

## The Solar Tracker BOOM continues despite low Module prices

Over the last decade, Solar PV technologies and economics have come of age, with several solar plants being installed for industrial, commercial and residential use. Competitive tariffs create a need to examine technology solutions for superior generation, to boost returns.

**Solar tracking is the only proven and bankable technology** which increases the power generation of a plant by 18-25%, thereby lowering the cost per unit of power generation (LCoE).

Scorpius Trackers, established by 2 technocrats with more than 20 years' experience in innovation, is a pure play tracker technology company and a **one stop shop** of an end-to-end World class tracking solution, that comprises hardware, tracker controller and structure designs.

Scorpius aims to be the **world's premier solar tracking solutions provider**, with a unique mechanical and software tracking solution, which enables users to achieve the LOWEST COST OF POWER (LCoE)

Since commencing commercial operations in 2014, Scorpius has now supplied more than 250 MW in India, Middle East, Africa, Far East and USA and has a clear visibility for FY18 of more than 500MW in India and an exponentially increasing global footprint.

With the rapid decrease in modules prices in the last year from \$0.45 per Watt peak to around \$0.33 per Watt peak today and with a forecast of a price below \$0.29 in the coming year, the **thought** which crosses the mind of a IPP/EPC is **"With falling module prices, will Tracker economics work out?"**

To answer the above question, we reviewed the two most recent solar tenders concluded in India in light of whether tracking solution will improve the economic returns. One tender was for an EPC and the other one for a DEVELOPER. Both saw very aggressive bidding.

Both case studies take into account the below listed assumptions and both **PROVE A CLEAR CASE FOR TRACKERS**, even in a scenario of very low module prices (decreasing from \$0.33/Wp to \$0.25/Wp)

### ECONOMICS : for an EPC

#### CASE STUDY : APGENCO 100 MW x 5

	Tender Requirement and Bid about	Fixed Tilt	Tracker 17% gain (conservative), Rs. 45 lacs increase in CAPEX
Units per annum	10,00,000	16,00,000	18,72,000
Capex Rs. Cr	2.1	3.360	3.810
Capex per MU	2.1000	2.0353	
Saving, Rs. Cr per MWp	-	0.065	
Saving in Capex is	6.47	Rs. lacs per MWp of EPC cost	

**Assumptions:**

Lower than current industry normal spend is assumed on BOS. If this increases, then the savings by use of trackers will only improve.

It is seen from the above case study that there is a **reduction in CAPEX** of a plant **by Rs. 6.47 lacs per MWp** for generating ONE MILLION UNITS when Trackers are used.

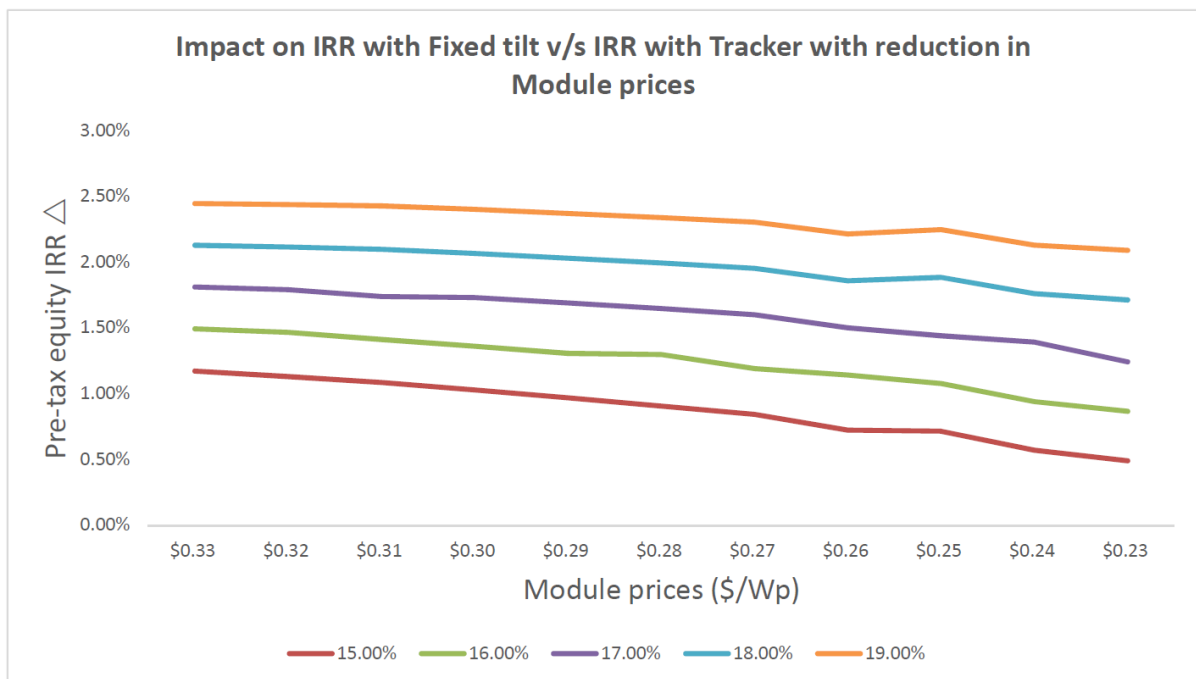
**ECONOMICS : for an IPP/PROJECT DEVELOPER**

**CASE STUDY : REWA 250 MW x 3, Rs. 2.94 per unit, LCOE Rs. 3.30 per unit**

		33 cents module		29 cents module		25 cents module	
		FIXED	TRACKER	FIXED	TRACKER	FIXED	TRACKER
<b>Yield</b>		1,580	1,833	1,580	1,833	1,580	1,833
<b>Generation Gain</b>		0.00%	16.00%	0.00%	16.00%	0.00%	16.00%
<b>EPC Budget</b>							
Modules	\$/Wp	\$0.33	\$0.33	\$0.29	\$0.29	\$0.25	\$0.25
Modules	INR Crs / MW	2.24	2.24	1.97	1.97	1.70	1.70
Inverter	INR Crs / MW	0.22	0.22	0.22	0.22	0.22	0.22
Tracker	INR Crs / MW	-	0.24	-	0.24	-	0.24
BOS	INR Crs / MW	0.95	1.16	0.95	1.16	0.95	1.16
<b>Total</b>	INR Crs / MW	3.41	3.86	3.14	3.59	2.87	3.32
<b>Levered Equity IRR, Pre TAX</b>		8.23%	9.73%	10.51%	11.82%	13.25%	14.32%
<b>BPS gain in IRR by use of Trackers</b>			149		131		108

Assumptions:

Lower than current industry normal spend is assumed on BOS. If this increases, then the savings by use of trackers will only improve.



This is an interesting analysis which shows that there is a tracker benefit in all situations down to a module price of 23 cents.

In a scenario when the project IRR is lower than the industry norm (or expectation), an increase in IRR by 150 basis points by use of a mature Tracker Technology MAKES FOR A WINNING ECONOMIC CASE.

Both these illustrations and case studies will be workable **ONLY IF TECHNOLOGY** selection is done after rigorous due diligence so that the projected **FINANCIALS** transform into reality, considering a 25 year plant life and investment horizon.

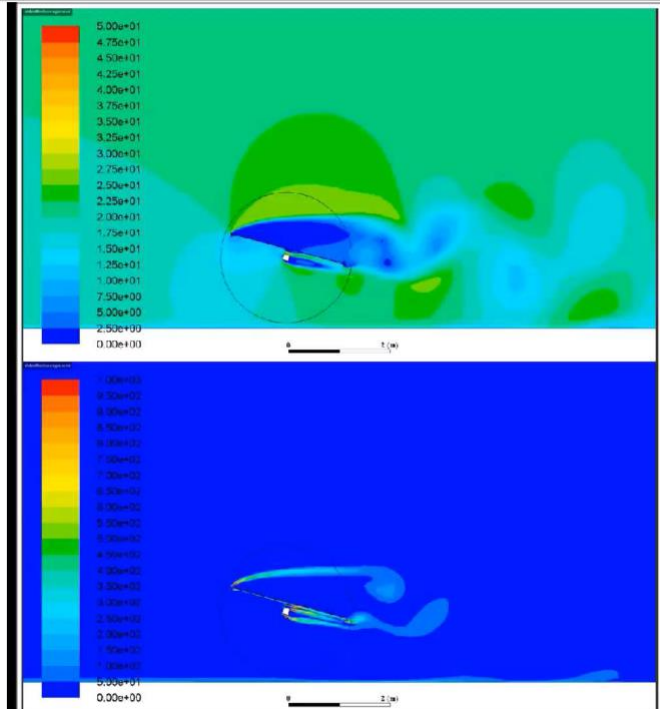
A Tracker technology must comply to the below 5 main points for it **TO BE SELECTED**.

- ZERO MECHANICAL O&M
- Thoroughly Tested for Durability and Reliability, 25+ years
- MMS Designed based on Boundary Layer Wind Tunnel
- Bankability Certifications and Third party due diligence
- Established Track Record

Scorpius provides Tracking Solutions which comply to all the above requirements, and more.



## Tested in Boundary Layer Wind Tunnel facility, Static, Dynamic, Torsion and Aero elastic



Please write to [info@scorpiustrackers.com](mailto:info@scorpiustrackers.com) for more detailed information on the Tracker Technology on offer and to get a copy of the **“Scorpius Trackers White Paper - Tracker Structure Design”**