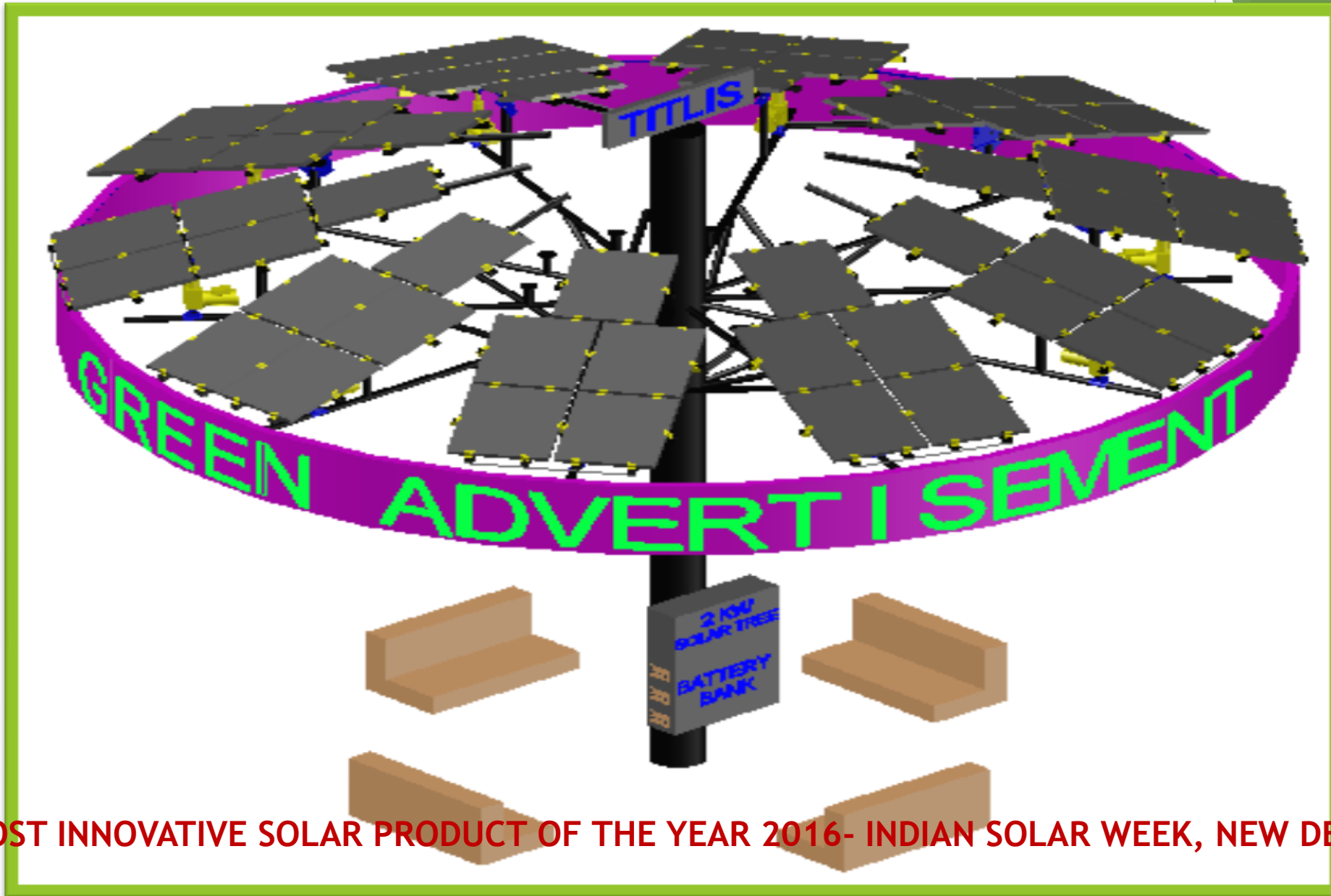


# SOLAR TREE

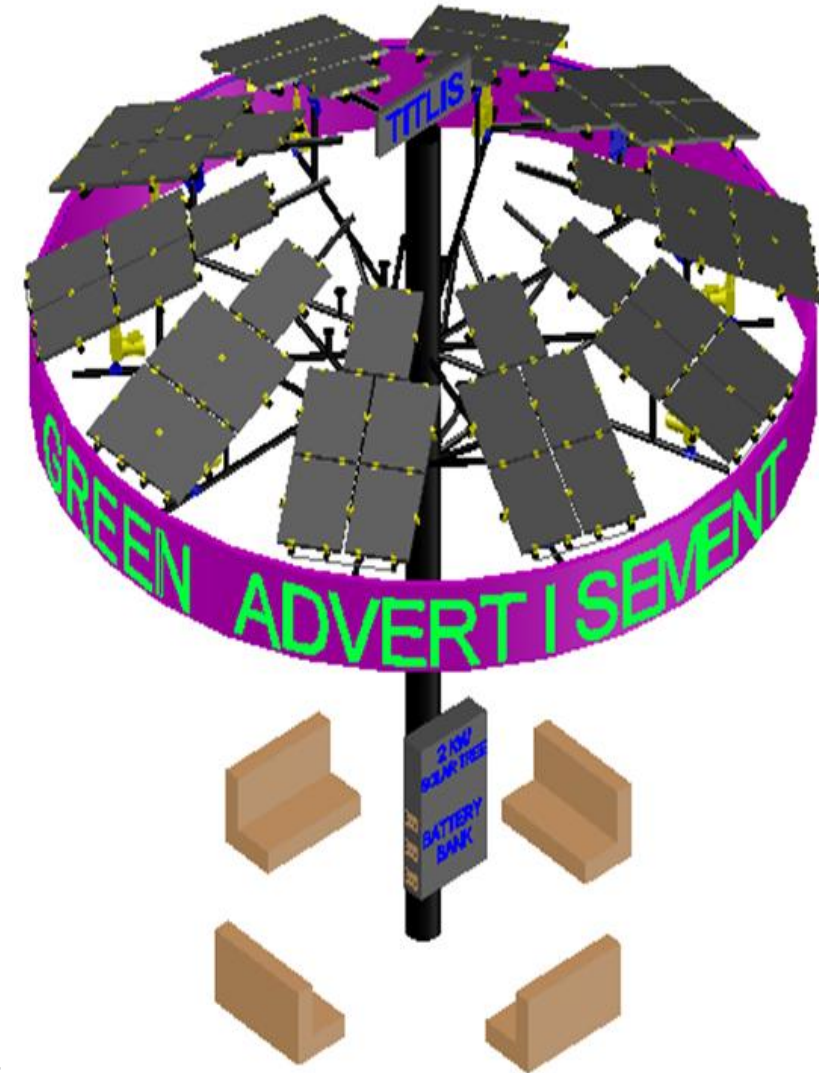


**MOST INNOVATIVE SOLAR PRODUCT OF THE YEAR 2016- INDIAN SOLAR WEEK, NEW DELHI**

# FEATURES OF SOLAR TREE



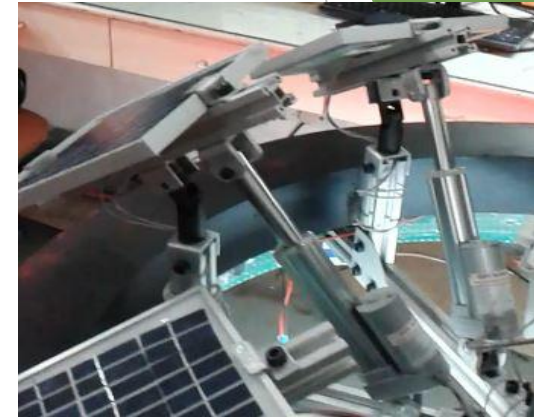
- ▶ Solar Tree has photovoltaic solar panels which will produce Electricity free of cost using solar energy.
- ▶ Solar Tree has Sun Tracking mechanism and it will rotate at every 30-60 min interval to optimize more power from sun.
- ▶ Advertisement Display Board are installed for Digital Advertisements on Solar Tree thus making Advertising fully Green.
- ▶ Can save upto 8-10 GW per year if adopted for Green Advertisement within India and 100 GW globally.
- ▶ Can Contain Water Cooler/Tea/Coffee Vending Systems.
- ▶ The space below can be used for Outdoor Conferencing & Meetings.
- ▶ Contains Charging sockets and also Wi-Fi system.
- ▶ Battery is used to store power generating at day time, which is used at night time for Advertisement and Lighting purpose.
- ▶ Can be used effectively for e-Learning and Virtual Training.
- ▶ Virtual Monitoring for quick Operation control & Maintenance.





# WORKING MECHANISM

- ▶ Linear Actuator provide the Tilting action to North side panels at  $23^\circ$  in morning(i.e. at 8:00 am) and keep adjusting.
- ▶ The solar tree will keep rotating with the help of Linear actuator which is used to drive Rack & pinion every 30-60 minutes, so that more energy can be optimized from sun.
- ▶ Linear Actuator will be closed again in evening(i.e. at 6:00 pm), and the Solar panels will rest at their original position.
- ▶ PLC is used to operate the stroke of actuators.
- ▶ Batteries will be fully charged with the help of solar energy generated at the daytime and can be used as backup
- ▶ At the night time the power is utilised for the LED Advertisement Display & for Lighting purpose.





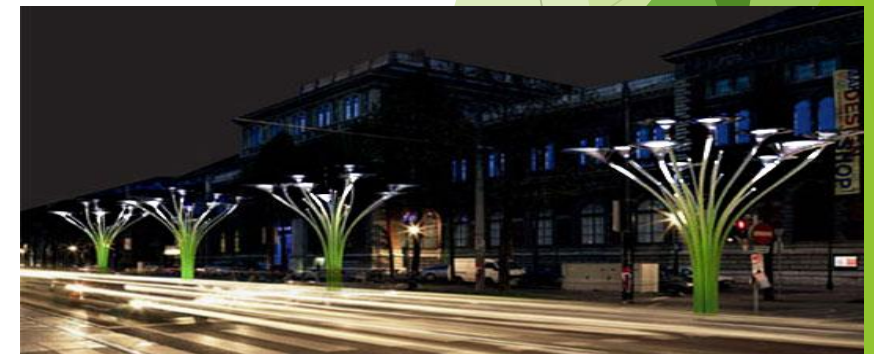
# WHY BETTER THAN TRADITIONAL SYSTEM?



- ▶ For traditional system we require large size of land i.e. To generate 1 MW power from PV module we require 4-5 acres of land.
- ▶ We Only need less than 1 Acre per MW when using Solar Tree Thus in the same space we can install 5-6 times bigger plant.
- ▶ Virtual Monitoring System can monitor each Array thus fault finding is very easy and can be addressed within hours than weeks as compared to Traditional systems.
- ▶ Space below the tree can still be used for Green house farming and other purpose.
- ▶ Since India plan to install more than 100 GW solar energy by 2022, We need a space saving system to install more power per Acres Thus saving Land for future generations as well.
- ▶ Can be used for Effective E-Learnings in remote areas.



Traditional system



Solar Tree system



# ADVANTAGES

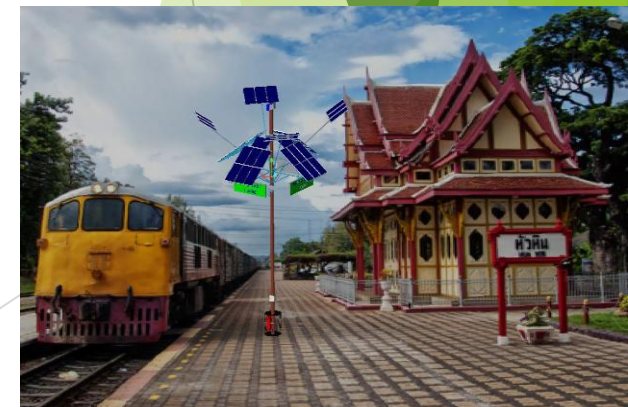
- ▶ Reduced Air pollution due to use of more Solar Trees.
- ▶ 5 times less Land needed for each MW and the Space below the Tree can be used for Green House Cultivations in larger capacities.
- ▶ Tree can be used for e-Learning using its WiFi Network and Digital Screens.
- ▶ Space under the tree can be used as Outdoor Conferencing and Virtual Training in Rural Areas for Adults etc
- ▶ Space below the Tree can also be used for Open Air Cyber cafe as well as Tea/Coffee Cafe.
- ▶ It can be installed in any place thus more beneficial.
- ▶ Users can generate substantial revenue due to Green Advertising possibilities.
- ▶ Party Plots can use this Power Thus promoting green culture in day to day life.
- ▶ Public places like Hospitals/ Malls/Corporate Campuses/Train & Bus Stations can use this for Public convenience & Digital Advertising Revenues.
- ▶ All the Parking Space can be converted as Solar Parking Shed thus No need to waste money for Parking sheds etc. In future this can also be used for charging e-Cars.





# APPLICATIONS

- ▶ Public places like Parking areas/Hospitals/Super Malls/Round Abouts/Corporates/Schools/Colleges etc.
- ▶ To operate Vending machines like Tea/coffee making machine.
- ▶ The space can be used for Outdoor Conferencing and Meetings.
- ▶ To generate electricity in the rural areas to improve the lifestyle.
- ▶ To use the Solar Energy for Green Advertising thus saving more than 8-10 GW of conventional power every year.





# CONCLUSION

- ▶ To fulfil increasing energy demand of the Societies this is best possible solution for current & future generations.
- ▶ 5 times extra land can be saved by using this system.
- ▶ This can resolve the shortage of power starving areas and countries
- ▶ The energy saved due to Solar Tree can be diverted to needy areas.
- ▶ Solar power can help in Green Advertisements thus save more than 8-10 GW conventional power per year in India.
- ▶ Each Solar Tree also become E-car charging facility for future





# TITLIS R&D FOCUS FOR FUTURE

- ▶ TITLIS ENGG Has an R&D Tie Up with DIAT -DRDO for research to develop future solar cell as Heat Sensitive Solar Panels which will eliminate battery storage and power can be generated at night and more than 22 hours per day.
- ▶ TITLIS Has also signed an R&D tie up with a German University for Further research in Thermal Solar Technology to make it commercial success in India
- ▶ TITLIS has another R&D tie up with DRDO for developing Decoloring agents which will increase the secondary and final filters life of ETP by 200% and treatment cycle reduced by 35%.
- ▶ Strong In house drive helping TITLIS to develop a Hybrid Battery operated Solar Car to reduce the pollution in Indian cities and make Air breathable.
- ▶ TITLIS is also developing a future Battery which will last more than 10 years to support ongoing Solar energy storage concept and reduced cost of Energy.





***THANK YOU!***

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