures itself as either a charger or inverter and will intelligently start an optional back up diesel generator (if connected). GSC provides output voltage conditioning when operating in a grid interactive mode and has the ability to export excess renewable (solar) power to the grid.

- Available solar power will supply the site load via the inverter with the excess solar power (if any) being exported to the grid.
- Any excess solar power is used to supply the site load via the inverter. The balance of power needed by the site load is provided by the grid. In the event of low solar power being available, the GSC configures itself as a charger and the grid commences to supporting the site load.

Renewable energy will be utilized to power the site load and reduce the power drawn from the grid. Excess solar power if available will be exported to the grid

- In the event the grid supply was lost or moved too far out of its nominal range, it will be disconnected and power to the load will be supplied from the available renewable resources.
- Once the grid supply was detected to be back in range and stable, the Genset will be taken off line and the inverter module connected back in parallel with the grid supply to power the load.
- **System Features and Options**

- Unique MPPT algorithm automatically adjusts the DC link operating voltage to ensure that maximum power is extracted from the solar array in an efficient manner.
- Automatic “sleep” mode at night reduces standby losses.
- System can continue to operate with up to two of the three grid line voltages being outside the preset minimum grid voltage range.
- Local LCD (liquid crystal display) and keypad for system control and monitoring instantaneous system data.

AC and DC Cables

Parameters	Technical Specification
Type	PVC sheathed /PVC flexible
Material	Copper
Working Voltage	≥ 440V
Test Voltage	220 / 600V
Color	To suit Red, Black, Blue
Temperature	-10°C to +120°C

Protection and Controls

- Power Conditioning Unit shall be provided with islanding protection to isolate it from the grid in case of no supply, under voltage and over voltage conditions so that in no case there is any chance of accident.
- In addition to above, PV systems shall be provided with adequate rating fuses, fuses on Power Conditioning Unit input side (DC) as well as output side (AC) side for overload and short circuit protection and disconnecting switches to isolate the DC and AC system for maintenances is needed.
- Fuses of adequate rating shall also be provided in each solar array module to protect them against short circuit.

Earthing Equipment /Material

- Positive Grounded
- Type: GI Plate, GI Strip, Wet Type, Chemical earthing with GI Plate/Copper Strip
- Maximum safety and system reliability
- Provided with high grade earthing with an earth resistance less than 1 Ohm.
- Consisting system earthing materials, earthing terminal box in earthing system
- Earthing of all the equipment including solar panels, mounting structure, control panel.
- Designed earth resistance to maintain the safety operation of the system.

- Earthing Wire: Design so enough capacity to carry fault current of the system to the ground. designed to meet earth resistance

Civil Structures

- The leg assembly of the module mounting structures will be fixed type and grouted in foundation bases.
- Civil foundation suitable for mounting arrangement as per the Array sizing.
- RCC Mix: 1:2:4
- Withstand 180-200 KMPH Wind Load
- Withstand nominal water Logging during rainy season.
- Civil foundation design life 25 Years.

SPV Mounting Structure

- Depend upon the layout pattern
- Mounting Structure - Suitable for one Solar Array having of mentioned size and weight.
- Structure made of Mild Steel and Hot Dip Galvanized at 80 micron for weather resistance.
- Structure mounted at minimum of 1.5 Meter ground clearance for lowest point
- Structure should withstand at 180 KMPH Wind Load without any vibration or damage.
- Structure design suitable for Different Soil Types as well as for rocky areas.
- Design life for structure is 25 years.
- Temper proof / pilfer proof hardware in mounting structure.

##################

Details of Material for 200 Kw Solar Power Plant

S. No.	ITEM DESCRIPTION	QTY
1	SPV MODULE IEC Certified Poly Crystalline Cell	310 Wp Module X 646 Nos.
2	Power Conditioning Unit (Delta)	50 KVA x 4
3	Wires/ Cables, Connectors,	20 lot
4	Main Junction box- 440V, 20A	1 no.

7. Solar Radiation, Site Wind Speed, Humidity and other Data

SSE Homepage | Find A Different Location | Accuracy | Methodology | Parameters (Units & Definition)

ATMOSPHERIC SCIENCE DATA CENTER

NASA Surface meteorology and Solar Energy - Available Tables

Latitude 29.49 / Longitude 77.57 was chosen.

Geometry Information

Elevation: **506** meters taken from the NASA GEOS-4 model elevation

Northern boundary **30**

Western boundary **77**

Center Latitude **29.78** Longitude **78.23**

Eastern boundary **78**

Parameters for Sizing and Pointing of Solar Panels and for Solar Thermal Applications:

Monthly Averaged Insulation Incident On A Horizontal Surface (kWh/m^2/day)													
Lat 29.78 Lon 78.23	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Average
22-year Average	3.68	4.56	5.80	6.84	7.31	6.71	5.57	4.93	5.25	5.05	4.26	3.54	5.29

Solar Geometry:

Monthly Averaged Daylight Hours (hours)												
Lat 29.78 Lon 78.23	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average	10.4	11.1	12.0	12.8	13.6	14.0	13.8	13.1	12.3	11.4	10.7	10.3

Meteorology (Wind):

Monthly Averaged Wind Speed At 50 m Above The Surface Of The Earth (m/s)													
Lat 29.49 Lon 77.57	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Average
10-year Average	2.76	3.09	3.31	3.78	4.24	4.51	3.86	3.20	3.01	2.21	1.96	2.41	3.19

Minimum And Maximum Difference From Monthly Averaged Wind Speed At 50 m (%)													
Lat 29.78 Lon 78.23	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Average
Minimum	-7	-11	-14	-9	-22	-10	-13	-7	-12	-10	-8	-10	-11
Maximum	7	10	11	9	12	17	32	5	12	8	7	6	11

Meteorology (Humidity):

Monthly Averaged Relative Humidity (%)													
Lat 29.78 Lon 78.23	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Average
22-year Average	49.6	46.2	37.4	32.3	38.7	54.3	76.1	80.5	73.6	53.4	42.1	44.9	52.5

PART-F: Technical Details of the Project

For Standalone Grid connected SPV Power Plant

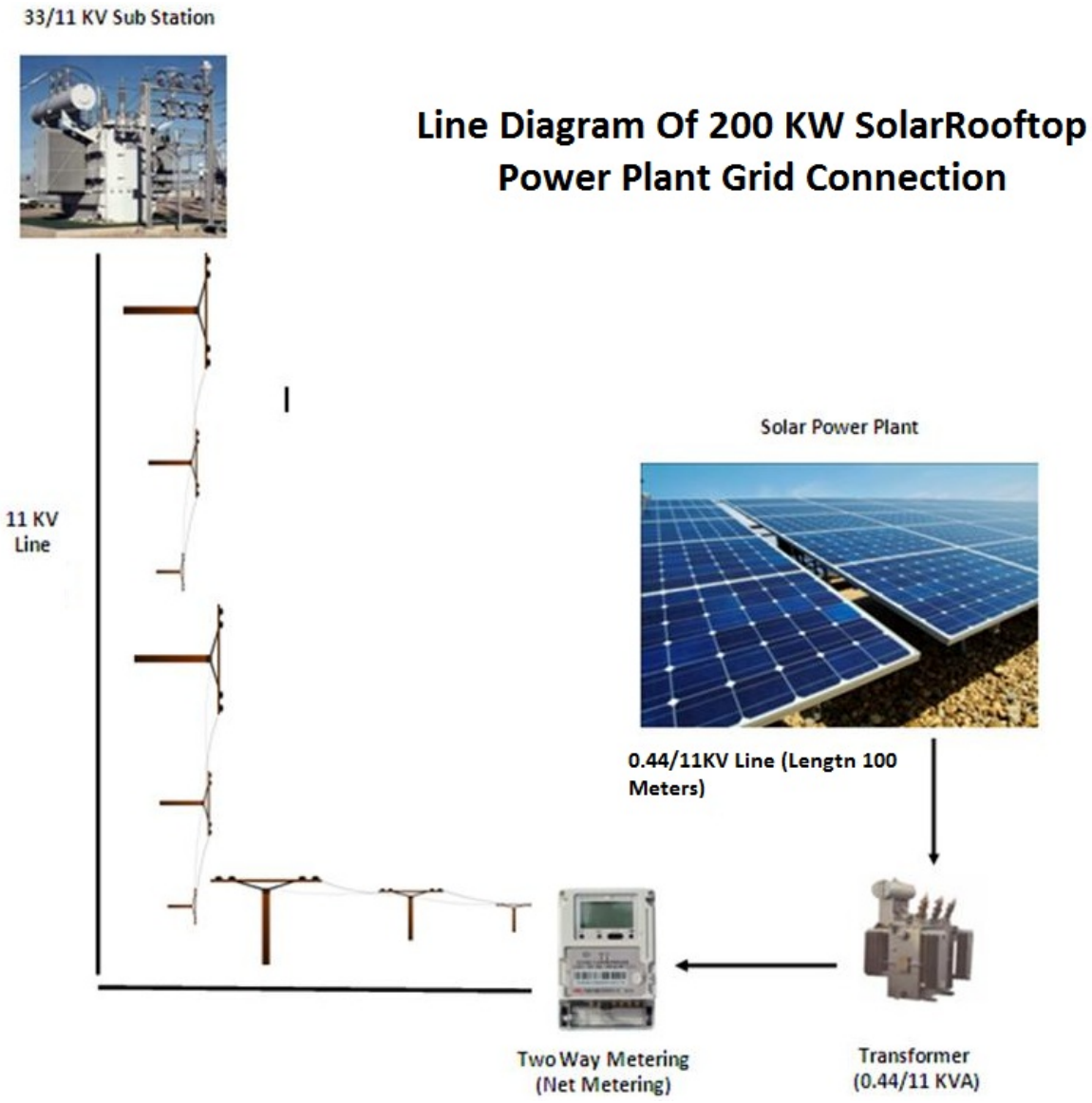
Sr. No.	State/ District	Name of the beneficiary Organization with contact person and postal address, Ph/Mobile No. & email	Total Electrical Load in KWhr	Total Electrical Load to be meet by SPV power plant KWhr	PV array capacity of the System (Wp)	Type and Capacity of Battery if any (V&Ah)	Inverter Capacity (VA)
1.	Uttarakhand/ Haridwar	Shree Krishnayan Desi Gaurakshashala Evam Gaulok Dham Sewa Samiti, village Basochandpur Gaindikhata, Paragna Jawalapur, Tehsil – Haridwar, District – Haridwar, Uttarakhand	200 KW	200 KW	310 Wp (Total 645 Pannels)	NA	4 X 50KVA

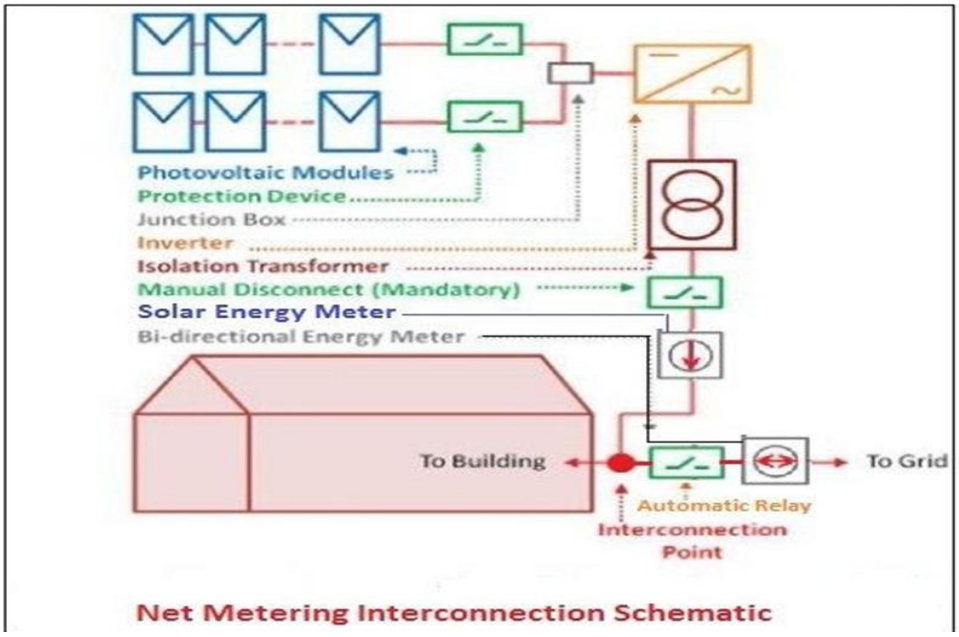
PART-G: Details of Annual Electricity Generation, Capacity used and Power Feed into the Grid

The Plant will connect total 645 panels of 310 Wp Individual capacity will generate total 2, 90,000 unit electricity per annum. The captive uses will be 90 KW maximum per day. The remaining electricity will feed into the grid.

PART- H: Details of Grid Connection and Metering Arrangement

Line Diagram Of 200 KW SolarRooftop Power Plant Grid Connection





PART- 1:

i. Details of Proposed Business Model

Sr. No.	Particulars	Parameters
1	Proposed Capacity of Grid Interactive SPV Power Plant	**200 KWp**
3	Electricity Generated by Plant Annually	**290000 Units**
4	Present Total Connected Load of Site for Captive utilization (approx.)	**25 KW**
5	Present Electricity Consumption/Bill per Month	**2500 units/ Rs.4000**
6	Area Required for Power Plant (approx)	**1860 Sq.mts.**
7	Area Available at Site	**10000 Sq.mts.**
8	Revenue earn from Electricity sale by Client Annually	**Rs. 13.5 Lakhs**

9	Total Cost of Proposed Power Plant (Taxes as applicable)	**Rs. 110 Lakhs**
10	Centre Govt. Subsidy (MNRE)	**70% of Plant Benchmark Cost = Rs. 79.1 Lakhs**
11	Client Share with 5 years AMC and Taxes amount.	**Remaining Cost of Plant = Rs. 30.9 Lakhs**
12	• Simple Payback period • Project compound Payback period • Equity Payback period	**5.15 years** **5.5 years** **3.6 years**
13	Project IRR Equity IRR	**21 %** **28 %**

ii. Consent from involved parties/users

All required Letters/NOC attached

PART-J: Break up Project Hardware Cost

Sr. No.	SPV Power Plant capacity (kWp)	Cost in Rupees					
		Module	Power Conditioning Unit	Transformer	Balance of System and O&M	Structure	Total

01	**200 KWp**	**60,00,000**	**10,00,000**	**10,00,000**	**22,00,000**	**8,00,000**	**1,10,00,000**

PART-K: Costing of Complete Project with AMC

S. No.	Systems	Unit Cost (Rs.)	Quantity (No.)	Total Cost (Lakh)
1.	Cost of Systems Hardware	96,00,000	01	96.00
2.	Cost of transportation and insurance	200,000	01	2.00
3.	Cost of civil works and electrical line works	5,00,000	01	5.00
4.	Cost of installation and commissioning	2,00,000	01	2.00
5.	Cost of Operational & Maintenance for 5 year (AMC)	5,00,000	01	5.00
	Total Cost			**110.00**

PART-L: Means of Finance

1.	Envisaged Central Financial Assistance from MNRE	Rs. 79,10,000
2.	Contribution of Beneficiaries	Rs. 30,90,000
3.	Contribution of Project Supporters	Rs.- NA
4.	Other Source (s) of Funding	NA
5.	Envisaged Soft Loan assistance, if any	Rs.- NA
6	• Details of Revenue to be Earned from UPCL • Simple Payback period • Project compound Payback period • Equity Payback period	**Rs. 13, 50,000 per year.** **5.15 years** **5.5 years** **3.5 years** #

 # Note: Refer Annexure – A.

PART-M: Other Information

Warranty of Components

Warranty of the major component selected for the projects will be as per MNRE guidelines:

Note: All warranties, as provided by any of manufacturer/supplier shall be in favour of the buyer/towards equipment and all the benefits shall pass on the customer, for the period as specified by the supplier.

These warranties are provided towards safe working of each individual component and vary in validity period.

1. Modules are generally guaranteed against manufacturing and workmanship defects for the period of 5 years and Limited warranty for performance of not less than 90% of the rated power for 10 year and not less than 80% of rated power for 25 years from the date of handing over of the plant. Performance warranty will be subject to10% degradation in module output power in first 10 years and 15% degradation for the next 15 years.
2. Power Conditioning Unit and Transformer will be warranted for a minimum period of 5 years extendable to 10 years including cables. However, the warranty shall be supported by manufacturer and supplier of the Power Conditioning Unit.
3. Balance of all other system components will be guaranteed for a period of 5 years from the date of handing over the plant.
4. In case of any extended warrantee provided by the manufacturer for a period more than 2 years, the warrantee benefits shall be passed on to end user.

Project Submitted By:

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Authorized Signatory **Seal**