



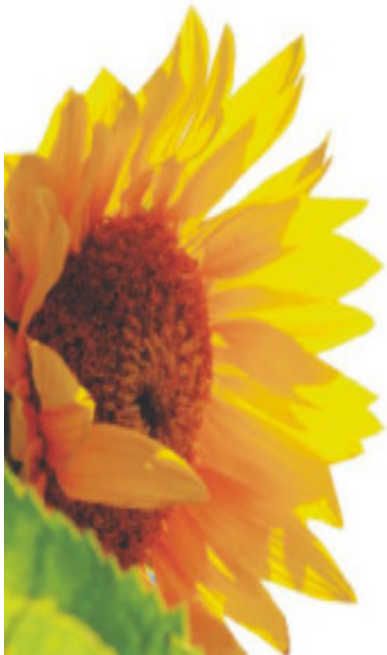
Mulk

Renewable Energy

Sharjah's Own - Solar Energy Solutions Provider

Designer, Manufacturer, Fabricator & Installers for CSP and PV Solar Technologies

WWW.MULKRE.COM / WWW.ALUBOND.COM / WWW.ABTIUSA.COM





Mulk Holdings / Alubond U.S.A

4 Production Bases
80 Countries
11,000,000 M² Production Capacity
50,000,000 M² Installations



Alubond

U.S.A

Aluminum Composite Panels

The World's Largest ACP Brand



Burj Khalifa
World's Tallest
Tower

Hyderabad International Airport,
India

Cairo International Airport, Egypt
Expansion Phase II

Dubai International Airport
Expansion Phase III - Dubai

Sharm El Sheikh Airport - Egypt

Sharjah International Airport

Burj Lake Hotel
Dubai

Qipco Tower
Qatar

Ashok Leyland,
India

Metalno, Serbia

Infosys Campus
India

Inhotel, Serbia

Formula 1
Abu Dhabi

Monorail, Dubai

Toyota Showroom,

Mulk Renewable Energy - "Solar Made Simple"

MULK HOLDINGS/ ALUBOND U.S.A



MulK
HOLDINGS
INTERNATIONAL



MulK
Renewable Energy



Alubond
U.S.A
Aluminum Composite Panels

ALBEI
RENEWABLE ENERGY

Alubond
Solar Collector Mirror

Alubond
PV Booster Mirror

PHOTOVOLTAIC - BASICS

Photovoltaics (PV) is a method of generating electrical power by converting solar radiation into direct current electricity using semiconductors that exhibit the photovoltaic effect.

- Types – Mono / Multi / Thin Film
- Avg Efficiency – 6 % to 16 %
- Millions Spent on R& D
- Cost of PV Still Expensive
- We have the solution !!!



ALUBOND PV BOOSTER MIRROR



Alubond
PV Booster Mirror



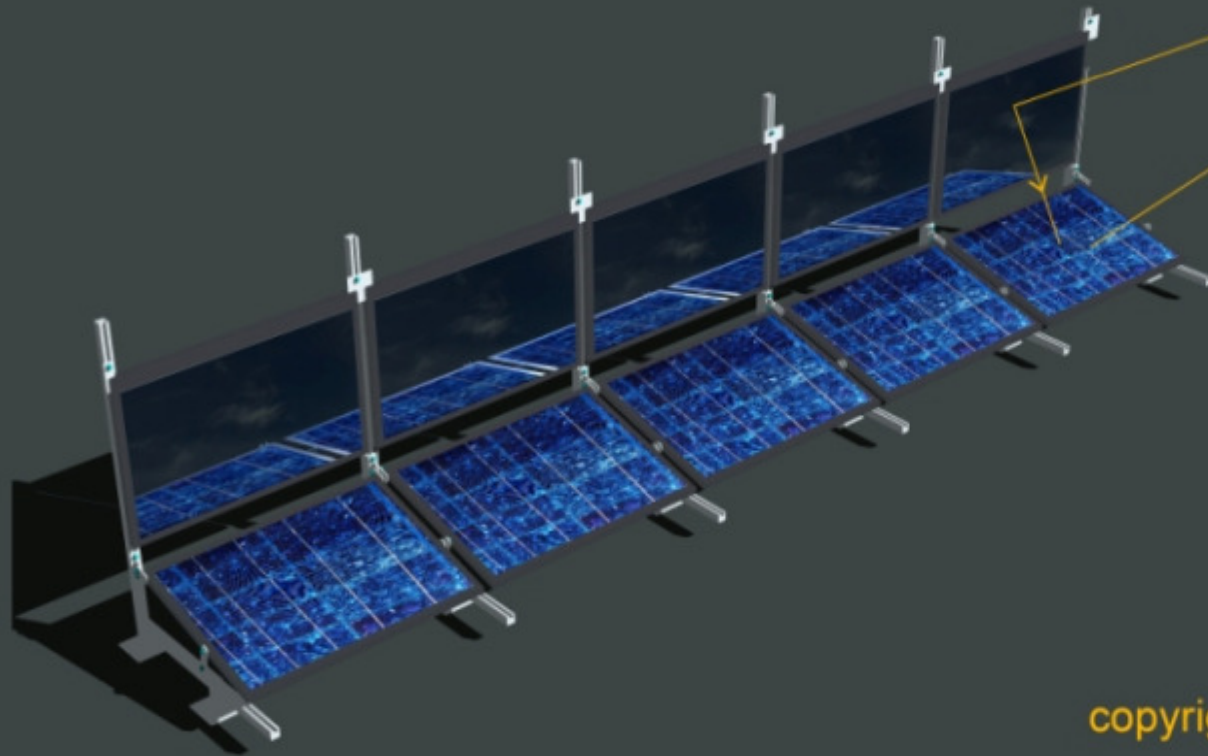
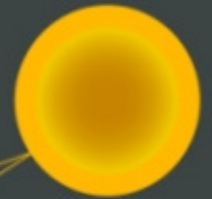
ALUBOND PV BOOSTER MIRROR



Mulk
Renewable Energy



Alubond
PV Booster Mirror



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Alubond PV Booster Mirror



Inventor – Mr. Khurram Nawab (Mulk Renewable)

- Invented by Mulk RE's Khurram Nawab

Mr. Nawab is an International business entrepreneur and green technology system developer. He has received considerable worldwide attention for his development and patents on solar light weight metallic composite mirrors for both high concentration and low concentration mirrors under brand Alubond solar collector mirror. He designed & developed unique concepts for receiver tube in parabolic trough system. He has also designed & developed simple platform tracking system for PV and CSP. He is recognized as a pioneer in the field of green energy technology and system development.

PERFORMANCE DATA

- Power Boost (Summer) - Over 40%
- Power Boost (Winter) - Over 50%

HYDROPHILIC PRINCIPLE (Self Cleaning effect)

- During Night / Mirror attracts water
- Fully wets the mirrors to have a self cleaning effect
- Self cleaning by overnight



Khurram Khan Nawab

ALUBOND PV BOOSTER MIRROR

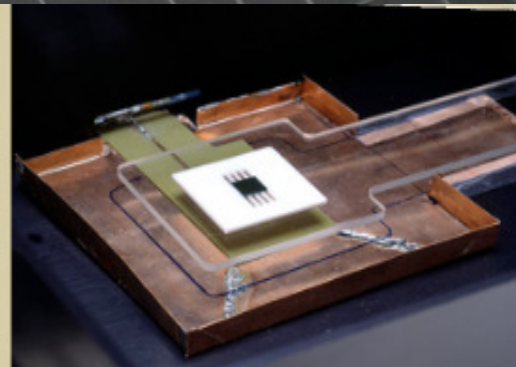
- Patented in USA and World Wide
- Cuts out UVA, Violet 80% and IR / Reflects more visible sun Light on to PV panel
- Special coating prevents increase on Module Temperature

PERFORMANCE DATA

- Power Boost (Summer) - Over 40%
- Power Boost (Winter) - Over 50%

HYDROPHILIC PRINCIPLE (Self Cleaning effect)

- Physical Property of a molecule repels from water
- During Night / Mirror attracts water
- Fully wets the mirrors to have a self cleaning effect
- Self cleaning by overnight



HYDROPHILIC EFFECT - SELF CLEANING



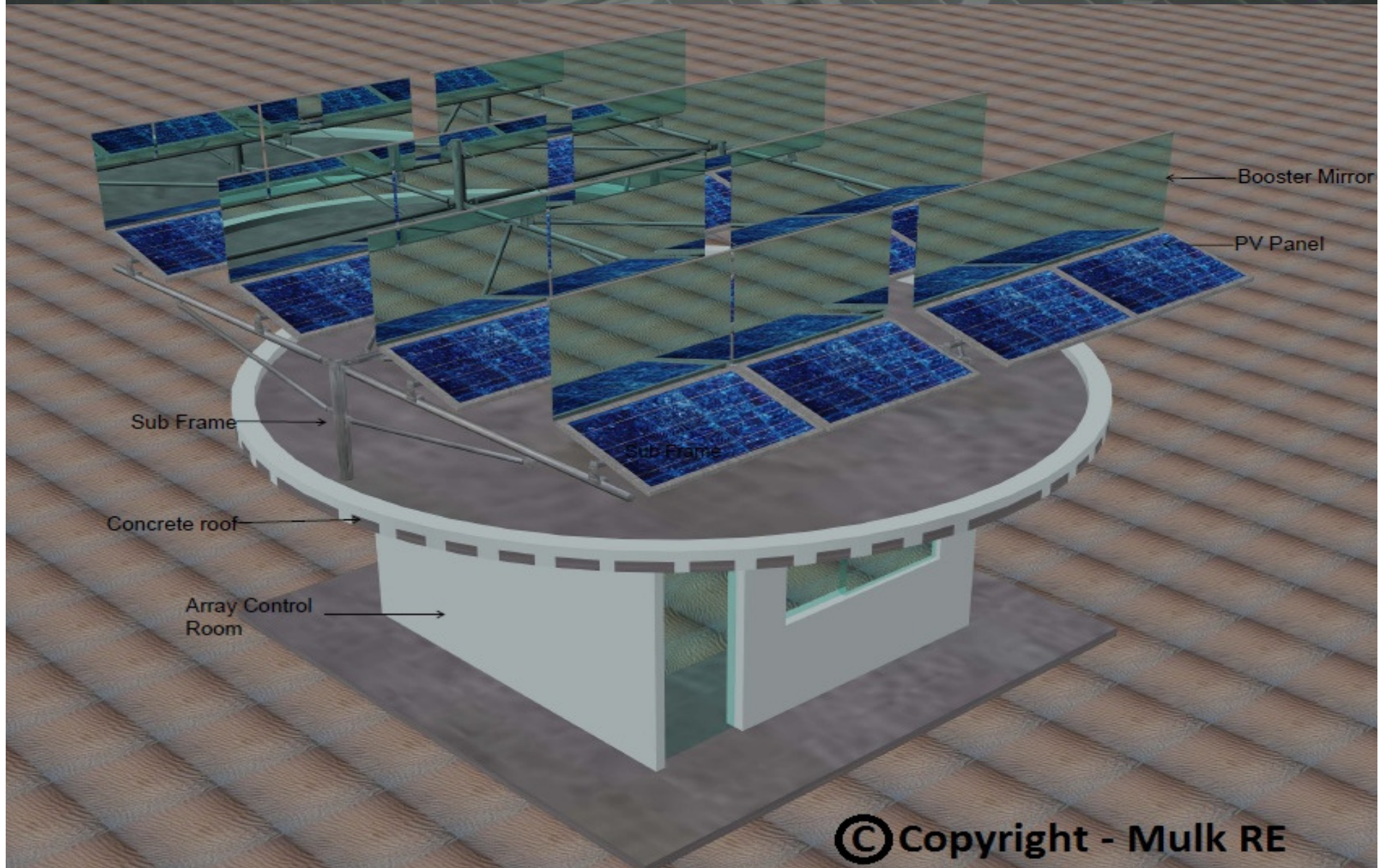
Alubond Solar Collector Mirror



Conventional Glass / Film / Metal Mirrors

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MULK PV PLATFORM (OFF GRID/ROOFTOP APPLICATION)



Mulk - Single Axis PV Platform



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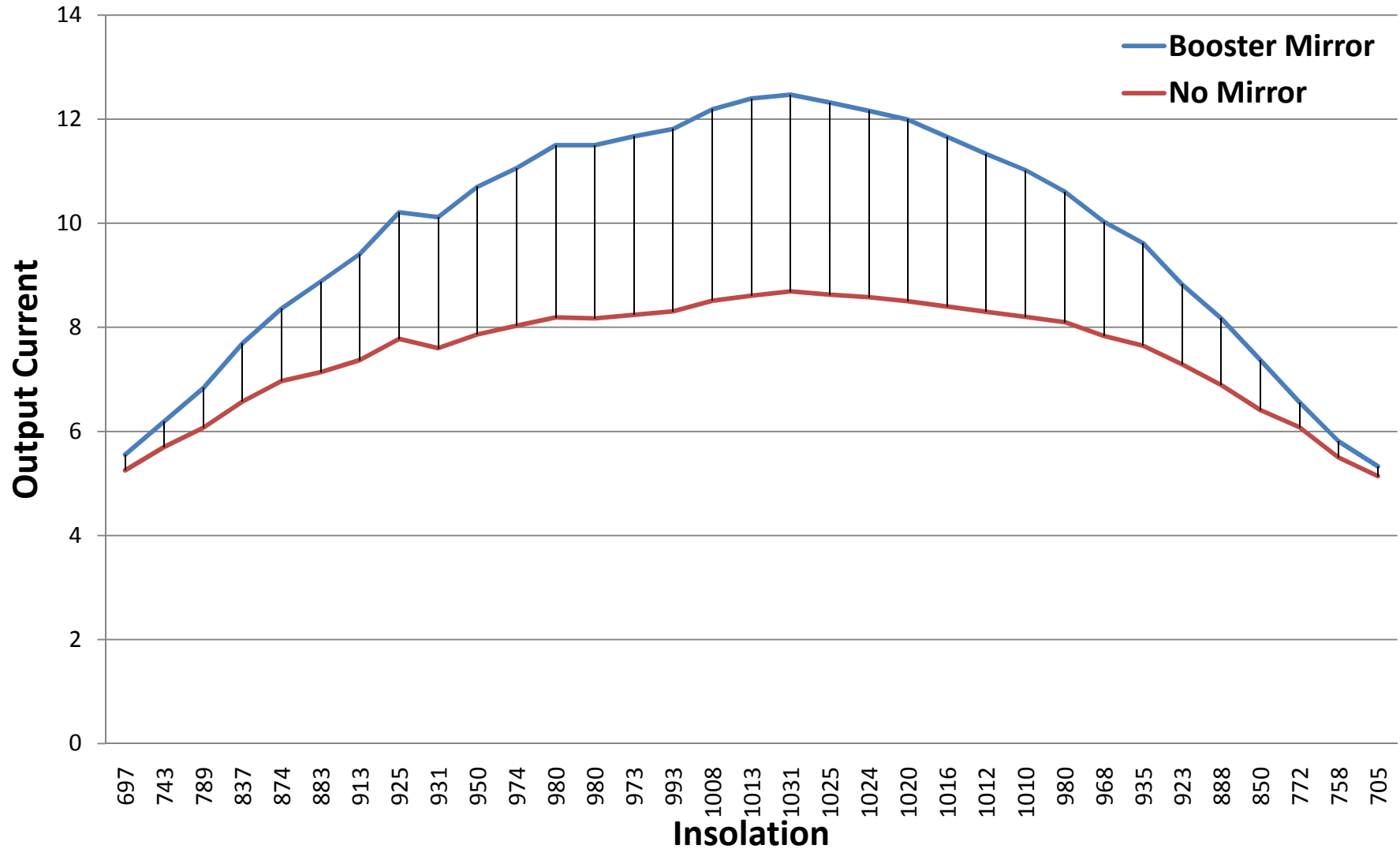
ALUBOND PV BOOSTER MIRROR- Platform Tracking System/ DATA LOG

PV Module - 210W/24VDC

Time	Insolation W/m2	Current		Voltage		Output Power	
		mirror	no mirror	mirror	no mirror	Mirror	No Mirror
8:30	697	5.55	5.25	33.49	32.96	185.87	173.04
8:45	743	6.19	5.7	33.42	32.98	206.87	187.99
9:00	789	6.83	6.07	33.07	32.7	225.87	198.49
9:15	837	7.69	6.57	32.64	32.35	251.00	212.54
9:30	874	8.36	6.97	32.51	32.23	271.78	224.64
9:45	883	8.88	7.14	32.02	31.78	284.34	226.91
10:00	913	9.41	7.37	31.37	31.41	295.19	231.49
10:15	925	10.21	7.78	29.21	31.68	298.23	246.47
10:30	931	10.12	7.6	31.76	31.62	321.41	240.31
10:45	950	10.7	7.86	31.71	31.58	339.30	248.22
11:00	974	11.06	8.03	31.65	31.56	350.05	253.43
11:15	980	11.5	8.19	31.7	31.96	364.55	261.75
11:30	980	11.5	8.17	31.84	32.03	366.16	261.69
11:45	973	11.67	8.24	32.08	31.93	374.37	263.10
12:00	993	11.81	8.31	32.04	31.91	378.39	265.17
12:15	1008	12.19	8.51	32.47	32.31	395.81	274.96
12:30	1013	12.4	8.61	32.28	32.22	400.27	277.41
12:45	1031	12.47	8.69	32.32	32.36	403.03	281.21
13:00	1025	12.32	8.63	32.33	32.3	398.31	278.75
13:15	1024	12.16	8.58	32.22	32.22	391.80	276.45
13:30	1020	11.99	8.5	32.25	32.25	386.68	274.13
13:45	1016	11.66	8.4	32.3	32.3	376.62	271.32
14:00	1012	11.33	8.3	32.35	32.31	366.53	268.17
14:15	1010	11.02	8.2	32.39	32.33	356.94	265.11
14:30	980	10.61	8.1	32.45	32.46	344.29	262.93
14:45	968	10.03	7.83	32.51	32.53	326.08	254.71
15:00	935	9.62	7.65	32.47	32.45	312.36	248.24
15:15	923	8.82	7.29	32.8	32.66	289.30	238.09
15:30	888	8.17	6.89	32.78	32.64	267.81	224.89
15:45	850	7.37	6.41	33	32.78	243.21	210.12
16:00	772	6.56	6.08	33.18	32.92	217.66	200.15
16:15	758	5.81	5.5	33.37	33.05	193.88	181.78

ALUBOND PV BOOSTER MIRROR- Performance Graph

Insolation Vs Current



COMPARISON (MULK SYSTEM ADVANTAGES)

MULK SYSTEM	OTHERS
PV Booster Mirror Advantage	Not Available
Less area required per Kw	More area required per kw
Less Investment and less qty of PV Modules	More Investment and Qty of PV Modules
Less Hardware Cost	More Hardware Cost
ABTI - Cost Effective Tracking /Single Axis	EXPENSIVE Double Axis Tracking system
Less Maintenance (Hydrophilic Effect)	More Maintenance Required
More Kilo Watt Hours Per Day (Early Start)	Comparatively Less Kilo Watt Hours Per Day

The image features a night cityscape with illuminated buildings, including a prominent tower with a spire. In the foreground, two white streetlights are shown, each with a solar panel mounted on its arm. The streetlights are illuminated, casting a glow. The background is a dark blue night sky. The overall scene is framed by orange and white decorative elements at the top and bottom.

Energy Saving Lighting Series

abti
RENEWABLE ENERGY

ALBEI Range of Products

Energy Saving Lighting Series

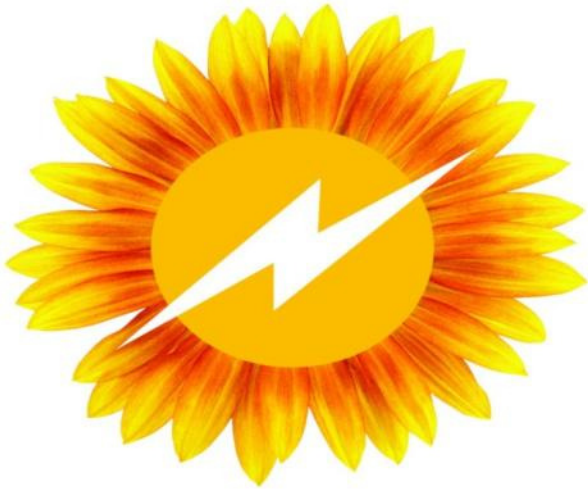
- Indoor Lighting
- Flood Lighting
- Street Lighting

Solar Energy Products

- Street Lighting
- Portable Lighting
- Home lighting
- Home Power Systems
- Solar Powered Telecom
- Surveillance Solutions

Solar Road Furniture

- Traffic Signals
- Traffic Controlling
- Traffic Blinkers
- Traffic Signages
- Solar Road Studs



Mulk

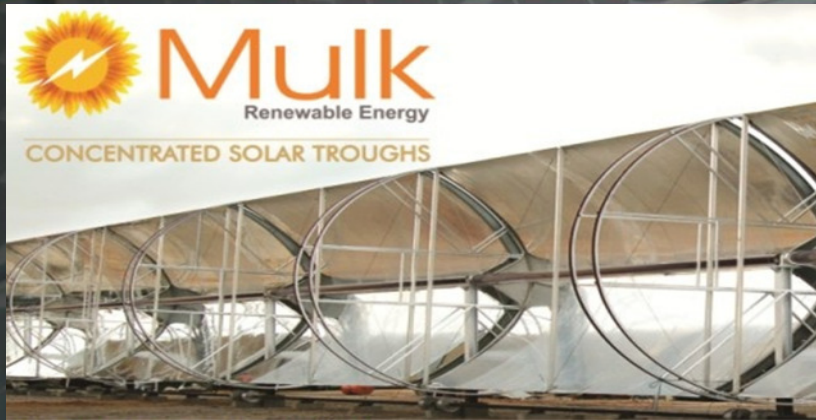
Renewable Energy

ADVANTAGES BEING A MANUFACTURING COMPANY BASED IN SHARJAH, UAE

- Mass production of components PV Module, Booster Mirrors, Battery, Lamps, Battery Cabinets, PV Module Mounting Frames etc.
- Faster Delivery of components on site
- Less Lead Time / Less Shipping Time
- Reduced cost
- High reliability and speed for replacement of components and its supply.
- Ability to execute large scale projects
- Channel partners and service centers across 80 Countries.
- Total solutions of CSP, PV, Concentrated PV, PV Lighting etc under one roof.

Mulk Renewable Energy - "Solar Made Simple"

Thank You



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