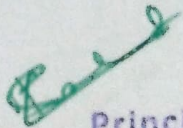


Radhakrishna Institute of Technology and Engineering (RITE)

Affiliated by (AICTE), MHRD Govt. of India, New Delhi & (BPUT), Govt. of Odisha

Establishment of 100kw roof top solar PV power plant


Principal
Radhakrishna Institute of Technology
and Engineering, Dhubaneswar

INTRODUCTION

In order to limit and reduce the environmental degradation, the encouragement of the development of green technologies and their adoption is necessary (Paulo and Porto, 2018). Solar, wind, biomass, hydro and all the various renewable sources of energy which do not cause any environmental pollution during their usage must be adopted and replace all the conventional sources of energy. Among all these, solar is one of the most abundant sources of energy. Solar radiation is having the greatest potential for green technologies since it is very abundant, clean, cost free and inexhaustible source of energy. From the past many years, fixed or static solar systems were in use but now with the advancement of technologies the efficiency of solar systems is being increased by using single axis and dual axis solar tracking systems which can track the position of the sun according to the season and time of the day. Though fixed racking can accommodate harsher environmental conditions easily and tracking being a more complex system requires more site preparations, additional trenching for wiring and some additional grading (Solar Power World, 2016), tracking systems are being used widely as they have improved the efficiency of energy extraction and in a way, has optimized the process. Neville (1978) through his paper showed that the dual axis tracking system manages to give maximum amount of output energy where single axis tracking system's energy output falls by 5%–10% and fixed system's fall by 50%. Arlikar et al. (2015) showed that a 3D solar tracker based solar panel receives more energy than a fixed one. Many theoretical and experimental papers have been published on this subject in the past. Relationship for slope and azimuth expressions between single axis and dual axis tracking systems is given by Braun and Mitchell (1983). Though tracking has improved the output in many cases but it does not guarantee better output. Sharaf Eldin et al. (2016) showed that tracking the sun is not that feasible in hot regions. They used mathematical model is validated experimentally and then applied for several environments, i.e. hot as well as cold regions. They found that the gain in electrical energy from tracking the sun is about 39% in case of a cold city as Berlin, Germany. While the gain in energy does not exceed 8% in case of a hot city as Aswan, Egypt, due to overheating of the PV panels. However, if the energy needed for running the tracking system, which ranges from 5% to 10% of the energy generated, is included in this analysis then tracking the sun will not be feasible in hot countries.

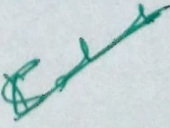
ABOUT ROOF TOP SOLAR POWER PLANT

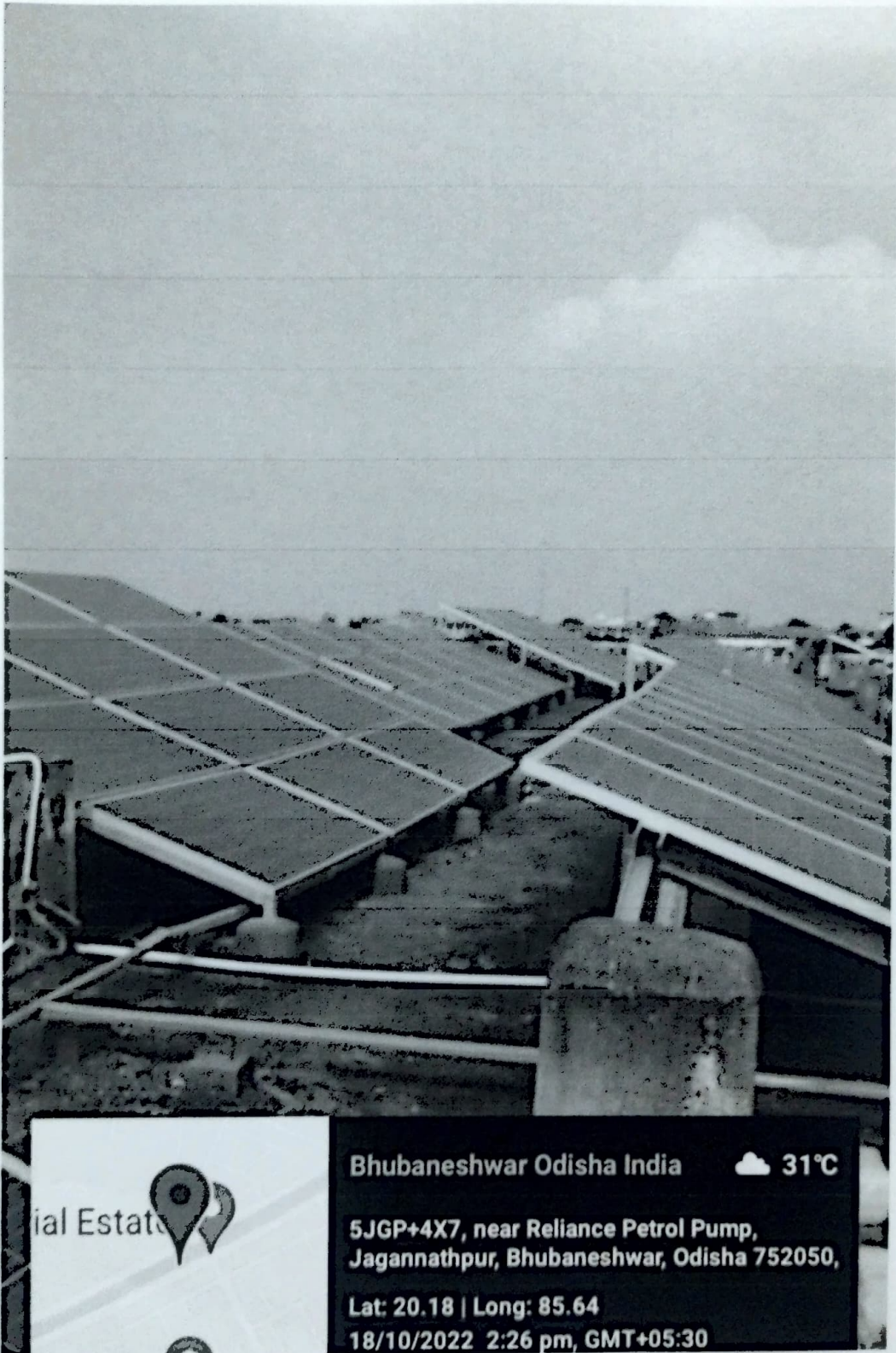
The principle of solar power plant is very simple. It consists of a field of solar photovoltaic modules connected in series and parallel and connected to one and more inverters. Solar energy is directly transformed into electricity.

In view of the above concepts, The management of RITE, Bhubaneswar has planned to install a 100KW roof top solar power plant at RITE premises located at Khordha, Odisha, India. Approximately 1,50,000 unit per annum will be gwnwrated as an output of the project.


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and Engineering, Bhubaneswar

Photos of Roof top solar power plant


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ial Estate



Bhubaneswar Odisha India

☁ 31°C

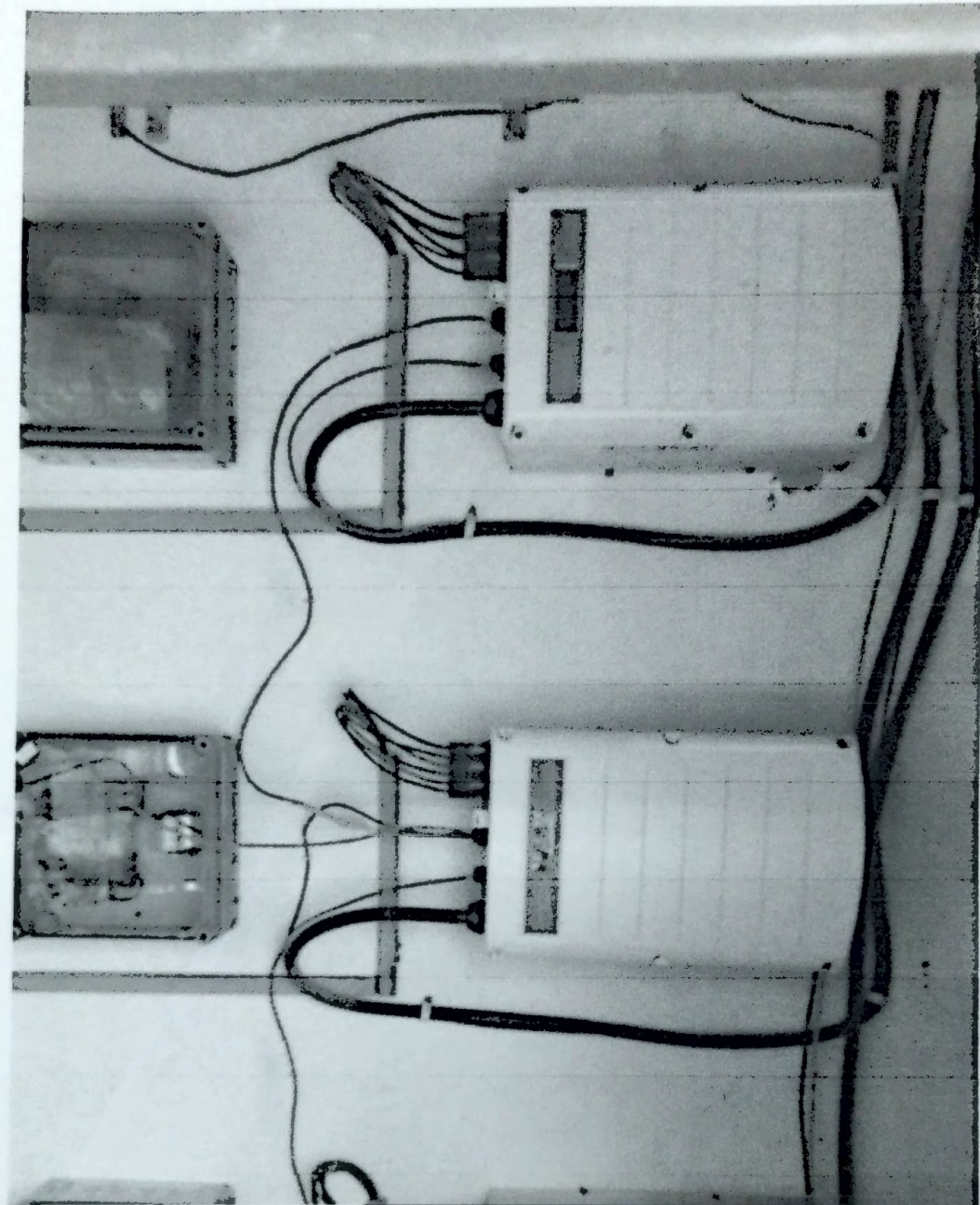
5JGP+4X7, near Reliance Petrol Pump,
Jagannathpur, Bhubaneswar, Odisha 752050,

Lat: 20.18 | Long: 85.64

18/10/2022 2:26 pm, GMT+05:30

Ball

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and Engineering, Bhubaneswar



Khordha Odisha India ☁ 31°C

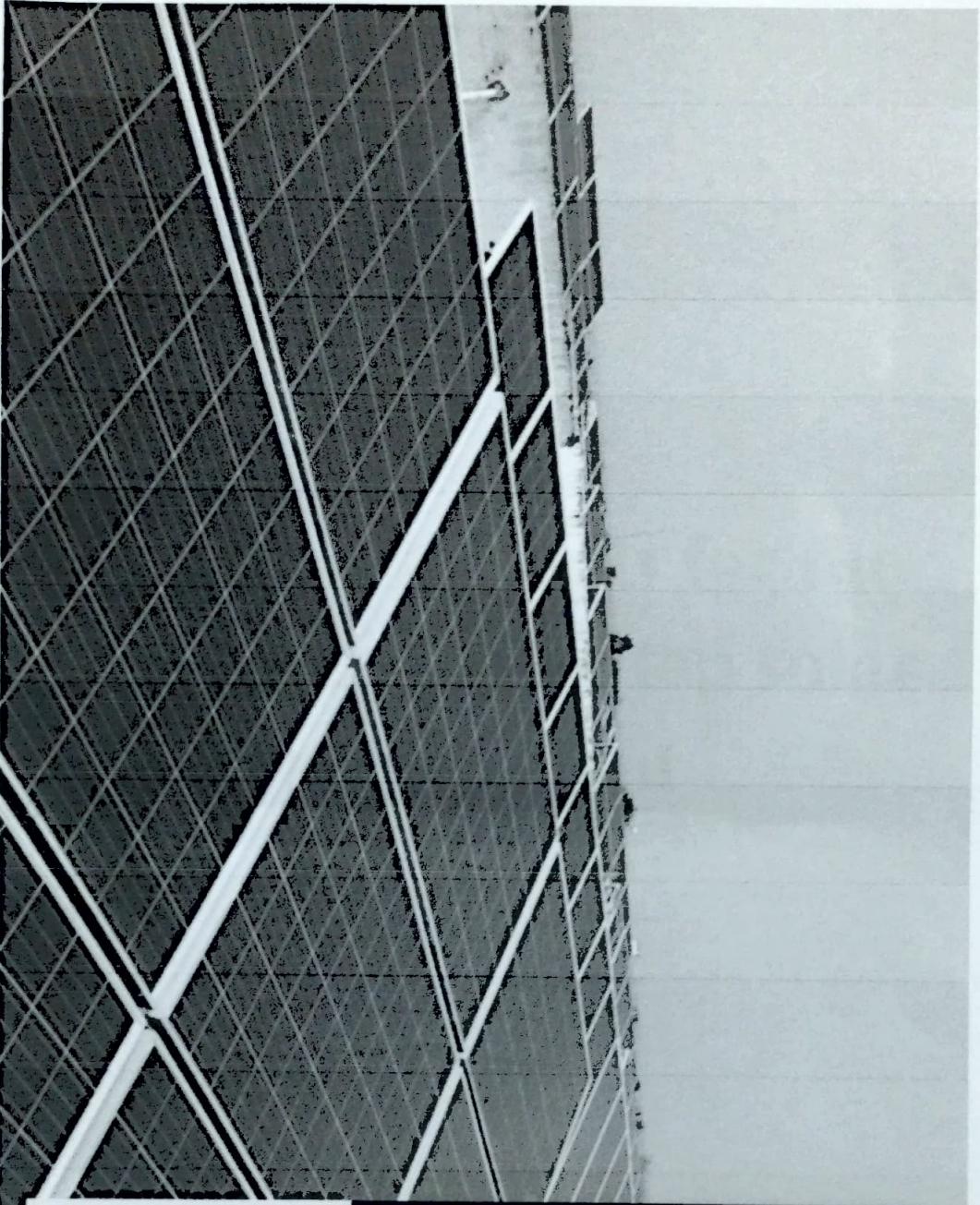
F12 iid centre Tite administrator building,
Jagannathpur, Khordha, Odisha 752057, India


Lat: 20.17 | Long: 85.64


18/10/2022 2:20 pm, GMT+05:30

Radh

Principal
Radhakrishna Institute of Technology
and Engineering, Bhubaneswar



ial Estate 

Bhubaneswar Odisha India  **31°C**

**5JGP+4X7, near Reliance Petrol Pump,
Jagannathpur, Bhubaneswar, Odisha 752050,**

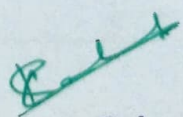
Lat: 20.18 | Long: 85.64

18/10/2022 2:23 pm, GMT+05:30

Balk

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and Engineering, Bhubaneswar

**Copies of the Bills for the
Purchase of Roof top solar
power plant**


Principal
Radhakrishna Institute of Technology
and Engineering, Bhubaneswar

TAX INVOICE

CREDIT



KALINGA KOMMERCIALS
 23, Shubham Market
 Ram Mandir Square
 Janpath, Bhubaneswar
 Odisha

GSTIN/UIN: 21AANPD9614Q1ZC

INVOICE NO: 12201 0005	Date: 30-04-2021
CHALLAN NO:	Date:
REVERSE CHARGE:	NO
PURCHASE ORDER NO.:	
PURCHASE ORDER DATE:	

Phone No.: 0674-2380800, Email ID: mktg@kalingasolar.com, Website: www.kalingasolar.com

BILLED TO:
 M/s JRG Educational Trust
 IDCO Plot No. 1, Barunei Industrial Estate
 Khorda- 752055
PARTY'S GSTIN/UIN:

DELIVERED AT:

SL No	Description	HSN/SAC Code	Unit	Qty	Rate	Total Amount
1	Solar Module 335 Wp Waaree SL No- WS0720901059- 7665, 7689, 7691, 7694, 7738, 6791, 6980, 6979, 6378, 6944, 6517, 6574, 6966, 6976, 6975, 7090, 7092, 6977, 8444, 8263, 8271, 7846, 8489, 6681, 8785, 6701, 8598, 6946, 8514, 6801, 8567, 8379, 8497, 7808, 7817, 6306, 8230, 8471, 7755, 8302, 8413, 8732, 8690, 8393, 9151, 8592, 8343, 8788, 8525, 8629, 8792, 6742, 6644, 6641, 8660, 7838.	8541	No	56	7,168.00	4,01,408.00

JRGET, KHORDHA
 Sl.No. 5104 Material In/Out
 Date: 29/04/21 Time: 2:00 PM
 Security Sign: [Signature]

Taxable Amount	4,01,408.00
CGST %	2.5 10,035.20
SGST %	2.5 10,035.20
IGST %	0.0 -
GRAND TOTAL	4,21,478.40
ROUND OFF	-0.40
GRAND TOTAL	4,21,478.00

Bank Details: A/c No-1617282010347, Bank: Canara Bank, IFSC- CNRB0001617
 Branch- Laxmisagar, Cuttack Road, Bhubaneswar

Subject to Bhubaneswar jurisdiction
 Goods are supplied on consumer risk
 Received material in good conditions

Customer's Seal and Signature
Received by JRGET STORE
 Signature..... [Signature]
 Date..... 29/04/21

Pal
Principal
 Radhakrishna Institute of Technology
 and Engineering, Bhubaneswar



E & O E
 Kalinga Kommercials
 [Signature]
 Authorised Signatory

For solar panel (boys hostel)

Solar Panel.

e-Way Bill



E-Way Bill No: 8611 5585 4199
E-Way Bill Date: 30/04/2021 12:43 PM
Generated By: 21AAN PD961 4Q1ZC - KALINGA KOMMERCIALS
Valid From: 30/04/2021 12:43 PM [39Kms]
Valid Until: 01/05/2021

Part - A

GSTIN of Supplier 21AANPD9614Q1ZC,KALINGA KOMMERCIALS
Place of Dispatch Khordha,ODISHA-751023
GSTIN of Recipient URP ,JRG Educational Trust
Place of Delivery Khordha,ODISHA-752055
Document No. 122010005
Document Date 30/04/2021
Transaction Type: Regular
Value of Goods 421478
HSN Code 8541 -
Reason for Transportation Outward - Supply
Transporter

Part - B

Mode	Vehicle / Trans Doc No & DL	From	Entered Date	Entered By	CEWB No. (If any)	Multi Veh.Info (If any)
Road	OR029646	Khordha	30-04-2021 12:43 PM	21AANPD9614Q1ZC	-	-



861155854199

Reddy
Principal
Radhakrishna Institute of Technology
and Engineering, Bhubaneswar

ORIGINAL

KALINGA KOMMERCIALS

23, Subham Market
Ram Mandir Square
Bhubaneswar - 751 001

DELIVERY CHALLAN

CHALLAN NO.: K 2 / M

0802

Telefax : 91-674-2380800/2380801
TIN : 21381106608
CST No.: BH - II - 1322

DATE : 24/04/2017

To JRG Educational Trust, Dist - Khordha,	Your Order No.: DATED : LR / RR No.: DATED : Dispatched by : Documents through :
---	---

SI. No.	DESCRIPTION	UNIT PRICE RS	UNIT	QUANTITY
①	Renewable Energy Devices Solar Module 24v 315wp Make - vikram, R. I. T. E., KHORDHA Sl. NO. 5347 Material In/Out Date 24/04/17 Time 10:00 AM Security Sign. <i>[Signature]</i>		No.	320 No.
PARTY'S TIN NO : PARTY'S CST NO :				

PLEASE SIGN AND RETURN TWO COPIES OF THIS CHALLAN

Goods once sold cannot be taken back.

Jurisdiction : Bhubaneswar

Received the above mentioned materials in good condition.

[Signature]
 Principal
 Radhakrishna Institute of Technology
 and Engineering, Bhubaneswar

Received By: RITE-STORE
 Signature: *[Signature]*
 Date: 24/04/17



Signature and Seal
Date :

Printed by : Omm Shree Creation, Rasulgarh, BBSR
Sl. No. 0701 to 1000

E. & O.E.
For KALINGA KOMMERCIALS

Note -
 Return - 02 Nos. as per Invoice in Order
 against GP No - 1559
 dt - 27/05/17
 and other 318 nos. of boys
 stock at hostel - *[Signature]*

