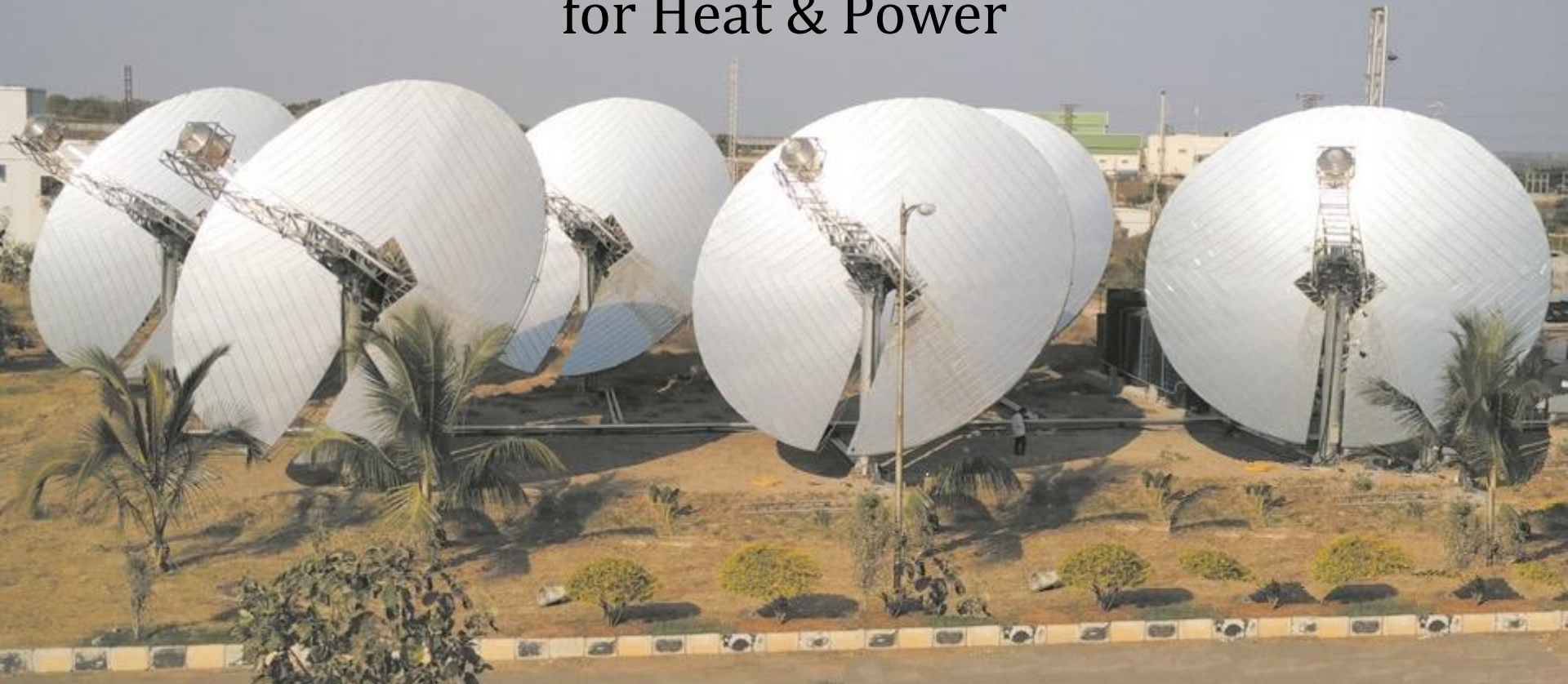


# Megawatt Solutions Private Limited



Indigenous High-Efficiency Solar Solutions  
for Heat & Power



**Contact us**

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smalik@megawattsolutions.in, Tel: 011-40536349



# About Megawatt Solutions

- MNRE-Channel Partner For Indigenous Concentrated Solar Thermal Solutions
- Indigenously Developed and Patented Proprietary Thermal & Power Solutions for Commercial, Industrial & Institutional Energy Consumers
- Design, Engineering, Manufacturing, Commissioning & Operations
- Fully Automated Solutions With Minimal Operating Costs
- Customers include NTPC, Motherdairy & Various Majors
- Recognized For Continued Indigenous Innovation



MNRE Award For Solar Energy Innovator



MWS R&D Center Inauguration



Field-Proven MWS 2-axis Solar Thermal Tracker

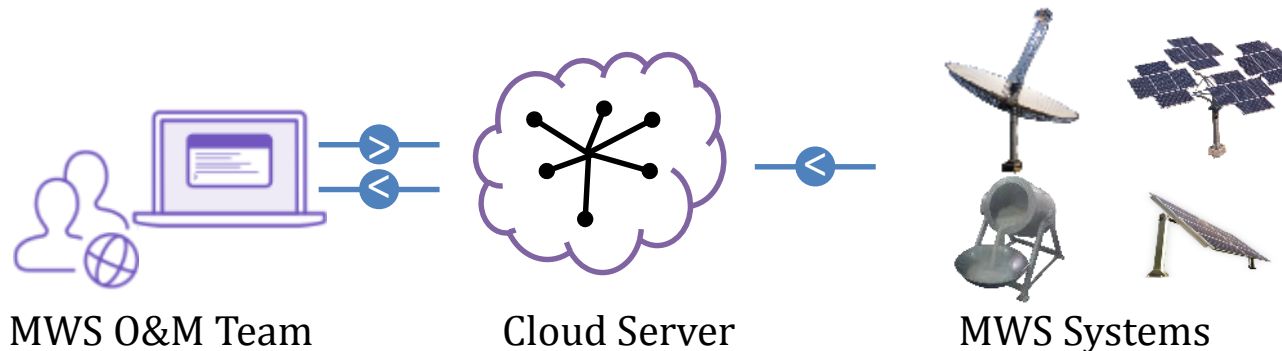
# The Megawatt Differentiator



## 1. Proprietary Custom-Engineered Solutions



## 2. Remote Monitoring for Reduced O&M





# Solutions Offerings



Heat



Power



## **MWS Solar Field**<sup>TM</sup>

For Industrial Process Heating Applications



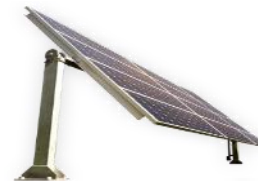
## **MWS SmarTree**<sup>TM</sup>

For Smart Cities, Malls, Public Parks, Plazas, etc.



## **MWS Smart Kitchen**<sup>TM</sup>

For Industrial & Institutional kitchens



## **MWS SmarTrack**<sup>TM</sup>

For high yield offgrid & utility scale Power Plants





Redefining Industrial Energy Generation

# MWS SOLAR FIELD







# MWS Solar Field™

## For Reducing Fuel Consumption In Industries



- 

Dishes take very small ground space
- 

System Cost covered in less then 3 years
- 

Can be retrofitted to any existing system
- 

Fully automated systems
- 

Can heat up to 400°C
- 

Reduces your carbon footprint emission



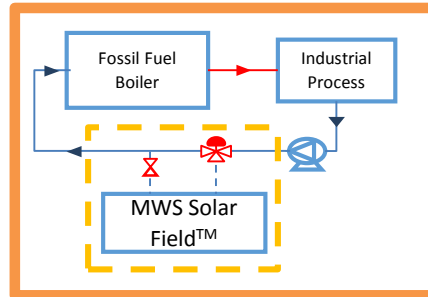
1. Incoming Solar Radiation gets concentrated by high efficiency MWS Paraboloid Dish Concentrator onto a cavity receiver with minimum losses
2. The concentrated energy is heat-transferred to various working fluids like hot water, Thermic Oils, etc.
3. Piping system routes energy from each receiver to end application for integration
4. Entire process is fully automated and dish tracks the Sun in two axis all year long



# MWS Solar Field Solution Is An Integrated Approach For Displacing Fossil Fuels For Process Heating

## MWS SOLAR FIELD™

### *MWS Solar Dish Concentrators*



### *Process integration & Automation*



### *Instrumentation & Piping Network*



Power Generation



Air Conditioning



Process Heat

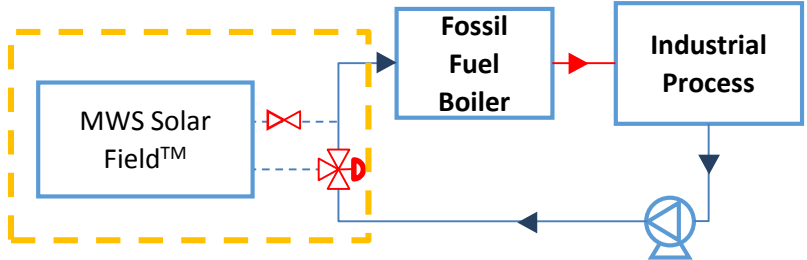


Desalination

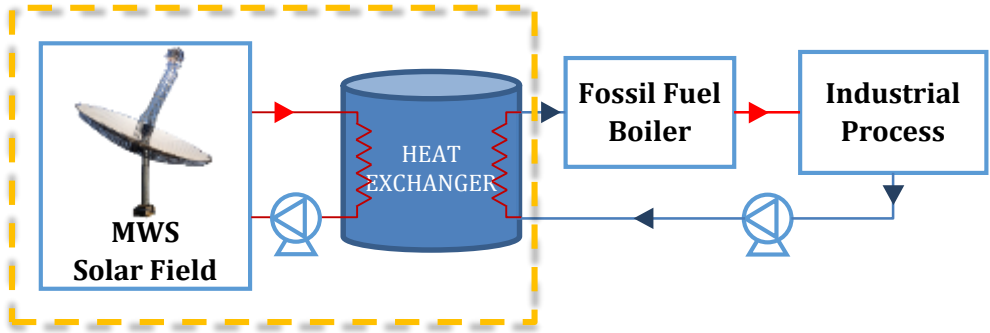


# MWS Solar Field™ Is Non-Invasive And Seamlessly Integrated To Existing Process Heating Circuits

## Direct Integration



## Indirect Integration



- No impact on customer processes
- Back-ended integration
- Full automation, controls and safety implemented in Solar Field

Industry	Working Fluids	Temperature Range
Pharmaceutical	Steam, Air	80°C - 230°C
Textile industry	Water, Steam	60°C - 150°C
Chemical Industry	Steam, Air	80°C - 320°C
Pulp & Paper Industry	Steam	Up to 185°C
Food Industry	Steam, Themic Oil	80°C - 280°C
Automobile Industry	Water, Steam	60°C - 200°C
Air Conditioning (VAM)	Water, Steam	60°C - 150°C





# MWS Paraboloid Solar Dish Concentrator



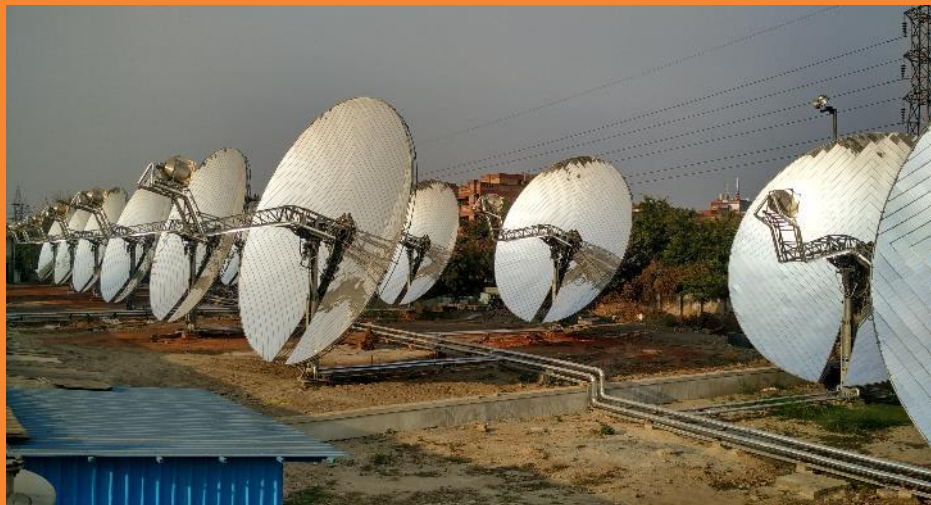
M95 Paraboloid Dish Concentrator: Peak Rating 40,000 kcals/hr





# MWS Solar Field™ Reference Installations

**CIP**



**Hot Air Generation**



**Thermic Fluid Heating**



**Boiler Feed Water Heating**



# Sample Reference Installations







Redefining How India Cooks

# MWS SMART KITCHEN



# Problem- Conventional Cooking Is Poorly Engineered

- Radiant Losses From Burner
- Radiant Heat Loss from Vessel
- Non-Uniform Heating
- Need For Serious Ducting
- Open flame compromises safety of the kitchen staff



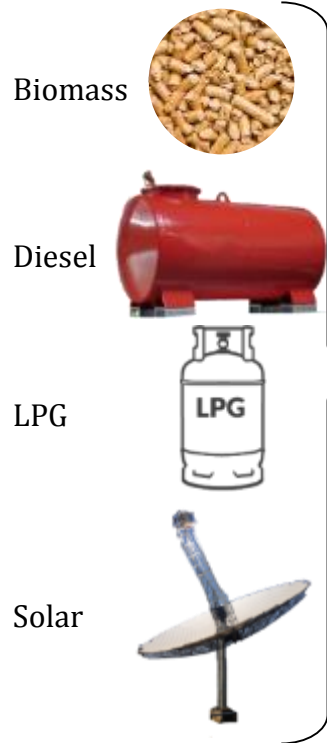
System Efficiency ~ 40-50% !!



# The Solution- MWS Smart Kitchen™

Both solar and Fuel (LPG) are hybridized in a closed loop system to minimize energy losses and maximize efficiency

### Multiple Fuel Options

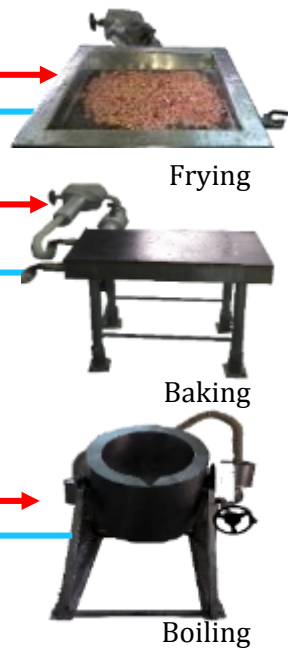


MWS Centralized Heating System

Energy in Hot Thermic Oil

Unutilized energy back to closed loop

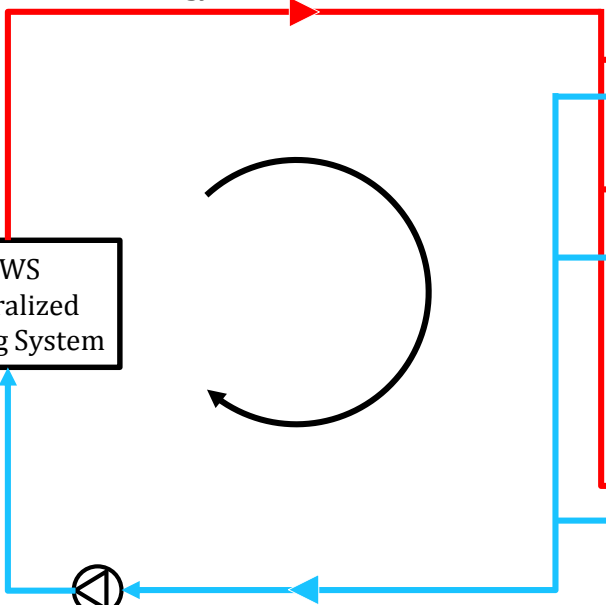
### Insulated Jacketed Cooking Vessels With Temp. Control



Frying

Baking

Boiling







# MWS Smart Kitchen™

## The Flameless Waterless Efficient Hygienic Kitchen



Creating Efficient, Safe and Smart Kitchens



# MWS Smart Kitchen™

## LPG Savings For Cooking Applications



1. Opens up possibility of hybridizing with fuels other than LPG for cooking, including **MWS Solar Field**
2. Centralized controlled high efficiency fuel combustion
3. No burner or flame in kitchen
4. Jacketed vessels engineered to minimize heat loss
5. Wide operating temperature for boiling, frying and baking
6. Digital indicators at each vessel to allow complete characterization of cooking process
7. Energy delivered by heated food grade oil
8. Reduce electricity consumption of air ventilation handling

### Industrial Grade User Friendly Kitchens



Creating Efficient, Safe and Smart Kitchens





# Complete Cooking Solution-Boiling, Frying and Baking







# Solar Thermal –LPG Hybrid Cooking System NTPC Dadri, Greater Noida



20% reduction in LPG Gas Consumption



Solutions For Urban India

# MWS SmarTree

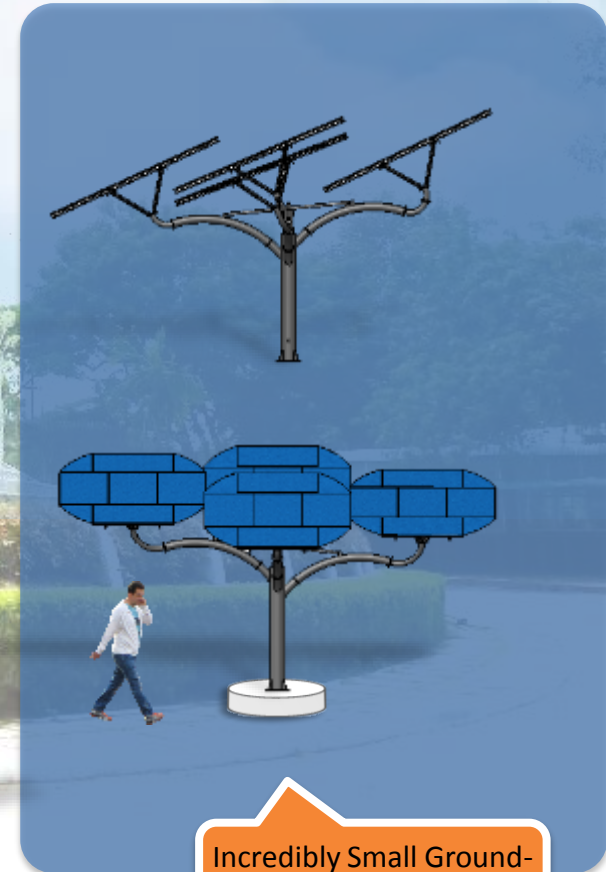


# MWS SmarTree™- For Smart Locations



- ✓ Aesthetic Solar PV Solution for Malls, Smart Cities, Public Parks, Plazas & CSR Projects
- ✓ Tree can be used as Hub for other tasks like Street Lights, Wi Fi Zone, CCTV, etc.
- ✓ 25 Years Performance Warranty of Modules

Free usable  
Shaded place



Incredibly Small Ground-  
Footprint

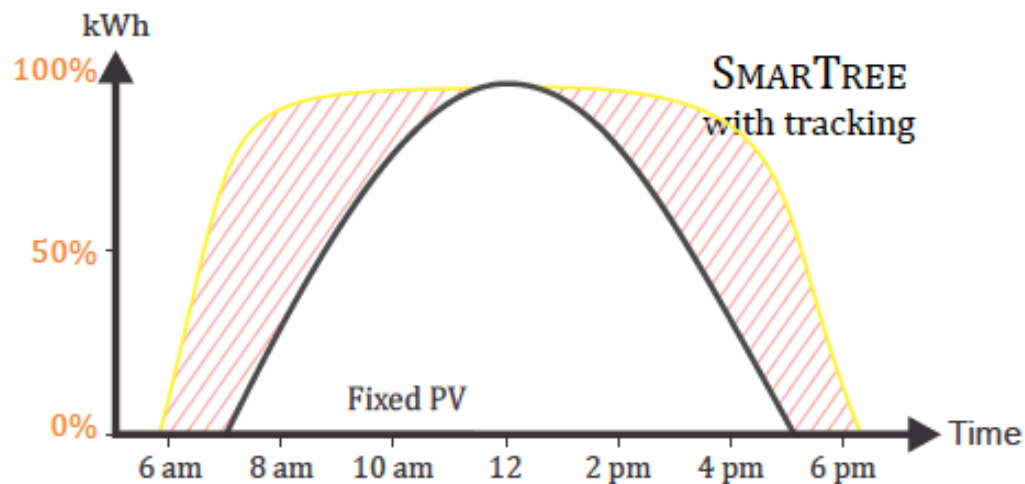
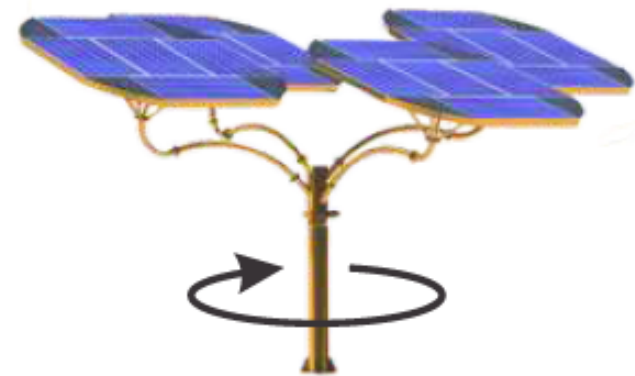
Be Responsible- Plant A Tree. Plant A SmarTree™





# Automatic Single Axis Tracking

- Self powered single-axis automatic tracking
- Tracking increases yield of Solar Panels by up to 22%
- Tracking system is self-lubricating & maintenance-free



\* Yield will vary as per site weather conditions



# SmartHub- Multi-Utility Solution



Street  
Lighting



WiFi Zone



CCTV  
Mounting



Laptop  
Charging



Sign Board



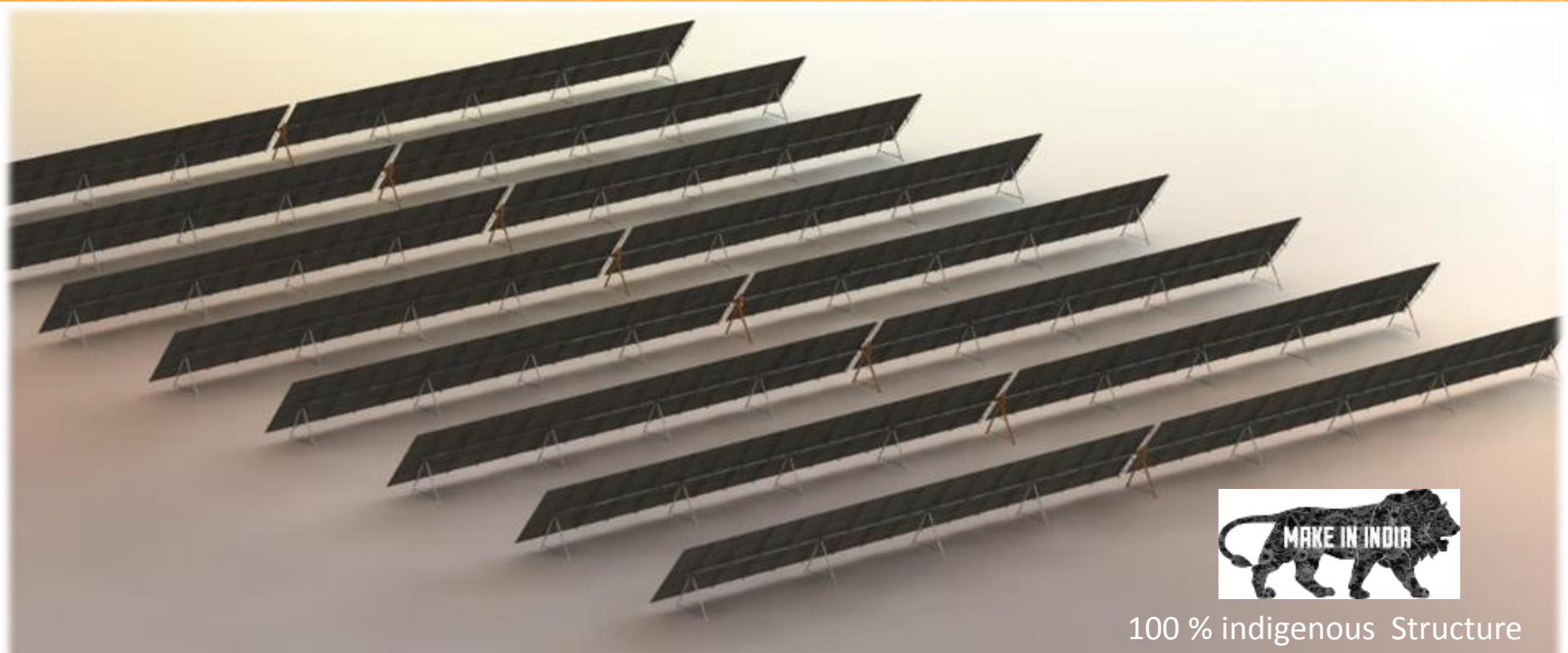
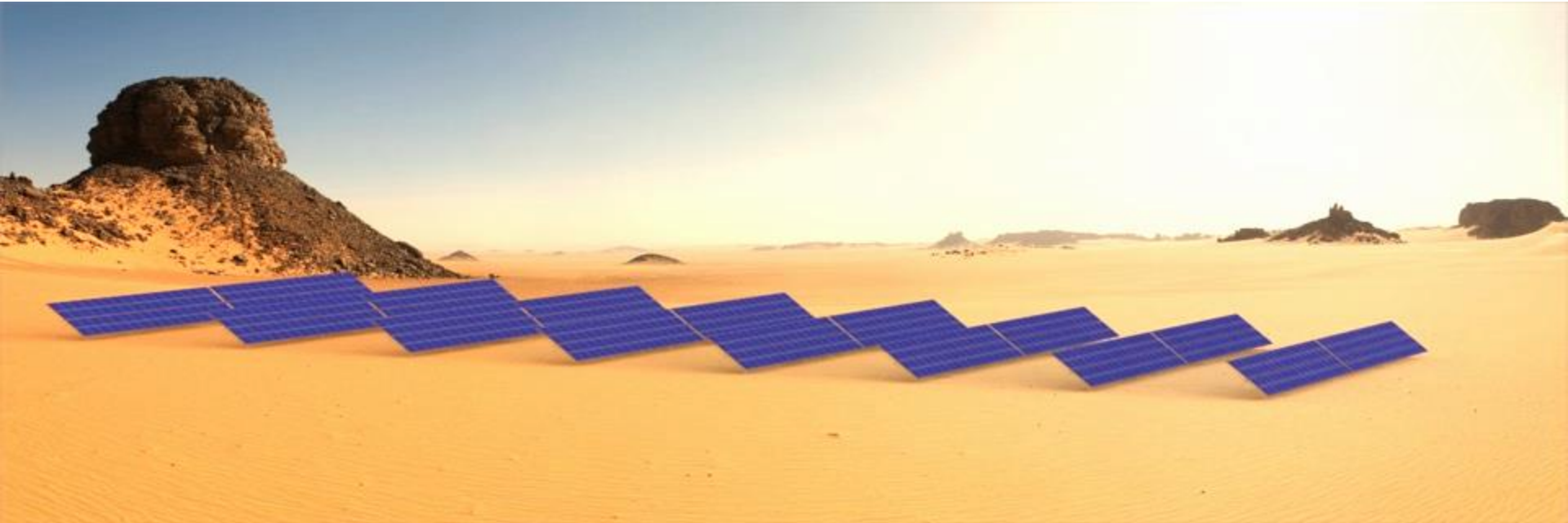
Shade for  
Garden Chairs



Utility Scale PV Tracker

# **MWS SMART TRACK**

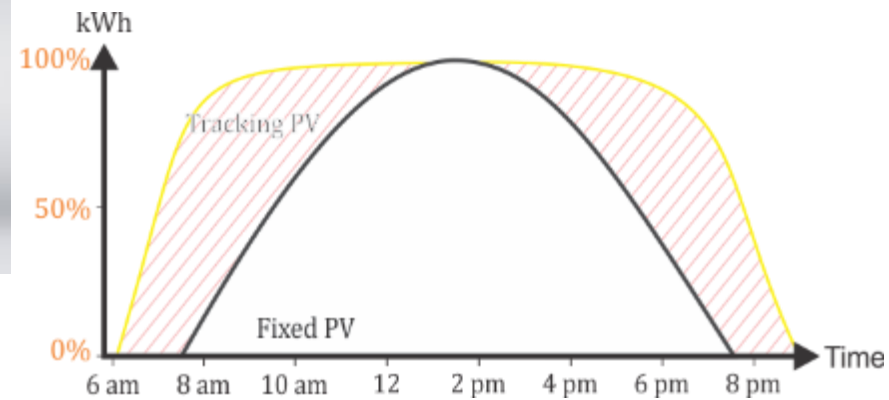
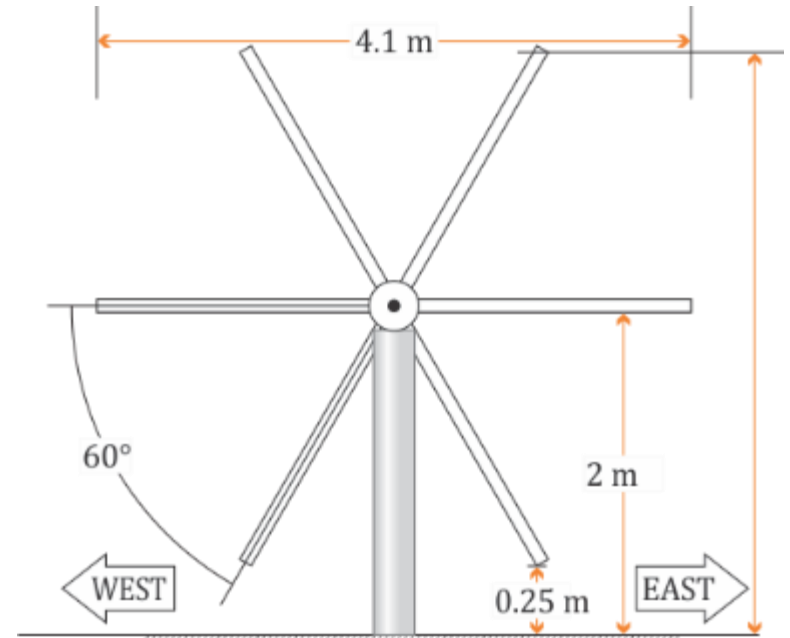




100 % indigenous Structure



# Utility Scale Tracker- MWS SmarTrack



\* Indicative only. Yield Will vary with location and layout



# Utility Scale Tracker- MWS SmarTrack







# MWS SMARTTRACK

Self powered, battery-backed tracker controller with advanced backtracking for shadow avoidance. No AC power required

**Panels**  
Designed for all Panel Sizes

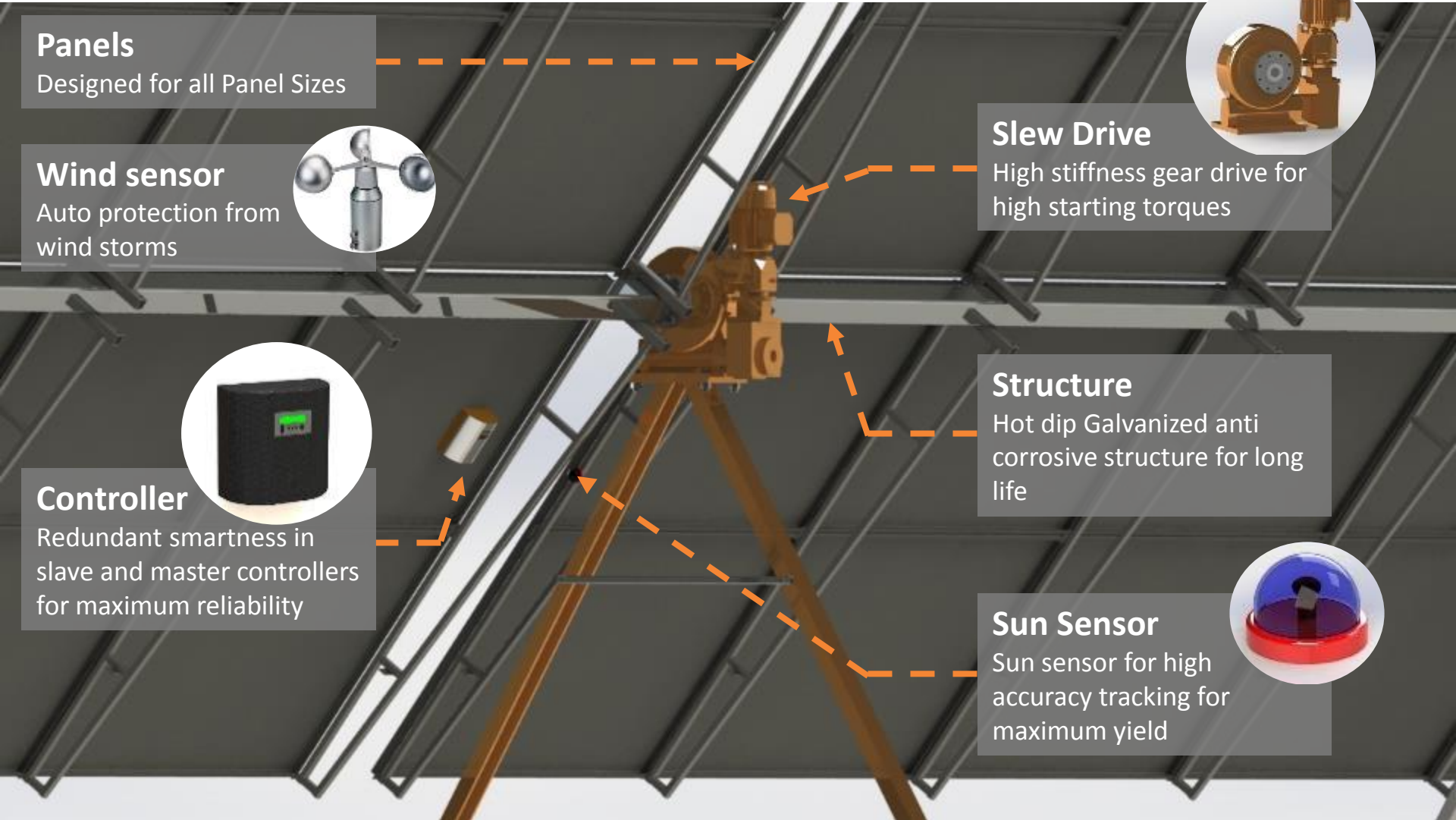
**Wind sensor**  
Auto protection from wind storms

**Controller**  
Redundant smartness in slave and master controllers for maximum reliability

**Slew Drive**  
High stiffness gear drive for high starting torques

**Structure**  
Hot dip Galvanized anti corrosive structure for long life

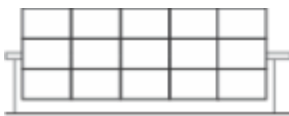
**Sun Sensor**  
Sun sensor for high accuracy tracking for maximum yield





# MWS SmarTrack™ - For High Yield Utility Scale Solar Power Plants

<b>Tracking Technology</b>	<b>Horizontal single axis gravity-balanced tracker with independent rows</b>
Tracking Range	± 60deg
Control System	Fully Automated Self powered Row Control Unit (RCU) per tracker and one Master Control Unit (MCU) per 20 RCU for high field reliability and contingency
Drive System	Self-locking gear, both AC and DC motor options available
DC Capacity	32 kWp per tracker row; Configurable
Power Consumption	No grid power required
Installation	Rapid field assembly with no onsite welding
Foundation Type	Driven pier/concrete pile to withstand 200 km/hr winds



3X5 block of panels in landscape mode



2X8 block of panels in portrait mode



1X16 block of panels in portrait mode



No Maintenance Long Life of Tracker



Self Powered East-West Tracker



Fully Automated Tracking

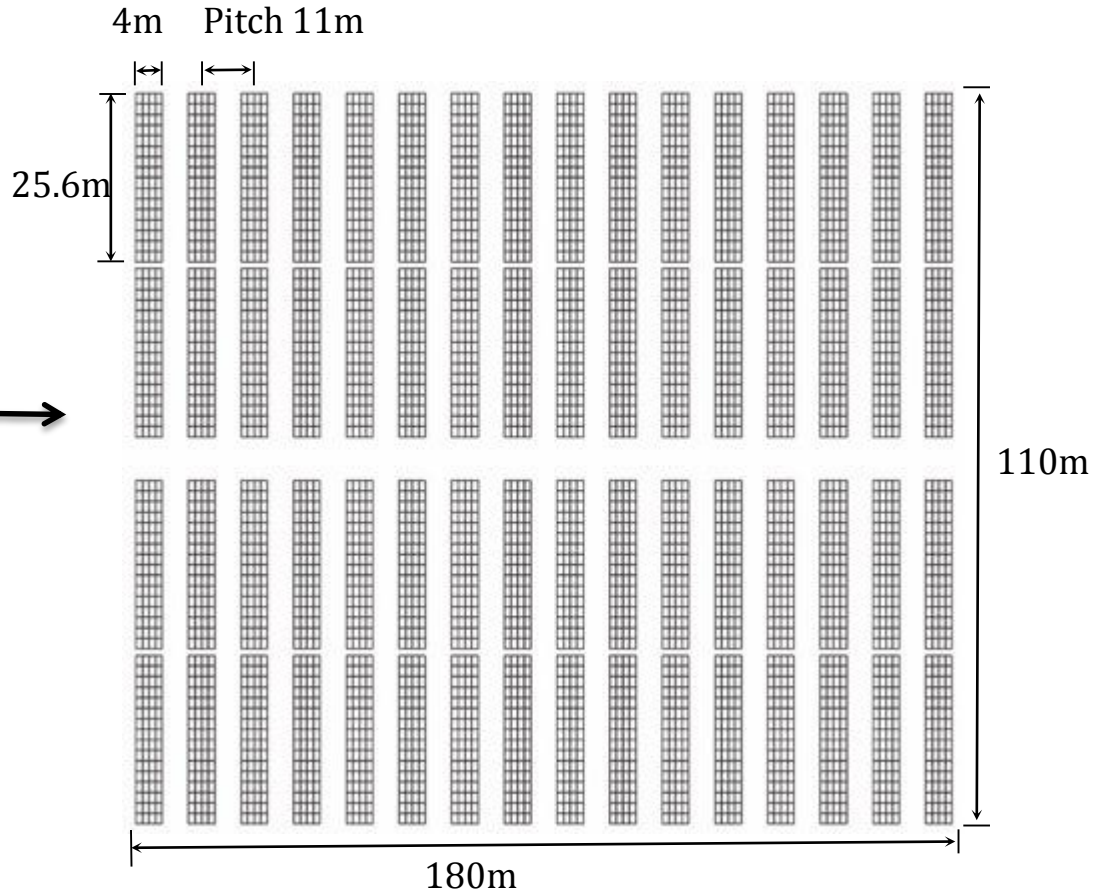


Low Cost and shorter Payback Period

# Typical Layout of 1 MWp MWS Tracker



Modular Plant Layout



<b>Module Dimension</b>	<b>1.6 mtr X 0.9 mtr (250Wp)</b>
Single Tracker Capacity	32 kWp
No. of Trackers per MWp	32
1MWp Tracker Footprint	< 5 acres
Typical Yield Increment Over Fixed	18%

Modular Building Blocks Allow Wide Range Of Customized Plant Layouts As Per Site Specifications



# MWS Tracker In Action



# Megawatt Solutions Private Limited



Clean Energy For All

**Mr. Siddharth Malik**

Managing Director, Megawatt Solutions Pvt. Ltd.

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**Contact us**

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