## Presentation To Director General CPWD

### By Terawatt Energies Private Limited



## **About the Company**



### **Promoters**





## **Senior Management**





## **Group Companies**



BK Solar- EPC player in the field of Renewable Energy since 2017.



Narmada Electricals – More than 20 years experience in the field of Electrical Transmission Projects.



Narmada Infra projects – In the field of Govt. Civil & Electrical Projects.



Narmada Fresh – Exporters of Grapes & Pomegranates.



Pracheer Infrastructures Pvt Ltd– Real Estate Development & Civil Projects.



## About TERAWATT Energies Pvt. Ltd.

- Incorporated in 2020 with the objective of providing Renewable Energy Solutions in the field of Industrial & Commercial Air-Conditioning.
- Manufacture STS (Smart Thermal Solar) panel in Technical collaboration with Suntrac, USA. STS panel is a patented Suntrac technology used in several countries. Please visit <u>https://suntracusa.com</u> for more details.
- Terawatt Energies Pvt. Ltd, Indore & Perfect Infra Engineers, Mumbai have partnered to manufacture and sell this product in India.
- STS panels have been installed and working in several private, government & corporate establishments.





## Smart Thermal Solar Panel (STS Panel)



#### **STS** Panel – uses solar energy to save power

- The STS Panel uses Solar energy to add pressure and heat energy to the refrigeration cycle. It results in a decreased compressor workload and saves energy.
- It displaces a portion of the mechanical energy used by variable capacity, multi-stage, variable speed compressors, to keep it in low load capacity, while delivering full and part-load cooling requirements.
- This effect creates significant energy savings.





## Savings achieved: 30% to 58%

Sr.	Site Name	Tested on Brand	Savings	Sr	Site Name	Tested on Brand	Savings
	PRIVATE ORGANIZATIONS				GOVERNMENT ORGANIZATIONS		
1	P&G, Mandideep	LG – 14HP	48.0%	9	Mantralaya, Mumbai	Daikin - 12HP	29.31%
2	Adani HQ, Ahmedabad	LG - 20HP	49.47%	10	Indian Navy(MES), Asvini Hospital	Mitsubishi - 14HP + 16HP	40.36%
3	Honda Vithalapur Factory	Daikin - 10HP	44.57%	11	RGPV Institute,	Voltas - 1.5 TR	37.68%
4	Standard Chartered Bank HQ, Fort, Mumbai	Voltas - 10HP + 12HP	55.18%		Bhopal. Testing laboratory of Urja Vikas Nigam Limited, MP		
5	Siemens, Kalwa	LG - 10HP	35.63%	12	BMC Consultant,	Toshiba - 8HP	54.29%
6	Intertek Andheri	LG - 2TR	58.00%		Mumbai		
		Inverter			INTERNATIONAL ORGANIZATIONS		
7	McDonald's, Kalamboli	BlueStar - 8.5TR	26.42%	13	Daikin, USA	Daikin 2TR	47.00%
8	NIBE Limited	I G - 1 5 TR	37.21%	14	J & J Engineering, USA	Nordyne - 10HP	30.00%
			5	15	Saigon, Indonesia	Toshiba - 10HP	50.00%



## **STS Panel – working**



- The system harnesses the sun's energy by reflecting the light on parabolic mirrored concentrators.
- The light is focused on a copper pipe that is coated with specialized absorption paint. This concentrated parabolic array allows for a larger harvesting of energy with a smaller footprint.
- A photo-tracking sensor rotates the parabola reflector and keeps them pointed at the sun.
- With built-in sensors and controls, the panel will maintain preset temperature bands, and will rotate out of the sun once max temperature is reached.



## **Key Specifications**

Specification	Detail
Collector Case /Frame	100% Aluminum enclosure: 8011-H14 Aluminum, Size – 8' x 4'
Cover	Hardened Clear glass, 4mm thick
Capacity	One STS Panel ideal for 7.6 tons / 90,000 BTU of cooling (10 hp compressor)
Insulation	9mm thick EPDM
Weight / Dimensions	Model TE-44, Approx 90Kg. 100" x 52" x 7". Reflector area: 8' x 4'
Concentrators	Extruded Aluminum reflector: Metalized aluminum foil mirror
Absorbers	Copper tube: 5/8", 1-1/8": Black selective paint: absorptive, 0.92/0.96
Sun Trackers	Two shaded phototransistors and brushless stepper motor: 12 vdc, 5w
Mounting Provisions	Adjustable stand: Recessed lip on frame for clamping



### **Standard AC Installation**





## **AC Installation with STS Panel**





### How It Works – Heat Pump





### How It Works – Heat Pump





## How it works - Thermodynamic Cycle





### **STS Panel Benefits**



#### AN IDEAL PRODUCT FOR GREEN BUILDINGS

- Today, every building has Air-Conditioning.
- The biggest pollution contributor of any building is the cooling system.
- The STS Panel reduces the electric power demand of AC's by approx. 40%
- Every 10 STS Panel can save every year:
  - 6,30,00 KWh OF ELECTRICITY
  - or 44 METRIC TONS OF CO2 Which is equivalent to:-



- The STS panel will reduce the peak power demand of ACs in summers
  - Leading to savings in power distribution and control equipment cost
- Improves the life of AC compressor due to reduced wear & tear from reduced load.



### **Advantages**

- Saving 25% to 50% of electricity consumption by AC's
- 90% expenditure on compressor failures reduced due to less wear and tear.
- 5 years of warranty on the STS panel with all spares covered under warranty.
- Negligible Power consumption of tracking system motor (~5 Watt).
- > Pay back period of STS panel is 24 to 36 months
- Life greater than 15 years



### **Every STS panel pays back for itself**

#### 1. Assumptions:

- > Outdoor Unit : 10 HP
- Average Annual Sunshine hours: 2618 (https://www.currentresults.com/Weather/India/annual-sunshine.php)
- Cost of electricity : Rs.10 / unit with 7% increase every year
- Air conditioner life: 10 years

#### 2. Calculations:

				Cumulati	ve Savings	with STS
Year	Power consumption	Kwhr / year	19,530	@ 30%	@ 40%	@ 50%
1	Annual Cost of Power w/o STS (1st year)	Rs.	1,95,303	58,591	78,121	97,651
2	Annual cost of Power w/o STS (2nd year)	Rs.	2,08,467	1,21,131	1,61,508	2,01,885
3	Annual cost of Power w/o STS (3rd year)	Rs.	2,22,518	1,87,886	2,50,515	3,13,144
4	Annual cost of Power w/o STS (4th year)	Rs.	2,37,516	2,59,141	3,45,521	4,31,901
5	Annual cost of Power w/o STS (5th year)	Rs.	2,53,525	3,35,198	4,46,931	5,58,664
6	Annual cost of Power w/o STS (6th year)	Rs.	2,70,613	4,16,382	5,55,176	6,93,970
7	Annual Cost of Power w/o STS (7th year)	Rs.	2,88,853	5,03,038	6,70,717	8,38,397
8	Annual Cost of Power w/o STS (8th year)	Rs.	3,08,322	5,95,535	7,94,046	9,92,558
9	Annual Cost of Power w/o STS (9th year)	Rs.	3,29,103	6,94,266	9,25,687	11,57,109
10	Annual Cost of Power w/o STS (10th year)	Rs.	3,51,286	7,99,651	10,66,202	13,32,752



## **STS Panel Installation**



## **Typical Installation**



- The STS Panel integrates with new and existing commercial VRV Inverter ACs
- It is generally placed close to the outdoor unit
- The refrigerant gas which flows in the VRV system is fed to the STS Panel and is heated by Solar Reflectors



### **Actual Installations**













## **Installation steps**

- 1. Recover the system's refrigerant into a clean and vacumed recovery cylinder (for refilling back into the system).
- 2. Cut the Compressor discharge line that is leaving the compressor and entering the condenser, as shown in figure 2

NOTE 1: Make sure the cut is right before the condenser and after temperature sensors/ oil recovery units, post compressor)

NOTE 2: In case of hot and cold machine, the cut will come before the condenser as well as 4-way valve.



Figure 1





## **Installation steps**

- 3. The Panel, from the factory, is pressurized with Nitrogen gas. When the Panel is installed, the copper pipe will have to be cut. Nitrogen gas should exit the pipes when it is first cut, if it does not, please contact us.
- 4. Connect the refrigerant piping from the compressor discharge line to the STS Panel inlet (top). See figure 4
- 5. Connect the refrigerant piping from the solar panel exit (bottom) to the condenser.
- 6. Insulate copper piping for heat retention and safety. (Compressor Discharge pipes are hot!)
- 7. Care should be taken so that the copper pipes have proper support. The vibrations of the machine should not be transferred to the panel.



Figure 4







Figure 6



## **Installation steps**

- 8. Evacuate the refrigerant system. Make sure there are NO Leaks in the refrigerant system.
- Total gas to be added to the system = The recovered refrigerant (in step 1) + gas as per length of copper pipe used for panel (as per AC manufacturers charging chart) + 400gms for each STS Panel
- 10. Give single phase power supply to the Panel (keep supply on permanently)
- 11. With the Panel glass covered with cardboard or other UV resistant cover (silver tarp), Start the system.
- 12. Once the system is operating per the manufacturer's specs, remove cardboard or UV cover.

#### **Recommended Copper Pipe Size:**

- Upto 12 HP: 12 mm VRV Grade pipe, 0.8 mm thick
- Upto 18 HP: 15 mm VRV Grade pipe, 1 mm thick

• Upto 28 HP: 19 mm VRV Grade pipe, 1 mm thick Recommended make: Rajco, Mandev, Mehta Tubes

Use 19mm wall thickness EPDM/Nitrile Rubber insulation



## **Terawatt - Certifications**



#### **Terawatt - Certifications**

#### **STS Panel certified by GRIHA**



**Green Rating for Integrated Habitat Assessment** is a national rating system for green buildings in India.

#### **STS Panel certified by SRCC**



The Solar Rating & Certification Corporation (ICC-SRCC™) is the leading certifier and standards developer for solar heating & cooling products in North America.



#### **Terawatt - Certifications**



29

## **MAHARASHTRA GOVT**



६) केंद्र / राज्य शासनाकडून पर्यावरणपूरक उजांकार्यक्षम साहित्य वापरासाठां / योजनासाठां जे प्रयत्न होत आहेत / प्रोत्साहन देण्यात येत आहे ते पाहता सदर सोर-ओणिक हायब्रीड प्रणाली प्राप्त परिस्थितीत अत्यंत उपयुक्त आहे.

या प्रणालोचा प्रारंभोक खर्च सुमारे 2.52.000/- (जो.एस.टी वगळून) असून यामधून होणा-या बीज बिलाच्या बचतोमुळे सुमारे 3 वर्षात खर्चाची परतर्फड होणे अपेक्षित आहे.

सदर प्रणालोची संपूर्ण माहिती संक्षिप्त टिप्पणीच्या स्वरुपात सोबत सादर करण्यांत येत आहे.

सदर प्रणालीच्या प्रस्थापनेकरीता या कार्यालयास मंजूरी प्रदान करावी ही विनंती.

सोबत- टिप्पणी

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## MP GOVT

राजीव गांधी प्रौद्योगिकी विश्वविद्याल

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(पणप्रदेश का लकनीची फिजीवेदालय) त्यापोर्ट गेत, बोवान (म.प.)-४६२०३३

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MADHYA PRADESH URJA VIKAS NIGAM LIMITED

(M.P. Govt. undertaking) Urja Bhawan, Link Road No.2, Shivaji Nagar, Bhopal (M.P.) INDIA Phone :0755-2553595, 2767270, 2556245 Fax: 0755-2553122

No: F/UVN/2020/EMC/30-02/4777

Date: 22/03/2021

To.

The Managing Director **Energy Efficiency Services Limited** NFL Building, 5th & 6th Floor, Core - III, SCOPE Complex, Lodhi Road, New Delhi - 110003

Sub: Proposal for evaluation the performance of solar thermal based application in AC system.

Sir,

With reference to aforesaid matter, we have received a proposal from M/s Perfect Infra-engineering Ltd. Mumbai, wherein they have submitted the details of an "innovative & path breaking solar thermal panel which when integrated with Air conditioning system makes it a hybrid energy saving system". Their product is compatible with most of the popular brands of country.

A performance evaluation report of their product is also received from State technical university (i.e. Rajiv Gandhi Prodyogiki Vishvidalaya, Bhopal), copy of the same is attached herewith for your kind consideration and perusal. Company's representatives (Mr. Shivi Sharma -9425004080 & Mr. Dewanshu Tiwari -7999500982) can be contacted for demonstration of their product at site.

It is requested to please evaluate the possibility of promoting the product if it contributes towards energy savings. Looking forward for your response for furtherance.



Encl: as above.

No: F/UVN/2020/EMC/30-02/4778

Date: 22/03/2021

Cc to: Secretary Bureau of energy efficiency, fourth floor, Sewa Bhawan, R.k. Puram, New Delhi - 110066 for information please.

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Chief Engineer

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RGPV/SOEEM/MPUVN2021       12.5%       Bhopal, March 2021         To,       The Chief Engineer.       Up Vikas Nigam Limited         Mathya Pradesh Bhopal.       Subject: Testing reports for Solar Thermal panels.         Der Sir.       The machaniting herewith the Test Results for the sample solar panel system "Prefect Subject Voltas Split Air Conditioners 1.5 TR unit which is installed at III Floor, KRC Block, RGPV Bhopal.         The Soope of work included Installation of panels' Design Study / Engineering / Installation and Coditioners 1.5 TR unit, the test reports showed that, without solar panels the electricity consumption average 6.6 units and with solar panels it dropped to average 4.3 units when tested for 6 hours at 31.7 deg C ambient, therefore the system showed saving of about 36.8 the interference in the system showed saving of about 36.8 the interference i	R.K. Puram, New Delhi-110066. Sub:-Regarding conversion of conventional electric appliances into energy efficient appliances (Lights, Fan, AC's etc.) in High Court of M.P. Ref-: EESL/RO/MP/BEEP/2019-20/654, dated: 13-02-2020. As directed, under the subject cited and with reference to above, I am to communicate you to visit High Court of Madhya Pradesh, Jabalpur to discuss the matter pertaining to Conversion of conventional electric appliances into Energy Efficient appliances (Lights, Fan, AC's etc.) at High Court of M.P. in presence of officers of the Registry and PWD (EIM) division. (F.H. DA2) SPSA(SA)
	e-mail:-mphc@nic.in Ph:-0761-2623358



## **GUJARAT GOVT**



K.K.OZA B.E.[Elect.] Superintending Engineer (Elect.) R & B Department, Gandhinagar TO, PERFECT INFRAENGINEERS LTD. Plot No. R-637, T.T.C Industrial Area, Thane Belapur Road, MIDC Rabale Navi Mumbai-400701 No PA /Approval/ 2074 /of 2022 Superintending Engineer (Electrical) R & B Department Mirman Bhavan,3rd Floor, Sector No. 10/A, 3rd Floor, Sector No. 10/A, Gandhinagar - 382 010 Date :/4/17 / 2022 Tele No. : 079-23253514 Fax No. : 079-23254176

Sub:- Request for Approval in S.O.R. for the Year 2022-2023

Ref:- (a)your company letter dtd:- 6/1/2022

(b)letter from Ex. Engr. Vadodara/No.PB/2237/dtd:-29/8/2022

After reviewing your company details brought with the S.O.R.-Review Committee , your request for listing the "PERFECT INFRAENGINEERS LTD " under brand name " PERFECT " in ensuing S.O.R. has been considered in which items / products model which is confirming to our standard & specification befitting on merits were brought on the list of S.O.R. for the the financial year 2022-2023 valid upto 31/3/2023 for use in various Government works executed by Electrical wing of R.&B. Department, Gujarat State

SR		DESCRIPTION	CATEGORY
1	(HYBRID THERMAL Hybrid Climate Solar tracking parabolic co Aluminium enclosure, 2 glass cover, selectable with temperature sen assembly giving Size-8X4Ft.	SOLAR PANEL FOR VRF SYSTEM ) r smart Panel Systems consisting of ncentrative solar reflectors, Painted 14 V Power Systems, removable safety Refrigerant type temperature control sors, computer controller and motor RENEWABLE ENERGY SOURCE Suitable upto 12 HP VRF Also applicable to chillers	APPROVED

The above renewal shall hold good till the product confirms IS /BS /ISI mark and our sor specifications. In case there is any change in Design / Size / Shape of the product, this office should be informed to the same immediately. Failure may lead to cancellation of this inclusion.

Kindly arrange to send a set of literature of the products to this office as well as to the Office of the Executive Engineers of all Divisions shown below. Please send the Price-Lists to this office periodically as and when the rates are revised. The Department reserves the rights to withdraw the inclusion at any point of time without assigning any reasons thereof.

Superintending Engineer (Electrical) R & B Department, Gandhinagar



## **CHHATTISGARH GOVT**





## NTPC LIMITED

Bid RAIPR No: GENV 2022 (82) 2189-25      Bid RAIPR No: GENV 2024 (82) 2189-25      Bid RAIPR No: GENV 2014 (	Government	~			Concrete d C	ate: 26 Mar 2	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Market Hausen     BURKAPK Not_CEM/CU22012/LID952       Organization Details Type:     Central PSU Ministry of Power     Burger Details Despation Office Zone:     DOMCS1 Concrete Ministry:       Office Zone:     NA     Concretion:     OMCS1 Concretion:       Office Zone:     op     NTPC Cludied Office Zone:     DMCS1 Concretion:       Office Zone:     op     NTPC Cludied Office Zone:     NTPC Cludied Office Zone:       Office Zone:     op     NTPC Cludied Office Zone:     NTPC Cludied Office Zone:       Financial Approval Detail Postgraution of financial Approval:     ND AGM FSA     Paying Authority Details Paying Authority Details Designation of financial Approval:     ND AGM FSA       Designation of financial Approval:     AGM FSA     DGMCS1 Contramede Softer Do Softer Do So	e Marketplace AZadi Amrit M	Ka ahotsav			Generated L	Jate: 20-May-2	2022
Buyer Details       Type:     Central PSU       Minitry:     Minitry of Power       Department:     NA       Defare:     0       Defare:     NTPC Link, Vesterm Region Head Quarter, Pior No A       Defare:     0       Defare:     NTPC Link, Vesterm Region Head Quarter, Pior No A       Defare:     NTPC Link, Vesterm Region Head Quarter, Pior No A       Defare:     NTPC Link, Vesterm Region Head Quarter, Pior No A       Defare:     NTPC Link, Vesterm Region Head Quarter, Pior No A       Defare:     NTPC Link, Vesterm Region Head Quarter, Pior No A       Defare:     NTPC Link, Vesterm Region Head Quarter, Pior No A       Defare:     NTPC Link, Vesterm Region Head Quarter, Pior No A       Defare:     NTPC Link, Vesterm Region Head Quarter, Pior No A       Defare:     NTPC Link, Vesterm Region Head Quarter, Pior No A       Defare:     NTPC Link, Vesterm Region Head Quarter, Pior No A       Defare:     State Conterm       Defare:     NTPC Link, Vesterm Region Head Quarte	fficient + Transparent + Inclusive				BIG/KA/PK N	0:GEM/2022/B/	2109075
Type: Central PSU Ministry / Power Ministry / Power Construction: Constr	Organisation Details		<b>Buyer Details</b>				
Ministry: Ma Ministry of Preer Ma Ministry: Ma Ministry of Preer Brail Dr. buyer12 rttp: patraligembuyer.in GTM: 4 GTM: 4	Туре:	Central PSU	Designation:	DGMCS	L.		
Department: MA granuted mane: MTC Limited GSTN:	Ministry:	Ministry of Power	Contact No.:				
Organization Name: vg WTPC Limited GTN: - C Lor Viestem Region-II Head Quarter , Picr No B7. Sector 24. Atal Nagar, Nava Raipur , Raipur , Chattisgarh, Ranger, Chattisgarh, Ranger, Raipur , Chattisgarh, Ranger, Chatt	Department:	NA	Email ID:	buyer12	.ntpc.patna@gen	nbuyer.in	
Office Zone::     g     NTFC LL0, Western Region-II Head Quarter, Plot No Address:       Prinancial Approval Detail     No       Financial Approval Detail     No       Product Names Tables     Paying Authority Details       Paying Authority Details     Payment Mode::       NTFC LL0, Western Region-II Head Quarter, Plot No Biognation of Animistrative Approval:     No       Designation of Financial Approval:     No       Designation of Financial Approval:     AGM F6A       Seller Details     Email ID:       Seller Details     NTFC LL0, Western Region-II Head Quarter, Plot No 87, Sector-24, Atal Nagar, Nava Raipur, Planur, Chamitigan, Raipur, CHHATTISGARH-492101, India       Seller Details     GetStaler Do:       Seller Details     StyfEl80000438447       GetM Seller ID:     StyfEl80000438447       Contact No::     Op821091165       Final ID:     mmgepretcriffa.com       Mdfress:     Thue, MarkBapttRA-00701, -       MSME Registration number:     Mod Sector 24, Atal Nagar, Nava Raipur, CHHATTISGARH-492101, India       MSME Registration number:     Mod Sector 24, Atal Nagar, Nava Raipur, Raipur, CHHATTISGARH-492101, India       MSME Registration number:     Mod Sector 24, Atal Nagar, Nava Raipur, Raipur, Raipur, CHHATTISGARH-492101, India       MSME Registration number:     Mod Sector 24, Atal Nagar, Nava Raipur, Rai	Drganisation Name:	NTPC Limited	GSTIN:	-			
Address:     B7, Sector 24, Azl Nagar, Nava Raipur, Raipur, Chattisgan, RAIPUR, CHHATTISGARH-492201, India       Financial Approval Detail IPD Concurrence:     No       Designation of Financial Approval:     AGM F6A       Bright of Administrative Approval:     AGM F6A       Designation of Financial Approval:     AGM F6A       Bright of Administrative Approval:     Bright of Administrative Approval:       Sector 24, Azal Nagar, Nava Raipur, Raipur, CHATTISGARH-492101, India     Bright of Administrative Approval:       Sector 25     Presention     Bright of Administrative Approval       Brig	Office Zone:	cg		NTPC Lt	d , Western Regio	n-II Head Quarter	, Plot No
Chattisgan, RAIPUR, CHAITISGARH-492201, India Financial Approval Detail Financial Approval: AGM FGA AGM FGA Paying Authority Details Payment Mode: NTPC Generation GGRSS GGGRSS GGRSS GGRS G			Address:	87, Sect	or-24, Atal Nagar	, Nava Raipur , Ra	aipur ,
RAIPIR CHARTISGARH-492101, India       Financial Approval Details       Payment Mode:     NO       Designation of Rinancial Approval:     AGM C6M       Designation of Rinancial Approval:     AGM F6A       Bill D:     Stream Region Head Quarter , Plot No 87, Sector 24, Atal Nagar, Nava Raipur , Raipur , Chattisganh, Raipur , CHATTISGARH-492101, India       Sector 2015     Bill D:     Stream Robin Approval       Company Name:     PRETECT INFRAENCINCERS LIMITED Contact No:     OB21091165       Bial D:     Re37,TIC IndUSTRIAL AREATHANE BELAPUR ROAD, RABALE, NAVI MUMEAU, RABCROSSTRIA - 00701, -       MSE Registration number:     MI305006474       MSE Sciul Category:     General       MSE Gender:     Female       STIM:     27AMBCR0122A128 , 27AMBC			the states	Chhattis	igarh,		
Financial Approval Detail Paying Authority Details Payment Mode: NTC Designation of Rinancial Approval: AGM F&A AGM F&A Designation of Rinancial Approval: AGM F&A AGM F&A CSTN Designation of Rinancial Approval: AGM F&A CSTN CSTN CSTN CSTN CSTN CSTN CSTN CSTN				RAIPUR,	CHHATTISGARH-	492101, India	
Instruction of provide colors       Product registering in the provide in the name of - Consignee       Product Details       Ordered Quantity Unit Unit Price to be raised in the name of - Consignee       Product Details       Intermal Soft Panel-PERFECT INFRAENGINEERS LIMITED Constants       Ordered Quantity Unit Unit Price to be raised in the name of - Consignee       Product Details       Intermal Soft Panel-PERFECT INFRAENGINEERS LIMITED Constant New Panel Mode States       Ordered Quantity Unit Unit Price Tax Bifurction of Consignee       Product Name: Hybrid Thermal Softer Panel-PERFECT INFRAENGINEERS LIMITED Constant New Panel PERFECT INFRAENGINEERS LIMITED Constant Soften PERFECT INFRAENGINEERS LIMITED Constant Soften PERFECT INFRAENGINEERS LIMITED Constant New Panel PERFECT INFRAENGINEERS LIMITED PERFECT INFRAENGINEERS LIMITED PERFECT INFRAENGINEERS LIMITED PERFECT INFRAENGINEERS LIMITED PERFECT INFRAENGI	Einancial Annroval Deta	ail	Paving Author	ity Deta	ils		
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Beignation of Financial Approval:     AGM F&A     Email D:     Gottin:     Constrained Approval:     AGM F&A     Email D:     Constrained Approval:     Address:     Constrained Approval:     Constrated Solar Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED     C	Designation of Administrative App	roval: AGM CEM	Designation:	DGMCS			
Commercial Content of Control	Designation of Financial Annoval-	AGM COM	Email ID-	buver17	.ntpc.patna@cen	nbuver.in	
NTFC Ltd., Western Region-II Head Quarter , Plot No 87, Sector-24, Atal Nagar, Nava Rajpur , Raipur , Chartisgah, Raipur , CHHATTISGARH-492101, India       Seller Details GeM Seller ID:     53F8180000438447 (PRECT INFRAENDIRERS LIMITED Contact No 0 09210031165       Seller Details GeM Seller ID:     53F8180000438447 (PRECT INFRAENDIRERS LIMITED Contact No 0 09210031165       Email ID:     mm@perfectinfra.com mm@perfectinfra.com Address:       Thom, MANARASHTRA -400701, - MSME verificat:       MSME Registration number:     MH326006474 (MSS Social Calegoy):       Gender:     Female GSTN:       277ABCP0122A128 , 27ABCP0122A128 , 27ABCP0122A128 , 27ABCP0122A128 , 27ABCP0122A128       *GST / Tax invoice to be raised in the name of - Consignee       Product Details       Product Details       Product Details       Item Description     Ordered Quantity       Unit Unit Price (INR)       Price (Inclusive for all // Duties and Taxes in INR)       Product Details       Product Solar Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal System, Warrang System (03)       Selling As : GOM Catalogue Status : GEM remail System (03)       8139	eargement of Financial Approval.	Ham ran	GSTIN:	224440	N0255D4Z5	and the set	
Address:     87, Sector-24, Atal Nagar, Nava Raipur, Chinattisgan, Raipur, Chinattisgan, Raipur, CHIATTISGARH-492101, India       Seller Details     5       GeM Seller ID:     53FB180000438447       Company Name:     PERFECT INFRAENGINEERS LIMITED       Contact No:     09821091165       Email ID:     mm@perfectInfra.com       Address:     Thane, MAHARASHTRA-400701, -       MSME Verified:     Yes       MSS Social Category:     General       MSS Ecolor 22A128     27AABCP0122A128, 27AABCP0122A128, 27AABCP0122A128, 27AABCP0122A128       **GST / Tax invoice to be raised in the name of - Consignee       Product Details       Product Name: Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED       Concertrated Solar Themal System, Warrandy Sy ear       Product Name: Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED       Concertrated Solar Themal System, Warrandy Sy ear       Product Name: Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED       Concertrated Solar Themal System, Warrandy Sy ear       Product Name: Itype: Unregistered Brand       Category Name & Quadrant : Concentrated Solar Thermal System (Q3)       Sp32			1.3.5	NTPC Lt	d , Western Regio	n-II Head Quarter	, Plot No
Address:     Chhatisgani, Rapur, CHHATTISGARH-492101, India       Seller Details     GeM Seller Di:     S3FB180000438447       Company Name:     PERFECT INFRAENGINEERS LIMITED       Contract No:     0921091165       Email D:     mm@perfectivitra.com       R437/TEX     Thane, MAHARASHTRA-400701, -       MSME Registration number:     MH3030006774       MSME Registration number:     MH3030006774       MSE Gender:     Femaile       SGST / Tax invoice to be raised in the name of - Consignee       Product Details       Product Name: Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED       Concertrated Solar Thermal System, Warrany, Sy ear       Product Name: Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED       Concertrated Solar Thermal System, Warrany, Sy ear       Product Name: Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED       Concertrated Solar Thermal System, Warrany, Sy ear       Product State: : COM verified catalogue       Staling A: : COM       Rand : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED       Concertrated Solar Thermal System, Warrany, Sy ear       Brand : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED       Concertrated Solar Thermal System (03)       Price State: : COM       Catalogy Name & Quadrant :: Concentrated Solar Thermal System (03)       Product Name: : Hybrid Thermal System (03) <td></td> <td></td> <td>100000</td> <td>87, Sect</td> <td>or-24, Atal Nagar</td> <td>, Nava Raipur , Ra</td> <td>aipur .</td>			100000	87, Sect	or-24, Atal Nagar	, Nava Raipur , Ra	aipur .
Raipur, CHHATTISGARH-492101, India           Seller Details           GeN Solid (1): STR180000438447           Company Name: PERFECT INFRAENDIRERS LIMITED           Contact No.:         OPERFECT INFRAENDIRERS LIMITED           MSME Registration number:         MH326006474           MSE Social Category:         General           STABLEODIZ2A128 _ 27ABECP0122A128 _ 27ABECP0122A128 _ 27ABECP0122A128           Product Details           Product Details           Product Name : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED         Ordered Quantity         Unit         Tax information provided and			Address:	Chhattis	igarh,		an on de
Seller Details       GeM Seller ID:     S3FB180000438447       Company Name:     PERECT INFRAENOINEERS LIMITED       Contact No:     09821091165       Email ID:     mmgpertectinfra.com       Address:     Thane, MAHARASHTRA-400701, -       WSME verificit:     Yes       MSME verificit:     Yes       MSSE Gender:     Female       6STIV:     27AABCP0122A12B, 27AABCP0122A12B, 27AABCP0122A12B, 27AABCP0122A12B       *GST / Tax invoice to be raised in the name of - Consignee   Product Details        Product Name:     Item Description       Ordered Quantity     Unit     Tax Bifurcation (INR)     Price (Inclusive of all Duties and Taxes in INR)       Product Details     Item Description     Ordered Quantity     Na     1,600,000       Rend Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal Solar Panel-PERFECT INF				Raipur,	CHHATTISGARH-4	92101, India	
Seller Details       GeM Seller (D:     53/F8180000438447       Company Name:     PERFECT INFRAENDIRERS LIMITED       Contact No.:     09821091165       mmill D:     mmigherlectinfra.com       Address:     Thane, MARAACSHTRA.400701       MSME Keysipation number:     MH3380006474       MSS Social Category:     General       MSS Social Category:     General       MSS Social Category:     General       MSS Focial Category:     General       MSS Social Category:     General       MSS Focial Category:     General       *GST / Tax invoice to be raised in the name of - Consignee       Product Details       Product Name : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED       Concertated Solar Thermal System, Warranty S year       Finad : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED       Concertated Solar Thermal System, Warranty S year       Finad : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED       Cranegory Name & Quadrant : Concentrated Solar Thermal System (03)       System <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
Selier Details Gef Seler (D: S3FB180000438447 Company Name: PERFECT INFRAENGINEERS LIMITED Contart No: 09821091165 Enail ID: R437.TTC INUUSTANA. AREA.THANE BELAPUR ROAD,RABALE, NAVI MUMBAI, Address: R437.TTC INUUSTANA. AREA.THANE BELAPUR ROAD,RABALE, NAVI MUMBAI, Address: Thane, MAHARASHTRA-400701, - MSME Verified: Yes MSME Registration number: M13380006474 MSS Social Category: General SS Social Category: General SS Social Category: General SS Social Category: General SS Social Category: Primate General SS T/ Tax invoice to be raised in the name of - Consignee Product Details  Froduct Details  Froduct Name :Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal System, Warran 5 year Froduct Name :Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal System (03) SP322 B139							
Gelf Selie ID: S378180000438477 Genyapy Name: PEPECT: INFRAENDIREERS LIMITED Contact No.: 09821091165 Fmail ID: mmigrefecturint.com Address: Thane, MAHARASHTRA-400701, - MSME verified: Yes MSME Registration number: MH330006474 MSE Social Category: General MSS Gender: Penale GSTN: 27AMBCP0122A12B, 27AMBCP0122A12B, 27AMBCP0122A12B, 27AMBCP0122A12B *GST / Tax invoice to be raised in the name of - Consignee Product Details  Product Details  Product Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal System (03) PS922 8439	Seller Details						
Company Name:     PERFECT INFRAENDIREERS LIMITED       Contract No.:     098210901165       Email ID:     mm8perfectinfra.com       Address:     P. 437, TTC. INDUSTINAL. AREA, THANE BELAPUR ROAD, RABALE, NAVI MUMBAJ,       Thume, MANARASHTRA.400701, -       MSME Registration number:     Mi335006474       MSE Social Category:     General       Social Category:     General       MSE Good Category:     General       Social Category:     General       MSE Goodner:     Female       GSTM:     27AABCP0122A128, 27AABCP0122A128, 27AABCP0122A128, 27AABCP0122A128       *GST / Tax invoice to be raised in the name of - Consignee       Product Details       *       Product Details       *       Product Name: Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED       Concertrated Solar Thermal System, Warrang Sy sear       Frand : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED       Concertrated Solar Thermal System Varrang Sy sear       Brand : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED       Brand : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED       Brand : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED       Brand : Hybrid Thermal Solar Panel       Catagory Name & Quadrant : Concentrated Solar Thermal System (03)       System     4       pieces	GeM Seller ID:	53FB180000438447					
Contact No:: 09921091165 Email ID: nmmgoPertectifica.com Address: Thune, MAHARASHTRA.400701, - MSME verified: Vei Social Category: General MSE Social Category: General MSE Social Category: General MSE Gender: Praiae GSTN: 27AABCP0122A128 , 27AABC							
Email D: mmigefectoring.com Address: Thane, MAHARASHTRA-HANE BELAPUR ROAD,RABALE, NAVI MUMBAI, Address: Thane, MAHARASHTRA-400701, - MSME verified: Yes MSME Registration number: MH330006474 MSS Gender: General MSS Gender: General MSS Gender: Temale GSTN: 27AMBCP0122A1ZB, 27AMBCP0122A1ZB, 27AMBCP0122A1ZB, 27AMBCP0122A1ZB *GST / Tax invoice to be raised in the name of - Consignee Product Details Product Details Product Xame iHybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Brand : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Brand : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal System (03) PSP32 8439	Company Name:	PERFECT INFRAENGINEERS	LIMITED				
Address: hear, if Landon AndA, AndA, AndA AndA, AndA Mada, Indue Edudor, Nauki Edudor,	Company Name: Contact No.:	PERFECT INFRAENGINEERS 09821091165	LIMITED				
MSME verified: Yes MSME Registration number: Mil380006474 MSE Social Categoy: General MSE Social Categoy: General MSE Social Categoy: General MSE Social Categoy: General STN: 27ABCP0122A128, 27ABCP0122A128, 27ABCP0122A128, 27ABCP0122A128, 27ABCP0122A128 *GST / Tax invoice to be raised in the name of - Consignee Product Details Product Details Product Name: Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal System, Warranty 5 year Brand: Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal System, Warranty 5 year Brand: Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Brand Type: Unregistered Brand Categoy Name & Quadrat : Concentrated Solar Thermal System (03) PSF32 8419	Company Name: Contact No.: Email ID:	PERFECT INFRAENGINEERS 09821091165 mm@perfectinfra.com					
Item beschiedue     Item       Mark Registration number:     Mr3380006774       MSE Gender:     General       MSE Gender:     Fernale       SSTN:     27AMBCP0122A1ZB, 27AMBCP0122A1ZB, 27AMBCP0122A1ZB, 27AMBCP0122A1ZB       *GST / Tax involce to be raised in the name of - Consignee   Product Details       Item Description     Ordered Quantity     Unit     Unit Price (INR)     Tax Bifurcation (INR)     Price (Inclusive of all Duties and Taxes in INR)       Product Name: Hybrid Thermal Solar Penel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal Solar Marinet System (Varianty 5 year Brand: Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Erand Type: Unregistered Brand Catalogue Status : OEM verified catalogue Selling As: ICM Catalogue Status : Concentrated Solar Thermal System (03) PSP32     4     pieces     400,000     NA     1,600,000	Company Name: Contact No.: Email ID: Address:	PERFECT INFRAENGINEERS 09821091165 mm@perfectinfra.com R-637,TTC INDUSTRIAL ARE	LIMITED A,THANE BELAPUR ROAD,1	RABALE, NA	VI MUMBAI,		
MSE Social Category: General MSE Gender: Penale SSTM: 27AABCP0122A12B , 27AABCP012A12B , 27AABCP0	Company Name: Contact No.: Email ID: Address:	PERFECT INFRAENGINEERS 09821091165 mm@perfectinfra.com R-637,TTC INDUSTRIAL ARE Thane, MAHARASHTRA-400 Voc	LIMITED A,THANE BELAPUR ROAD,F 701, -	RABALE, NA	VI MUMBAI,		
MSE Gender:     Female       SSTIV:     27AABCP0122A128, 27ABCP0122A128, 27ABCP012A14, 27ABCP012A14, 27BACP012A14, 27BACP012A14, 27BACP012A14, 27BACP012A14, 27BACP012A14, 27BACP012A14, 27BACP012A14, 27BACP012A14, 27BACP012A14, 27BACP012A144, 27BACP012A14, 27BACP012A14, 27BACP012A14, 27BACP012A14, 27B	Company Name: Contact No.: Email ID: Address: MSME verified: MSME Peristration number:	PERFECT INFRAENGINEERS 09922091165 mm@perfectinfra.com R-637.TTC INDUSTRIAL ARE Thane, MAHARASHTRA-400 Yes MH3FE006674	LIMITED A,THANE BELAPUR ROAD,1 701, -	RABALE, NA	VI MUMBAI,		
STIN:     27/ABCP0122A1ZB, 27/ABCP0122A1ZB, 27/ABCP0122A1ZB       *GST / Tax invoice to be raised in the name of - Consignee       *GOT / Tax invoice to be raised in the name of - Consignee       Product Details       Item Description     Ordered Quantity     Unit     Unit Price (INR)     Tax Bifurcation (INR)     Price (Inclusive of all Duties and Taxes in INR)       Product Name: Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal System, Warranty 5 year Brand: Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Brand Type: Unregistered Brand Catalogue Status : OEM verified catalogue Selling As : OEM Catalogue Status : Concentrated Solar Thermal System (03) PSP32 8439     4     pieces     400,000     NA     1,600,000	Company Name: Contact No.: Email ID: Address: MSME verified: MSME Registration number: MSSE Social Category:	PERFECT INFRAENGINEERS 09821091165 mm@perfectinfra.com R-637_TTC INDUSTRUL ARE Thane, MAHARASHTRA-400 Yes MH33E0006474 General	LIMITED A,THANE BELAPUR ROAD,I 701, -	RABALE, NA	VI MUMBAI,		
*GST / Tax invoice to be raised in the name of - Consignee  Product Details	Company Name: Contact No.: Email ID: Address: MSME verified: MSME Registration number: MSE Social Category: MSE Gender:	PERFECT INFRAENGINEERS 09821091165 mm@perfectinfra.com R-637,TTC INDUSTRIAL ARE Thane, MAHARASHTRA-400 Yes MH33E0006474 General Female	LIMITED A,THANE BELAPUR ROAD,I 701, -	RABALE, NA	VI MUMBAL,		
*GST / Tax involce to be raised in the name of - Consignee  Product Details  Item Description Unit Unit View Unit Unit Price If Unit View Unit Unit Price If Unit View Unit Unit Price If Unit Price I	Company Name: Contact No.: Email ID: Address: MSME verified: MSME Registration number: MSE Social Category: MSE Gender: SSTIN:	PERFECT INFRAENGINEERS 09821091165 mm@perfecturira.com R-637,TTC INDUSTRIAL ARE Thane, MAHARASHTRA-400 Yes MH33E0006474 General Female 27AARCP0122A1ZB, 27AAR	LIMITED A,THANE BELAPUR ROAD,I 701, - 3CP0122A12B , 27AABCP0	RABALE, NA	VI MUMBAI, 27AABCP0122A12	18	
Product Details       Item Description     Ordered Quantity     Unit     Unit Vitie     Tax Bfurcation (INR)     Price (Inclusive of all Duties and Taxes in INR)       Product Name : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Brand Type : Unregistered Brand Catalogue Status : OEM writing catalogue Selling As : OEM Catalogue Materia : Concentrated Solar Thermal System (Q3) PSF32 8419     4     pleces     400,000     NA     1,600,000	Company Name: Contact No.: Email ID: Address: MSME verified: MSME Registration number: MSE Social Category: MSE Gender: SSTIN:	PERFECT INFRAENGINEERS 0921091165 mm8perfectinfra.com R-837.TTC MDUSTRUL ARE Thane, MAHABASHTRA-400 Yes MH33E0006474 General Female 27AABCP0122A128 , 27AAB	LIMITED A,THANE BELAPUR ROAD,I 701, - 3CP0122A12B , 27AABCP0	RABALE, NA 122A1ZB , 2	VI MUMBAI, 27AABCP0122A12	18	
Item Description     Ordered Quantity     Unit     Unit     Frice (Inclusive of all Duties and Taxes in INR)       Product Name :Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal System, Warrany 5 year     Brand 1:Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED     A     pieces     400,000     NA     1,600,000       Selling As : OEM Catalogue Status : OEM wrifed catalogue Selling As : OEM     Catalogue Status : OEM wrifed catalogue Selling As : OEM     4     pieces     400,000     NA     1,600,000	Company Name: Contact No.: Email ID: MSME verified: MSME Registration number: MSME Social Category: MSME Gender: SSTIN: "GST / Tax invoice to b	PERFECT INFRAENGINEERS 0921091165 mm8perfectinfra.com R-637.TCT MDUSTRUL ARE Thane, MAHARASHTRA-400 Yes MH33E0006474 General Female 27AABCP0122A12B, 27AAB er raised in the name of - Con:	LIMITED A,THANE BELAPUR ROAD,1 701, - SCP0122A128 , 27AABCP0 Signee	RABALE, NA 122A128 , 3	VI MUMBAI, 27AABCP0122A12	6	
Item Description     Ordered Quantity     Unit     Unit Price (INR)     Tax Bifurcation (INR)     Inclusive of all Duties and Taxes in INR)       Product Name : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal System, Warranty 5 year     Brand Type : Unregistered Brand Catalogue Status : OCEM verified catalogue Selling As : OEM     4     pieces     400,000     NA     1,600,000       Selling As : OEM Catalogue Status : OCEM verified catalogue Selling As : OEM     Concentrated Solar Thermal System (Q3)     4     pieces     400,000     NA     1,600,000	Company Name: Contact No.: Email ID: MSME verified: MSE Registration number: MSE Social Category: MSE Gender: SSTIN: **GST / Tax invoice to b Product Details	PERFECT INFRAENGINEERS 09821091165 mm8perfectinfra.com Re37.TTC INDUSTRUAL ARE Thane, MAHABASHTRA.400 Yes MH33E0006474 General Female 27AABCP0122A12B, 27AAB Perase Perase in the name of - Con:	LIMITED A.THANE BELAPUR ROAD,J 701, - HCP0122A128, 27AABCP0 Signee	RABALE; NA 122A12B , ;	VI MUMBAI, 27AABCP0122A12	18	
Item Description     Ordered Quantity     Unit     Unit Vinit     Unit Vinit Ninit     Unit Signature       Product Name : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Brand Type : Unregistered Brand Catalogue Status : OEM worlined catalogue Selling As : OEM     4     pieces     400,000     NA     1,600,000       Selling As : OEM     Catalogue Status : OEM worlined catalogue Selling As : OEM     Concentrated Solar Thermal System (Q3)     Pieces     400,000     NA     1,600,000	Company Name: Contact No.: Email ID: MSME verified: MSRE Registration number: MSRE Registration number: MSRE Gender: MSE MSE MSE MSE MSE MSE MSE MSE MSE MSE	PERFECT INFRAENGINEERS 09821091165 mm8perfectinfra.com R=837.TCT NUDUSTRUL ARE Thane, MAHABASHTRA-400 Yes MH33E0006474 General Female 27AABCP0122A128, 27AAB er raised in the name of - Con:	LIMITED A.THANE BELAPUR ROAD,J 701, - SIGNEE Signee	RABALE, NA	VI MUMBAI, 27AABCP0122A12	78	Price
Intern Description         Quantity         Vinc         (INR)         Billincation (INR)         Duties and Taxes in INR)           Product Name : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Concentrated Solar Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED Brand : Hybrid Thermal Solar Panel PERFECT INFRAENGINEERS LIMITED Brand : Hybrid Thermal Sol	Company Name: Contact No.: Email ID: Uddress: Uddress: Uddress: Uddress: Uddress: Uddress: Uddress: Uddress: Uddress: MSE Reader: SSTIN: *GST / Tax invoice to b Product Details	PERFECT INFRAENGINEERS 09821091165 mm8perfectinfra.com R-837.TCT INFUSTRUL ARE Thane, MAHARASHTRA-400 Yes MH33E0006474 General Female 27AABCP0122A12B , 27AAE	LIMITED A.THANE BELAPUR ROAD, 701, - SIGNEE SIGNEE	RABALE, NA 122A128 , 2	VI MUMBAI, 274ABCP0122A12	79	Price
Product Name : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED         (INR)         Taxes in INR)           Product Name : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED         0 </th <th>Company Name: Contact No.: Email ID: Hoddress: MSME registration number: MSS Found Category: MSS Cender: SSTIM: *GST / Tax invoice to b Product Details</th> <th>PERFECT INFRAENGINEERS 09821091165 mm@perfectinfra.com R-637.TTC INDUSTRIAL ARE Thane, MAHARASHTRA-400 Yes MH33E0006474 General Female 27AABCP0122A12B , 27AAB Per raised in the name of - Con:</th> <th>LIMITED A.THANE BELAPUR ROAD,J 701, - SIGNEE SIGNEE Order</th> <th>RABALE, NA</th> <th>VI MUMBAI, 27AABCP0122A12</th> <th>78 Tax</th> <th>Price (Inclusive of all</th>	Company Name: Contact No.: Email ID: Hoddress: MSME registration number: MSS Found Category: MSS Cender: SSTIM: *GST / Tax invoice to b Product Details	PERFECT INFRAENGINEERS 09821091165 mm@perfectinfra.com R-637.TTC INDUSTRIAL ARE Thane, MAHARASHTRA-400 Yes MH33E0006474 General Female 27AABCP0122A12B , 27AAB Per raised in the name of - Con:	LIMITED A.THANE BELAPUR ROAD,J 701, - SIGNEE SIGNEE Order	RABALE, NA	VI MUMBAI, 27AABCP0122A12	78 Tax	Price (Inclusive of all
Product Name : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED     Image: Concentrated Solar Thermal System, Warranty 5 year     Image: Solar Thermal System, Warranty 5 year       Brand : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED     Brand : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED     Image: Solar Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED       Brand : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED     Image: Solar Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED       Brand : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED     Image: Solar Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED       Brand : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED     Image: Solar Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED       Brand : Hybrid Thermal Solar Concentrated Solar Thermal System (03)     Image: Solar Thermal System (03)       PSF32     B419	Company Name: Contact No.: Emnail ID: MSME verified: MSME Registration number: MSSE Gender: MSS Cender: MSS / Tax: Invoice to b Product Details	PERFECT INFRAENGINEERS 0921091165 mm8perfectifra.com Re37.TCT NUDUSTRUL ARE Thane, MAHABASHTRA-400 Yes MH33E0006474 General Female 27AABCP0122A128, 27AAB te raised in the name of - Con:	LIMITED A. THANE BELAPUR ROAD, J 701, - SIGNO122A128 , 27AABCPO Signee Ordern Quanti	ed Unit	VI MUMBAI, 27AABCP0122A12 Unit Price (INR)	Tax Bifurcation	Price (Inclusive of all Duties and Duties and
Product Name : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED     Concentrated Solar Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED       Brand : Hybrid Thermal Solar Panel-PERFECT INFRAENGINEERS LIMITED     Brand Type: Unregistered Brand       Catalogue Status : OEM verified catalogue     4     pieces       Selling As: ICIM     Catalogue Status : Concentrated Solar Thermal System (Q3)       PSF32     B419	Company Name: Contact No.: Email Do: Mddress: MSHE Registration number: MSES Focial Category: MSES Social Category: MSES To Tax invoice to b Product Details	PERFECT INFRAENGINEERS 0921091165 mm@perfectinfra.com R-637.TCT NUDUSTRUA.ARE Thane, MAHARASHTRA-400 Yes MH33E0006474 General Female 27AABCP0122A12B , 27AAE er raised in the name of - Con:	LIMITED A.THANE BELAPUR ROAD, J 701, - signee Order Quanti	ad Unit	VI MUMBAI, 27AABCP0122A12 Unit Price (INR)	Tax Bifurcation (INR)	Price (Inclusive of all Duties and Taxes in
Concentrated Solar Thermal System, Warranty 5 year Brand type : Unregistered Brand Catalogue Status : COM verified catalogue Selling As : CEM Category Name & Quadrant : Concentrated Solar Thermal System (Q3) PSP32 8419	Company Name: Contact No.: Email ID: Mddress: MSME registration number: MSME Registration number: MSME Gender: SSTIN: *GST / Tax invoice to b Product Details	PERFECT INFRAENGINEERS 09821091165 mm@perfectinfra.com R-637,TTC MUOSTRUL ARE Thane, MAHARASHTRA-400 Yes MH33E0006474 General Female 27AABCP0122A12B , 27AAB Per raised in the name of - Con:	LIMITED A.THANE BELAPUR ROAD,J 701,- signee Grder Quanti	ad Unit	VI MUMBAI, 27AABCP0122A12 Unit Price (INR)	Tax Bifurcation (INR)	Price (Inclusive of all Duties and Taxes in INR)
Brand : Hybrid Thermal Solar Panel—PERFECT INFRAENGINEERS LIMITED     grand Type : Unregistered Brand       Catalogue Status : OEM verified catalogue     4     pieces     400,000     NA     1,600,000       Selling As : OEM     Category Name & Quadrant : Concentrated Solar Thermal System (Q3)     PSP32     8419     1	Company Name: Contact No.: Emnail ID: MSME resistation number: MSME Resistation number: MSSE Category: MSE Gender: MSE Gender: MSE T / Tax I invoice to b Product Details	PERFECT INFRAENGINEERS 0921091165 mm8perfectifra.com R=837.TC MDUSTRUL ARE Thane, MAHABASHTRA-400 Yes MH33E0006474 General Female 27AABCP0122A128, 27AAB er raised in the name of - Con: Item Description	LIMITED A.THANE BELAPUR ROAD, 701, - SIGNOE SIGNOE Order Quanti	ed Unit	VI MUMBAJ, 27AABCP0122A12 Unit Price (INR)	B Tax Bifurcation (INR)	Price (Inclusive of all Duties and Taxes in INR)
Brand Type : Unregistered Brand     4     pieces     400,000     NA     1,600,000       Catalogue Status : OEM verified catalogue     4     pieces     400,000     NA     1,600,000       Selling As : OEM     Cataloguy Name & Quadrant : Concentrated Solar Thermal System (Q3)     PS922     8419     1	Company Name: Contact No.: Email ID: Uddress: MSHE Refield: MSHE Refield: MSHE Refield: MSHE Refield: MSHE Refield: MSHE Refield: MSHE Cender: MSHE CENER: MSHE CENER:	PERFECT INFRAENGINEERS 0921091165 mm8perfectinfra.com R-637.TC INFUSTRIAL ARE Thane, MAHARASHTRA-400 Yes MH33E0006474 General Female 27AABCP0122A12B , 27AAE 27AABCP0122A12B , 27AAE e raised in the name of - Con: Item Description	LIMITED A.THANE BELAPUR ROAD, J 701, - signee Order Quanti	ed Unit	VI MUMBAI, 27AABCP0122A12 Unit Price (INR)	Tax Bifurcation (INR)	Price (Inclusive of all Duties and Taxes in INR)
Catalogue Status : OEM verified catalogue     4     pieces     400,000     NA     1,600,000       Selling As : CEM     Category Name & Quadrant : Concentrated Solar Thermal System (Q3)     PSr322     8419	Company Name: Contact No.: Email D: Mddress: MSME verified: MSME Registration number: MSS Conder: SSTM: *GST / Tax invoice to b Product Details Product Details Product Name : Hybrid Thermal Styr	PERFECT INFRAENGINEERS 09821091165 mm@perfectinfra.com R-637,TTC MUDSTRUL ARE Thane, MAHARASHTRA-400 Yes MH38E0006474 General Female 27AABCP0122A12B , 27AAB Perase in the name of - Con: Item Description	LIMITED A.THANE BELAPUR ROAD, J 701, - signee Order Quanti	nabale, Na 1224128 , 2 1224128 , 1	VI MUMBAI, 27AABCP0122A12 Unit Price (INR)	Tax Bifurcation (INR)	Price (Inclusive of all Duties and Taxes in INR)
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8419	Company Name: Contact No.: Email ID: MSME Resistation number: MSME Resistation number: MSE Gender: SSTIV: #GST / Tax Invoice to b Product Details Product Details Product Name : Hybrid Therm Concentrated Solar Thermal Says Brand Type Unregisted Bra Catalogue Status : CEN verifi Seiling As : CEM Catagory Name & Quadrant : Clategory Name & Quadrant : C	PERFECT INFRAENGINEERS 0921091165 mm8perfectinira.com R-837.TC MUDUSTRUL ARE Thane, MAHABASHTRA-400 Yes MH33E0006474 General Female 27AABCP0122A12B, 27AAB eraised in the name of - Con: Item Description al Solar Panel-PERFECT INFRAENGINEERS LI Stem.Warranty 5 year and-PERFECT INFRAENGINEERS LIMITED nd ef catalogue poncentrated Solar Thermal System (Q3)	LIMITED A.THANE BELAPUR ROAD, J 701, - SIGNOE SIGNOE Order Quanti MITED 4	RABALE, NA 122A128 , 2 122A128 , 2	VI MUMBAI, 27AABCP0122A12 Unit Price (INR) 400,000	Tax Bifurcation (INR)	Price (Inclusive of all Duties and Taxes in INR) 1,600,000
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## Happy Customers



## Savings achieved: 30% to 58%

Sr.	Site Name	Tested on Brand	Savings	Sr	Site Name	Tested on Brand	Savings
	PRIVATE ORGANIZATIONS				GOVERNMENT ORGANIZATIONS		
1	P&G, Manideep	LG -14HP	48.0%	9	Mantralaya, Mumbai	Daikin - 12HP	29.31%
2	Adani HQ, Ahmedabad	LG - 20HP	49.47%	10	Indian Navy(MES), Asvini Hospital	Mitsubishi - 14HP + 16HP	40.36%
3	Honda Vithalapur Factory	Daikin - 10HP	44.57%	11	RGPV Institute,	Voltas - 1.5 TR	37.68%
4	Standard Chartered Bank HQ, Fort, Mumbai	Voltas - 10HP + 12HP	55.18%		Bhopal. Testing laboratory of Urja Vikas Nigam Limited, MP		
5	Siemens, Kalwa	LG - 10HP	35.63%	12	BMC Consultant,	Toshiba - 8HP	54.29%
6	Intertek Andheri	LG - 2TR	58.00%		Mumbai		
		Inverter			INTERNATIONAL ORGANIZATIONS		
7	McDonald's, Kalamboli	BlueStar - 8.5TR	26.42%	13	Daikin, USA	Daikin 2TR	47.00%
8	NIBE Limited	IG-15TR	37 21%	14	J & J Engineering, USA	Nordyne - 10HP	30.00%
U		20 1.0 1.	57.2170	15	Saigon, Indonesia	Toshiba - 10HP	50.00%



#### **P&G MANDIDEEP- 48% SAVINGS**

#### **BEFORE STS PANEL**

**AFTER STS PANEL** 

ER/

Τ

Date	Energy me	ter readings		Date	Energy me	ter readings	
	7am	5pm	Difference		7am	5pm	Difference
00 10 2022	2467 647	2/07 596	20.04	05-11-2022	3402.04	3409.90	7.86
00-10-2022	2407.047	2437.JOU	23.34	06-11-2022	3420.41	3434.14	13.73
09-10-2022	2515.609	2546.978	31.37	07-11-2022	3453.91	3475.75	21.84
10-10-2022	2567.28	2592.046	24.77	08-11-2022	3494.17	3510.92	16.75
11-10-2022	2616.08	2634.08	18.00	09-11-2022	3529.40	3546.41	17.01
12,10,2022	2672.24	2697.68	25 //	10-11-2022	3572.44	3589.75	17.31
12 10 2022	2072.24	2037.00	23.77	11-11-2022	3610.62	3623.89	13.27
13-10-2022	2/13.29	2/40.56	21.21	12-11-2022	3652.81	3665.83	13.02
14-10-2022	2764.14	2782.51	18.38	13-11-2022	3680.08	3687.92	7.84
15-10-2022	2796.15	2821.18	25.03	14-11-2022	3689.34	3704.48	15.14
16-10-2022	2841 85	2867 02	25 17	15-11-2022	3706.419	3715.433	9.01
10 10 2022	2011.00	2007.02	20,17	16-11-2022	3725.976	3740.943	14.97
1/-10-2022	2888.97	2919.09	30.12	17-11-2022	3750.165	3762.706	12.54
18-10-2022	2950.80	2977.40	26.60	18-11-2022	3779.502	3791.507	12.01
19-10-2022	2995.25	3016.25	21.00	19-11-2022	3803.502	3812.982	9.48
20-10-2022	3056.92	3081.81	24.89	20-11-2022	3836.593	3844.563	7.97

% Savings	48.0%
Average Difference	12.12
Average After STS Panel	13.11
Average Before STS Panel	25.23





#### MANTRALAYA, MUMBAI - 29.31% SAVINGS

	Energy Comsumed in K Watt per Hour				
Till Time	Without Panel	With Panel			
	3 May.18	4 May. 18			
Indoor Temp	23°C	23°C			
Amb. Temp.	35.5°C	34.5°C			
11:30 PM	10.10	7.1			
12:30 PM	9.90	5.80			
1:30 PM	8.90	5.00			
2:30 PM	6.10	5.90			
3:30 PM	9.00	6.00			
4:30 PM	6.70	5.00			
5:30 PM	5.60	5.00			
Total Energy Unit in 7 HRS	56.3	39.80			
Total Energy Saved in KW		16.50			
Total Energy Saved in Percentage%		29.31%			









#### **MILITARY ENGINEERING SERVICES - 40.3% SAVINGS**

#### Tele: 22153490

AGE (I) Asvini INHS Asvini R C Church, Colaba Mumbai-05

106/Gen/ 171 /E4

3 | Mar 2021

HQ CE (Navy) Mumbai

#### TESTING OF PERFECT SUNTRAC SOLAR HYBRID PANEL

1. Ref telephonic conversion held with Jt Dir (E/M), CE (N) Mumbai & undersigned.

2. This is to inform that rep of M/s Pureza India has installed 04 Nos Perfect suntrac solar hybrid panels for testing purpose & connected to existing Mitsubishi VRF units of 16 HP & 14 HP. These units were placed on terrace of INHS Asvini Hospital, Colaba, Mumbai.

3. Test results is summarized below however detailed Test report is enclosed herewith.

- (a) When the solar panels were connected to existing Mitsubishi system, the test reports shows that, without solar panels, the electricity consumption averaged 20.25 kw/h and after installing solar panel, it dropped to 12.1 kw/h when tested for 7 hours at an ambient temperature of 30 deg C. Therefore, the system showed saving of about 40.3% in electrical power consumption.
- (b) The solar panels when connected with the existing system, the system (Indoor units and outdoor units) are running normally without any problem.

4. From the test report it can be seen that there is a saving of about 40% in energy consumption hence recommended for use as a energy saving measure.





## ADANI - 49.47 % SAVINGS

Perfect

Krishna Mehta <krishna@perfectinfra.com>

#### Fwd: LG ODU Data: ACH Solar ODU Power Consumption

Jainam Shah <jshah@jandjengineers.in> To: Krishna Mehta <Krishna@perfectinfra.com> Tue, May 17, 2022 at 11:40 AM

Pfa

From: bms Ah <bms.ah@adani.com> Sent: Tuesday, March 15, 2022 1:05 PM To: Info - J & J Engineers <info@jandjengineers.in> Cc: Mitesh Suthar <Mitesh.Suthar@adani.com>; Ashok.KR@sodexo.com <Ashok.KR@sodexo.com>; BMS team <ach.IBMSOperator1@adani.com>; Aman.KUMAR@sodexo.com <Aman.KUMAR@sodexo.com>; chintankumar.patel@sodexo.com <chintankumar.patel@sodexo.com>; Archit Vashisth <Archit.Vashisth@adani.com> Subject: Re: LG ODU Data: ACH Solar ODU Power Consumption

Dear Team,

As requested PFA.

Thanks, Kumar.





## **HONDA - 44.57 % SAVINGS**



Info Info <info@jandjengineers.in>

#### Saving Achieved after Application of Hybrid Thermal Panel to your Daikin ODU

Himanshu < @honda2wheelersindia.com> To: Info - J & J Engineers <info@jandjengineers.in> Thu, May 5, 2022 at 10:35 AM

Dear Sir,

Please find below data as required for. (In KWH Year - 2022)

	Kwh
22-Fe	eb 32
23-Fe	eb 31
24-Fe	eb 28
25-Fe	eb 33
26-Fe	eb 31
28-Fe	eb 29
03-M	ar 19
04-M	ar 18
05-M	ar 14
07-M	ar 18
08-M	ar 17
09-M	ar 16
10-M	ar 17

Regards,

Himanshu







## MAHINDRA – 48.60% SAVINGS

Summary	Before	After	
Avg Power Consumption	8.2	4.2	
Average Temp	32.3	33.1	
% Savings	48.	48.6%	
Derration Factor		-	
Avg Power Consumption After Derration Factor			
Final % Savings	48.	48.6%	









## SIEMENS- 35.63 % SAVINGS

Subject: Feedback Report for Perfect Suntrac Solar Thermal Panel.

Dear Sir,

This is the feedback for M/s. Perfect Infraengineers Limited who have installed "Perfect Suntrac Solar Thermal Panel" with our L.G. Make VRF system 10 HP (Model No.JRUV100LT54.APUNE) at our Siemens Logistic unit located in Kalwa, Thane. The scope of work included design engineering / installation / supply & commissioning.

Certain Observations:

- When the solar panel was tested after installation with 10 HP VRF System in April 2018, the test reports showed that, without solar panel the electricity consumption averaged 87 KW and with solar panel it dropped to average 56.1 KW when tested for 7 hours at 35.5 deg C ambient, therefore the system showed an average saving of 35.63% in electricity consumption.
- 2. The solar panel was connected with the VRF system throughout the year and the system ran without any problems.
- 3. The whole hybrid system was tested again in March 2019 and according to the test reports, when the system is connected with solar panel the electricity consumption averaged 45.05 KW and when the solar panel was disconnected with the system, the electricity consumption jumped to an average of 75.75 KW. The test was conducted for 8 hours at 34 deg. C to 37 deg. C ambient. Hence, the electricity consumption increased by 63.15%.

We have received good engineering support from Perfect Infraengineers Limited and the retrofitting work for connecting Hybrid Thermal Panel to L.G. VRF was systematic and satisfactory.









## **RGPV INSTITUTE - 37.68% SAVINGS**

The Scope of work included Installation of panels/ Design Study / Engineering / Installation and Testing.

Certain Observations:

 When the sample solar panel system was tested after installation with Voltas Split Air Conditioners 1.5 TR unit, the test reports showed that, without solar panels the electricity consumption averaged 6.9 units and with solar panels it dropped to average 4.3 units when tested for 6 hours at 31.7 deg C ambient, therefore the system showed saving of about 37.68

"% in electricity consumption





## **Some other Clients**





# THANK YOU !

## For Further Details Call : 9713027444 / 9109441763

