



**MACFAST**<sup>TM</sup>  
Igniting wisdom since 2001

**MAR ATHANASIOS COLLEGE FOR ADVANCED STUDIES TIRUVALLA  
(MACFAST)  
Thiruvalla - 689101**

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# **SOLAR POWER PLANT**



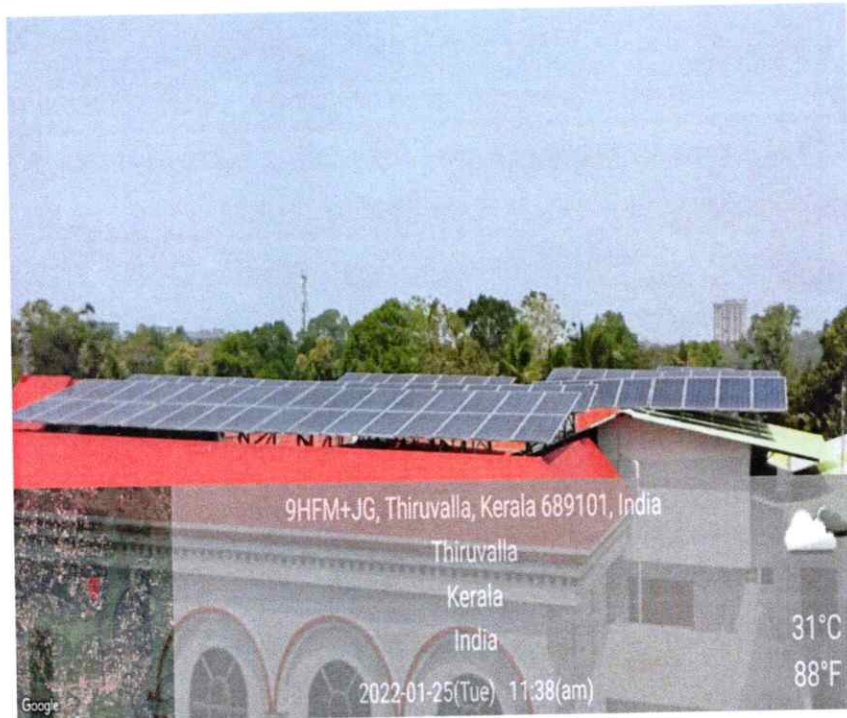
### **SOLAR ENERGY SYSTEM**

Mar Athanasios College For Advanced Studies Thiruvalla (MACFAST) added another feather on its cap of achievements by becoming the State's first solar-powered campus in 2011. MACFAST installed a 30KW rooftop solar power plant envisaging a yearly production of 45,000 units (kilowatt hours) of electricity which could meet half of the annual power demand of the institution. Electricity Minister, Aryadan Mohammed, inaugurated the solar power plant at MACFAST as part of the 10th anniversary celebrations of the college on Saturday, 22<sup>nd</sup>, November 2011. The design and installation of the solar power plant was done by Radiant Solar Private Limited, Hyderabad with approval and support from the Union Ministry for New and Renewable Energy (MNRE) and ANERT attached to Department of Power, Kerala. The college invested Rs 72 lakhs in the solar power project. The institution exerts immense care in the timely maintenance of the solar plant for its effective functioning. In 2018 November, the solar plant was upgraded to 130 KW for meeting the increasing power consumption.

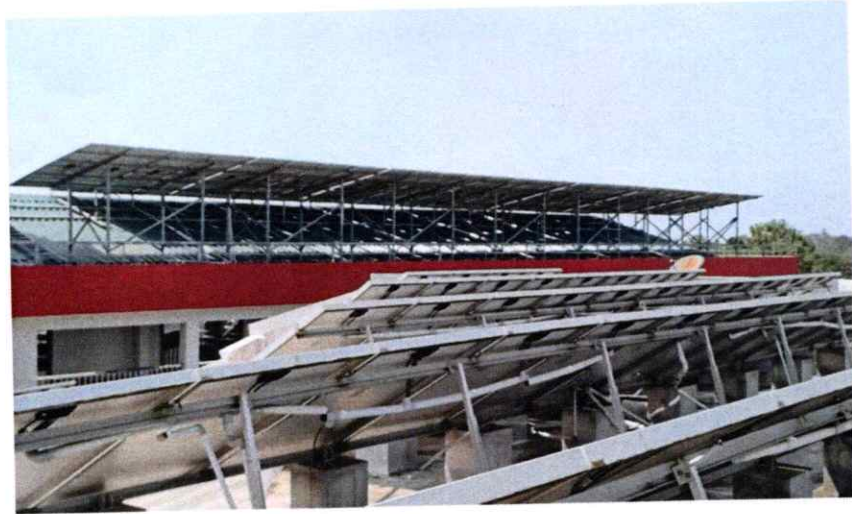
The project is significant not only in terms of its size and technical attributes, but also in terms of its demonstration to the community. The innovative campus-based solar power plant is MACFAST's answer to the demand for Green Energy. Renewable energy that has little impact on the carbon footprint is the only viable solution to address the increasing energy needs of the country in an ecologically sustainable manner. The system has got 370 panels, 30 KW state of the art bi-directional charger capable of functioning as an interactive inverter and 100 KW with grid-tie capability, four-member charge controllers, a 19-inch rack, a central monitoring device package and UPS (for 100 KW).



**Solar Panels**







**Solar Plant Specification**

# SOLAR POWER PLANT

<b>Date of Establishment</b>	<b>30/06/2011</b>
<b>Solar Plant Identification Number</b>	<b>4617-0003</b>
<b>Consumer Number</b>	<b>13 A6170016581</b>
<b>Solar Capacity</b>	<b>130 KW</b>
<b>Manufacturer</b>	<b>Radiant Solar</b>
<b>Details of Distribution</b> (Transformer to which the plant is connected)	<b>315 kVA. 11KV/433V</b>
<b>Annual Energy Generated</b>	<b>199,290 kWhs</b>



## SOLAR POWER PLANT SPECIFICATIONS



സോളാർ പ്ലാന്റ് കണക്ഷൻ റിപ്പോർട്ട്

സെക്ഷൻ : THIRUVALLA  
 കൺസ്യൂമർ നമ്പർ : 13A6170016581 (13 അക്കം)  
 പേര് : Max Athanasios College for Advanced Studies Tiruvalla  
 സ്റ്റീൻ നമ്പർ : A61700003  
 സോളാർ കപ്പാസിറ്റി : 100 Kw കിലോവാട്ട്  
 കണക്ട് ചെയ്ത ദിവസം : 30 June 2018  
 സോളാർ മീറ്റർ ഇനിഷ്യൽ റീഡിംഗ് : 128 Kwh  
 നെറ്റ് മീറ്റർ ഇനിഷ്യൽ റീഡിംഗ് : 507.4 Kwh

തീയതി

അസിസ്റ്റന്റ് എഞ്ചിനീയർ പേര്

**SANTHOSH K.**  
**ASSISTANT ENGINEER**  
**K.S.E.B. LTD. ELECTRICAL SECTION**  
**THIRUVALLA**

ഒപ്പ്

**ASSISTANT ENGINEER**  
**ELECTRICAL SECTION**  
**THIRUVALLA**

പകർപ്പ് :

ഡെപ്യൂട്ടി ചീഫ് എഞ്ചിനീയർ .....  
 എക്സിക്യൂട്ടീവ് എഞ്ചിനീയർ .....



407

Date: 17<sup>th</sup> October 2017

The Principal  
Mar Athanasios College for Advanced Studies (MACFAST)  
Thiruvalla,  
Kerala – 689 101

Sub: 100 KW On Grid Solar Power Generating System –  
Ref: Work Order No.SCRP/2016/A-1652

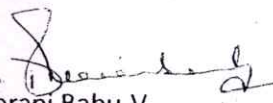
Dear Rev. Father Pradeep V Mammen

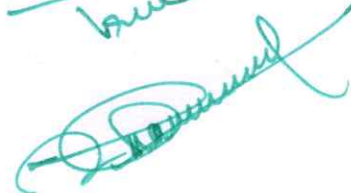
With reference to the 100 KW On Grid Solar Power Generating System installed at your premises, we wish to state that we have already supplied and completed the installation work. Total order value is Rs.70, 00, 000/-. We have raised the following invoices (copies are enclosed for your ready reference).

Sl.No.	Invoice Particulars	Amount INR
1,	01/001 dt.3.08.2017	2604000.00
2	01/002 dt 4.08.2017	781200.00
3	01/003 dt 8.08.2017	1334900.00
4	01/004 dt 9.08.2017	850500.00
5	01/005 dt 10.08.2017	326838.00
6	01/006 dt 16.08.2017	630491.00
7	01/015 dt.12.09.2017	472076.00
	<b>Total</b>	<b>7000005.00</b>
	<b>Rounded to</b>	<b>7000000.00</b>
	Less Amount Received so far	4000000.00
	<b>Balance to be received</b>	<b>3000000.00</b>

We request you kindly to release above sum at the earliest which would help us to tide over some urgent financial commitments.

Thanking you,  
Very Truly Yours  
RADIANT SOLAR PRIVATE LIMITED

  
Dharani Babu.V  
Vice President

*True Copy*  


ANERT : 7,20,000  
MNRE : 18,30,120

Total Subsidy : 25,50,120/00





**RADIANT SOLAR PRIVATE LIMITED**  
 35/1620, South Janatha Road,  
 Palarivattom PO,  
 Kochi - 682025

GSTIN : 32AADCR5833J1ZD

<b>TAX INVOICE</b>				Original for Receipt	
				Duplicate for Supplier/ Transporter	
				Triplicate for Supplier	
Invoice No.	01/001	Transportation Mode	By Parcel Service		
Invoice Date	03-08-17	Vehicle Number	AP 22X 2609		
State	Kerala	Date of Supply	03-08-17		
	State Code: 32				

<b>Details of Receiver (Billed to)</b>				<b>Details of Consignee (Shipped to)</b>			
Name MarAthanasios College for Advanced Studies (MACFAST)				Name MarAthanasios College for Advanced Studies (MACFAST)			
Address Thiruvalla, Kerala, India. Pin-689 101				Address Thiruvalla, Kerala, India. Pin-689 101			
GSTIN State Kerala State Code 32				GSTIN State Kerala State Code 32			

Sl No.	Name of Product/ Service	HSN Code	Qty	UOM	Rate	Amount	Less: Discou	Taxable Value	CGST		SGST		IGST		Total
									Rate	Amount	Rate	Amount	Rate	Amount	
1	310Wp Solar PV module Model RS310P-72	85414011	250	No	9920	2480000	0	2480000	2.50%	62000	2.50%	62000	5.00%		2604000
<b>Freight :</b>								0							0
<b>Insurance :</b>								0							0
<b>Packing and Forwarding Charges :</b>								0							0
<b>Total :</b>								2480000		62000		62000		0	2604000

**Total Invoice Amount in Words :** Twenty Six Lakh four thousand rupees only

<b>Total Amount Before Tax</b>	2480000
<b>Add : CGST</b>	62000
<b>Add : SGST</b>	62000
<b>Add : IGST</b>	0
<b>Total Amount : GST</b>	124000
<b>Total Amount After Tax</b>	2604000

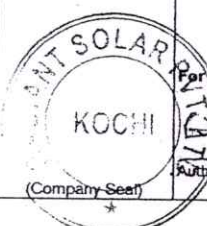
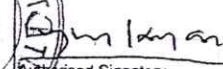
**Bank Details :**

Bank Account Number	1983261005120
Bank Name	Canara Bank
Branch Name	Industrial Finance Branch, Hyderabad
IFSC	CNRB0002423

**Terms and Conditions :**

1 Quality/Quantity Discrepancy and Claim: In case the quality and/or quantity are not in conformance with the contract after delivery. Buyers may lodge a claim supported by survey report issued by an inspection organization agreed upon by both parties. with the exception however of those clients for which the insurance company and/or shipping company are to be held responsible. Claim for quality discrepancy should be filled by the buyers with in 30 days after renewal of the goods, while for quantity discrepancy claim should be filled by buyers with in 15 days after arrival of the goods at the port of destination. The sellers shall, within 30 days after receipt of the notification of the claim, sender reply to Buyers

2 Goods may be dispatched in separate shipments Buyers take ownership of the goods upon delivery. Goods must be stored in a clean and dry, ventilated and safe location. Solar photo voltaic modules must not be stocked horizontally.

  
 For Radiant Solar Private Limited  
  
 Authorised Signatory  
 (Company Seal)

*Trace copy*

*True Copy*







**RADIANT SOLAR PRIVATE LIMITED**  
 35/1620, South Janatha Road,  
 Palarivattom PO,  
 Kochi - 682025

GSTIN : 32AADCR5833J1ZD

TAX INVOICE												Original for Receipt			
												Duplicate for Supplier/ Transporter			
												Triplicate for Supplier			
Invoice No.	01/002			Transportation Mode	By Parcel Service										
Invoice Date	04-08-17			Vehicle Number	AP 22X 6089										
State	Kerala			Date of Supply	04-08-17										
State Code: 32															
Details of Receiver (Billed to)						Details of Consignee (Shipped to)									
Name	MarAthanasios College for Advanced Studies (MACFAST)					Name	MarAthanasios College for Advanced Studies (MACFAST)								
Address	Thiruvalla, Kerala, India. Pin-689 101					Address	Thiruvalla, Kerala, India. Pin-689 101								
GSTIN						GSTIN									
State	Kerala			State Code	32		State	Kerala			State Code	32			
Sl No.	Name of Product/ Service	HSN Code	Qty	UOM	Rate	Amount	Less: Discou	Taxable Value	CGST Rate	CGST Amount	SGST Rate	SGST Amount	IGST Rate	IGST Amount	Total
1	310Wp Solar PV module Model RS310P-72	85414011	75	No	9920	744000	0	744000	2.50%	18600	2.50%	18600	5.00%		781200
Freight :								0							0
Insurance :								0							0
Packing and Forwarding Charges :								0						0	
<b>Total :</b>								<b>744000</b>		<b>18600</b>		<b>18600</b>		<b>0</b>	<b>781200</b>
Total Invoice Amount in Words : Seven Lakh Eighty one thousand two hundred rupees only												Total Amount Before Tax	744000		
												Add : CGST	18600		
												Add : SGST	18600		
												Add : IGST	0		
												Total Amount : GST	37200		
												Total Amount After Tax	781200		
<b>Bank Details :</b>												Certified that the particulars given above are true and correct.			
Bank Account Number	1983261005120														
Bank Name	Canara Bank														
Branch Name	Industrial Finance Branch, Hyderabad											For Radiant Solar Private Limited			
IFSC	CNRB0002423														
<b>Terms and Conditions :</b>												Authorised Signatory:  <i>(Company Seal)</i>			
<p>1. Quality/Quantity Discrepancy and Claim. In case the quality and/or quantity are not in conformance with the contract after delivery, Buyers may lodge a claim supported by survey report issued by an inspection organization agreed upon by both parties, with the exception however of those clients for which the insurance company and/or shipping company are to be held responsible. Claim for quality discrepancy should be filled by the buyers with in 30 days after renewal of the goods, while for quantity discrepancy claim should be filled by buyers with in 15 days after arrival of the goods at the port of destination. The sellers shall, within 30 days after receipt of the notification of the claim, sender reply to Buyers.</p> <p>2. Goods may be dispatched in separate shipments Buyers take ownership of the goods upon delivery. Goods must be stored in a clean and dry, ventilated and safe location. Solar photo voltaic modules must not be stocked horizontally.</p>															

*True copy*

*True Copy*  
*[Signature]*



TAX INVOICE												Original for Recipient			
												Duplicate for Supplier/ Transporter			
												Triplicate for Supplier			
Invoice No.	01/004					Transportation Mode	By Road								
Invoice Date	8/9/2017					Vehicle Number									
State	Kerala			State Code	32		Date of Supply	8/9/2017							
Details of Receiver (Billed to)						Details of Consignee (Shipped to)									
Name	MarAthanasios College for Advanced Studies (MACFAST)					Name	MarAthanasios College for Advanced Studies (MACFAST)								
Address	Thiruvalla, Kerala, India Pin-689 101					Address	Thiruvalla, Kerala, India Pin-689 101								
GSTIN	Kerala			State Code	32		GSTIN	Kerala			State Code	32			
Sl No.	Name of Product/ Service	HSN Code	Qty	UOM	Rate	Amount	Less: Discou	Taxable Value	CGST Rate	CGST Amount	SGST Rate	SGST Amount	IGST Rate	IGST Amount	Total
1	100KW On-Grid Solar Power Generating System-LOT 4 consisting of:	85414011	1	set	810000	810000	0	810000	2.50%	20250	2.50%	20250	5.00%		850500
	Module Mounting Structure														
Freight:								0							0
Insurance:								0							0
Packing and Forwarding Charges:								0							0
<b>Total:</b>								<b>810000</b>		<b>20250</b>		<b>20250</b>		<b>0</b>	<b>850500</b>
Total Invoice Amount in Words : Eight Lakh Fifty Thousand Five Hundred rupees only												Total Amount Before Tax	810000		
												Add : CGST	20250		
												Add : SGST	20250		
												Add : IGST	0		
												Total Amount : GST	40500		
												Total Amount After Tax	850500		
Bank Details :												Certified that the particulars given above are true and correct			
Bank Account Number	1983261005120														
Bank Name	Canara Bank														
Branch Name	Industrial Finance Branch, Hyderabad														
IFSC	CNRB0002423											For Radiant Solar Private Limited  <i>[Signature]</i> Authorised Signatory			
Terms and Conditions :															
<p>1 Quality/Quantity Discrepancy and Claim: In case the quality and/or quantity are not in conformance with the contract after delivery, Buyers may lodge a claim supported by survey report issued by an inspection organization agreed upon by both parties, with the exception however of those clients for which the insurance company and/or shipping company are to be held responsible. Claim for quality discrepancy should be filed by the buyers with in 30 days after renewal of the goods, while for quantity discrepancy claim should be filed by buyers with in 15 days after arrival of the goods at the port of destination. The sellers shall, within 30 days after receipt of the notification of the claim, sender reply to Buyers</p> <p>2 Goods may be dispatched in separate shipments Buyers take ownership of the goods upon delivery. Goods must be stored in a clean and dry, ventilated and safe location. Solar photo voltaic modules must not be stocked horizontally</p>												(Company Seal)			

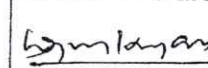
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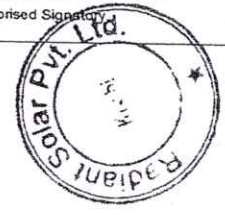


GSTIN : 32AADCR6833J1ZD

TAX INVOICE												Original for Recipient			
Invoice No. : 01/005										Transportation Mode : By Road		Duplicate for Supplier/ Transporter			
Invoice Date : 8/10/2017										Vehicle Number : KL58G4490		Triplicate for Supplier			
State : Kerala										State Code : 32		Date of Supply : 8/10/2017			
Details of Receiver (Billed to)						Details of Consignee (Shipped to)									
Name : MarAthanasios College for Advanced Studies (MACFAST)						Name : MarAthanasios College for Advanced Studies (MACFAST)									
Address : Thiruvalla, Kerala, India Pin-689 101						Address : Thiruvalla, Kerala, India Pin-689 101									
GSTIN : Kerala						GSTIN : Kerala									
State Code : 32						State Code : 32									
SI No.	Name of Product/ Service	HSN Code	Qty	UOM	Rate	Amount	Less: Discou.	Taxable Value	CGST Rate	CGST Amount	SGST Rate	SGST Amount	IGST Rate	IGST Amount	Total
1	100KW On-Grid Solar Power Generating System -LOT 5 consisting of :	85414011	1	set	311274	311274	0	311274	2.50%	7781.85	2.50%	7781.85	5.00%		326837.7
	1)DC Cables and accessories														
Freight :								0							0
Insurance :								0							0
Packing and Forwarding Charges :								0							0
Total :								311274		7781.85		7781.85		0	326837.7
Total Invoice Amount In Words : Three Lakh Twenty Six thousand Eight Hundred and Thirty Eight rupees only												Total Amount Before Tax : 311274			
												Add : CGST : 7781.85			
												Add : SGST : 7781.85			
												Add : IGST : 0			
												Total Amount : GST : 15563.7			
												Total Amount After Tax : 326837.7			
Bank Details :												Certified that the particulars given above are true and correct			
Bank Account Number : 1983261005120															
Bank Name : Canara Bank															
Branch Name : Industrial Finance Branch, Hyderabad												For Radiant Solar Private Limited			
IFSC : CNRB0002423															
Terms and Conditions :												Authorised Signatory  (Company Seal)			
1. Quality/Quantity Discrepancy and Claim: In case the quality and/or quantity are not in conformance with the contract after delivery, Buyers may lodge a claim supported by survey report issued by an inspection organization agreed upon by both parties, with the exception however of those clients for which the insurance company and/or shipping company are to be held responsible. Claim for quality discrepancy should be filled by the buyers with in 30 days after renewal of the goods, while for quantity discrepancy claim should be filled by buyers with in 15 days after arrival of the goods at the port of destination. The sellers shall, within 30 days after receipt of the notification of the claim, sender reply to Buyers.															
Goods may be dispatched in separate shipments Buyers take ownership of the goods upon delivery. Goods must be stored in clean and dry, ventilated and safe location. Solar photo voltaic modules must not be stocked horizontally.															

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[Signature]







**RADIANT SOLAR PRIVATE LIMITED**  
 35/1620, South Janatha Road,  
 Palarivattom PO,  
 Kochi - 682025

GSTIN : 32AADCR5833J1ZD

TAX INVOICE														Original for Recipient	
														Duplicate for Supplier/ Transporter	
														Triplicate for Supplier	
Invoice No.	01/006			Transportation Mode	By Road										
Invoice Date	16-08-17			Vehicle Number											
State	Kerala			State Code	32			Date of Supply	16-08-17						
Details of Receiver (Billed to)							Details of Consignee (Shipped to)								
Name	MarAthanasios College for Advanced Studies (MACFAST)						Name	MarAthanasios College for Advanced Studies (MACFAST)							
Address	Thiruvalla, Kerala, India, Pin-689 101						Address	Thiruvalla, Kerala, India, Pin-689 101							
GSTIN	Nil						GSTIN	Nil							
State	Kerala			State Code	32			State	Kerala			State Code	32		
No.	Name of Product/ Service	HSN Code	Qty	UOM	Rate	Amount	Less: Discou	Taxable Value	CGST Rate	CGST Amount	SGST Rate	SGST Amount	IGST Rate	IGST Amount	Total
1	100KVV On-Grid Solar Power Generating System LOT 6 consisting of :	85414011	1	set	600468	600468	0	600468	2.50%	15011.7	2.50%	15012	5.00%		630491.4
	i) AC cables, PVC and accessories														
Freight :								0							
Insurance :								0							
Packing and Forwarding Charges :								0							
Total :								600468	15011.7	15012	0	630491.4			
Total Invoice Amount in Words : Six Lakh thirty thousand four hundred nintey one rupees only														Total Amount Before Tax : 600468	
														Add : CGST : 15011.7	
														Add : SGST : 15011.7	
														Add : IGST : 0	
														Total Amount : GST : 30023.4	
														Total Amount After Tax : 630491.4	
Bank Details :														Certified that the particulars given above are true and correct.	
Bank Account Number		1983261005120													
Bank Name		Canara Bank													
Branch Name		Industrial Finance Branch, Hyderabad												For Radiant Solar Private Limited <i>[Signature]</i> Kochi Authorised Signatory	
IFSC		CNRB0002423													
Terms and Conditions :														(Company Seal)	
<p>1. Quality/Quantity Discrepancy and Claim: In case the quality and/or quantity are not in conformance with the contract after delivery, Buyers may lodge a claim supported by survey report issued by an inspection organization agreed upon by both parties, the exception however of those clients for which the insurance company and/or shipping company are to be held insible. Claim for quality discrepancy should be filled by the buyers with in 30 days after renewal of the goods, while for quantity discrepancy claim should be filled by buyers with in 15 days after arrival of the goods at the port of destination. The sellers shall, within 30 days after receipt of the notification of the claim, sender reply to Buyers.</p> <p>2. Goods may be dispatched in separate shipments Buyers take ownership of the goods upon delivery. Goods must be stored in a clean and dry, ventilated and safe location. Solar photo voltaic modules must not be stocked horizontally.</p>															

*True copy*

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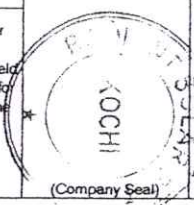




*Kabur*

**RADIANT SOLAR PRIVATE LIMITED**  
 35/1620, South Janatha Road,  
 Palarivattom PO,  
 Kochi - 682025

GSTIN : 32AADCR5833J1ZD

TAX INVOICE															Original for Recipient			
															Duplicate for Supplier/ Transporter			
															Triplicate for Supplier			
Invoice No. 01/015			Invoice Date 12-09-17			State Kerala			State Code 32			Transportation Mode			Vehicle Number		Date of Supply	
<b>Details of Receiver (Billed to)</b>								<b>Details of Consignee (Shipped to)</b>										
Name: MarAthanasios College for Advanced Studies (MACFAST)								Name: MarAthanasios College for Advanced Studies (MACFAST)										
Address: Thiruvalla, Kerala, India Pin-689 101								Address: Thiruvalla, Kerala, India Pin-689 101										
GSTIN State: Kerala								GSTIN State: Kerala										
State Code: 32								State Code: 32										
Sl No.	Name of Product/ Service	HSN Code	Qty	UOM	Rate	Amount	Less: Discou	Taxable Value	CGST Rate	CGST Amount	SGST Rate	SGST Amount	IGST Rate	IGST Amount	Total			
1	Towards Installation, testing and commissioning of 100KW On-Grid Solar Power Generating System	85414011	1	LOT	400064	400064	0	400064	0.00%	0	0.00%	0	18.00%	72011.52	472076			
<b>Freight :</b>								0		0		0		0				
<b>Insurance :</b>								0		0		0		0				
<b>Packing and Forwarding Charges :</b>								0		0		0		0				
<b>Total :</b>								400064		0		0		72011.52		472076		
<b>Total Invoice Amount in Words :</b> Four Lakh Seventy Two Thousand Seventy Six rupees only															<b>Total Amount Before Tax :</b> 400064			
															<b>Add : CGST :</b> 0			
															<b>Add : SGST :</b> 0			
															<b>Add : IGST :</b> 72012			
															<b>Total Amount : GST :</b> 72012			
															<b>Total Amount After Tax :</b> 472076			
<b>Bank Details :</b>															<b>Certified that the particulars given above are true and correct.</b>			
Bank Account Number: 1983261005120																		
Bank Name: Canara Bank Branch Name: Industrial Finance Branch, Hyderabad IFSC: CNRB0002423																		
<b>Terms and Conditions :</b>															 For Radiant Solar Private Limited <i>Gymlan</i> Authorised Signatory.			
1. Quality/Quantity Discrepancy and Claim: In case the quality and/or quantity are not in conformance with the contract after delivery, Buyers may lodge a claim supported by survey report issued by an inspection organization agreed upon by both parties, with the exception however of those clients for which the insurance company and/or shipping company are to be held responsible. Claim for quality discrepancy should be filed by the buyers with in 30 days after renewal of the goods, while for quantity discrepancy claim should be filed by buyers with in 15 days after arrival of the goods at the port of destination. The sellers shall, within 30 days after receipt of the notification of the claim, sender reply to Buyers. 2. Goods may be dispatched in separate shipments Buyers take ownership of the goods upon delivery. Goods must be stored in a clean and dry, ventilated and safe location. Solar photo voltaic modules must not be stocked horizontally.																		

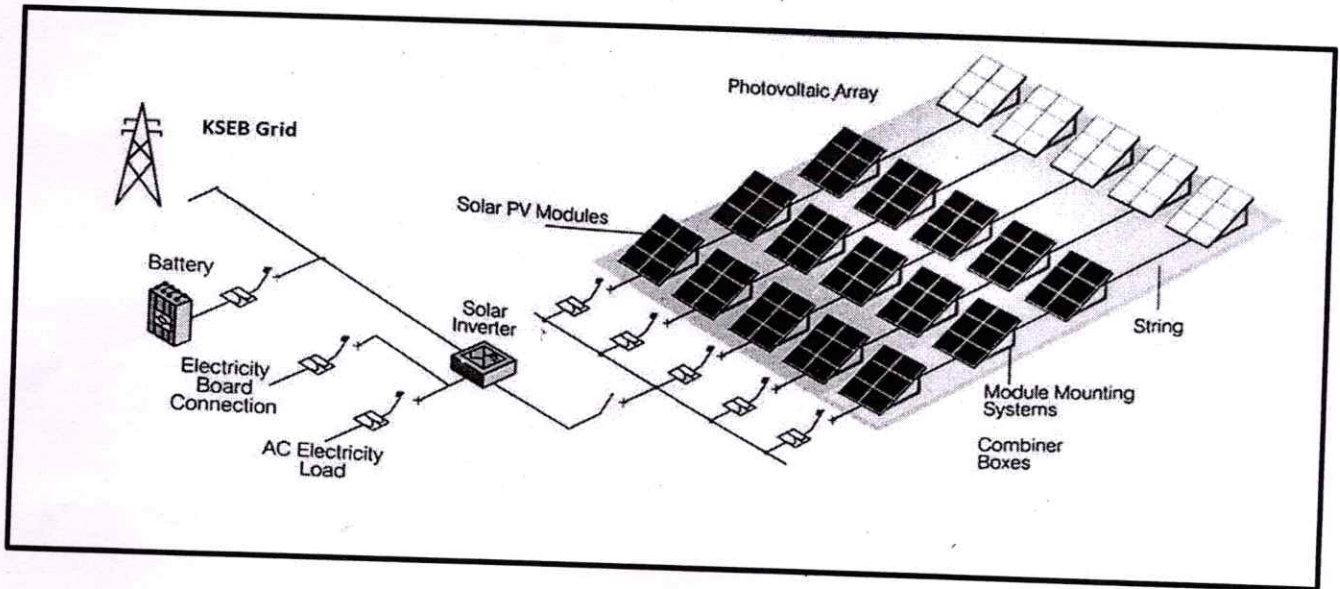
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# MACFAST- SOLAR POWER PLANT



- Average solar power received per day 5.59KWh/m<sup>2</sup>

## Technical Details

Capacity of power plant	130KW
Type	Grid interactive with Battery
Inverter	Imported Leonics 30KW interactive
Charger controller	Imported Leonics make 240V 70A (4 nos)
Battery Bank	240V 280Ah Tubular VRLA GEL
Annual Energy Generation	199,290kWhs

- Finance
 

Total Investment	:	1,42,00,000 (72,00,000+70,00,000)
ANERT Subsidy	:	29,20,000 (22,00,000+7,20,000)
MNRE	:	18,30,120
SBT Loan	:	37,00,000
Investment by College:		57,49,880