Carousel Trackers with 1-Sun or 3-Sun Modules for Commercial Building Rooftops

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<u>Thesis:</u> Cost Competitive Solar PV Electricity at 7¢ / kWh

How? **Solar PV Today is 28 ¢ / kWh**

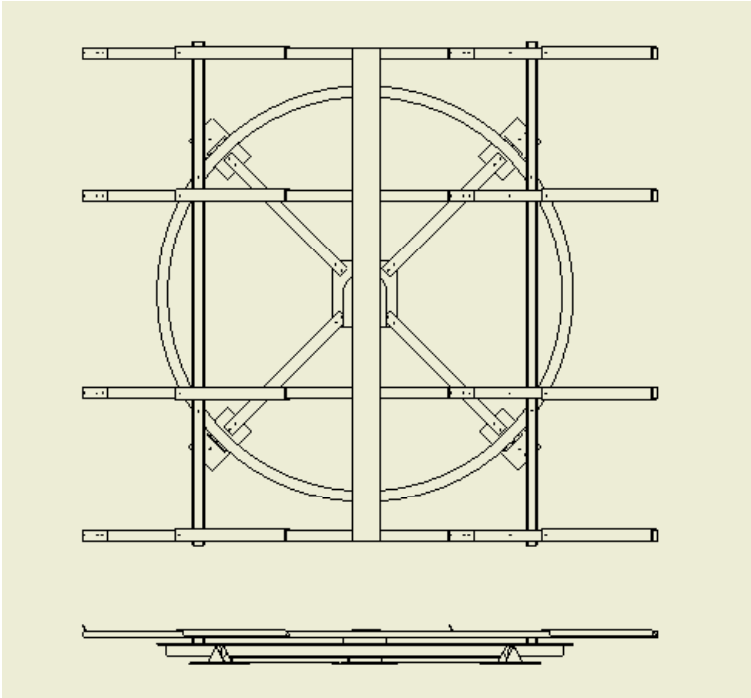
Improvement	Price reduction	Price
1. Solar Tracking	1.4 x	20 ¢ / kWh
2. Lower cost optics	2 x	10 ¢ / kWh
3. Higher Efficiency	1.5 x	7 ¢ / kWh

Result **Solar PV Tomorrow at 7 ¢ / kWh**

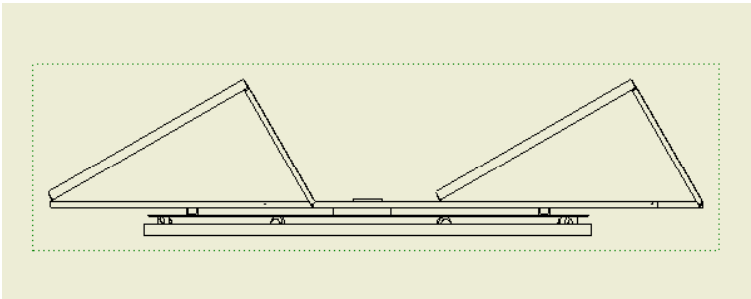
Improvement #1: Follow the Sun

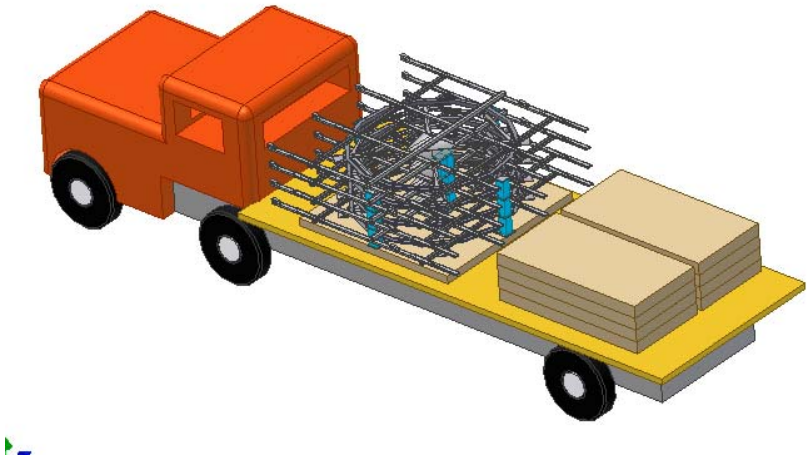
JX Crystals Sun Tracking Carousel for Building Flat Roofs

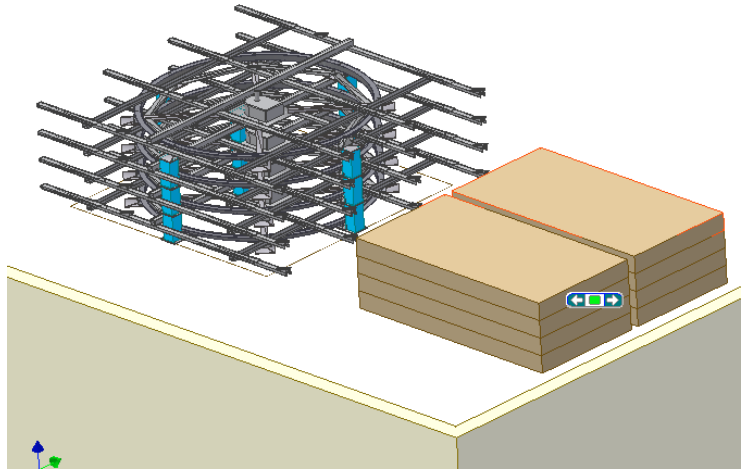
- Single axis azimuth tracker
- 1.4 x more kWh/kW vs fixed
- Fits in 8 ft container
- Low Cost Installation
- Low wind resistance
- No roof penetration
- Ballast or Tether Mount
- Folds down for shipping

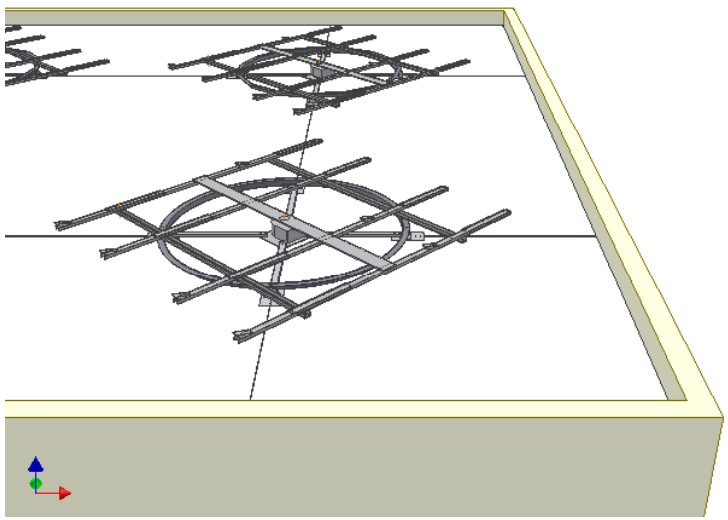


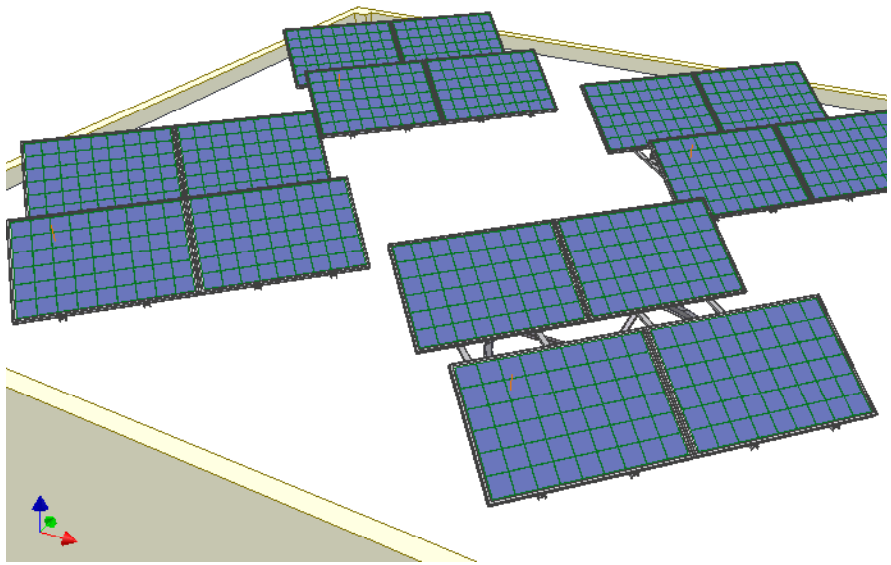
Panel support arms lift up for solar panel installation











JXC Carousel Installation Sequence

1. Ground

2. Lift to roof

3. On roof with ballast

4. Add panels

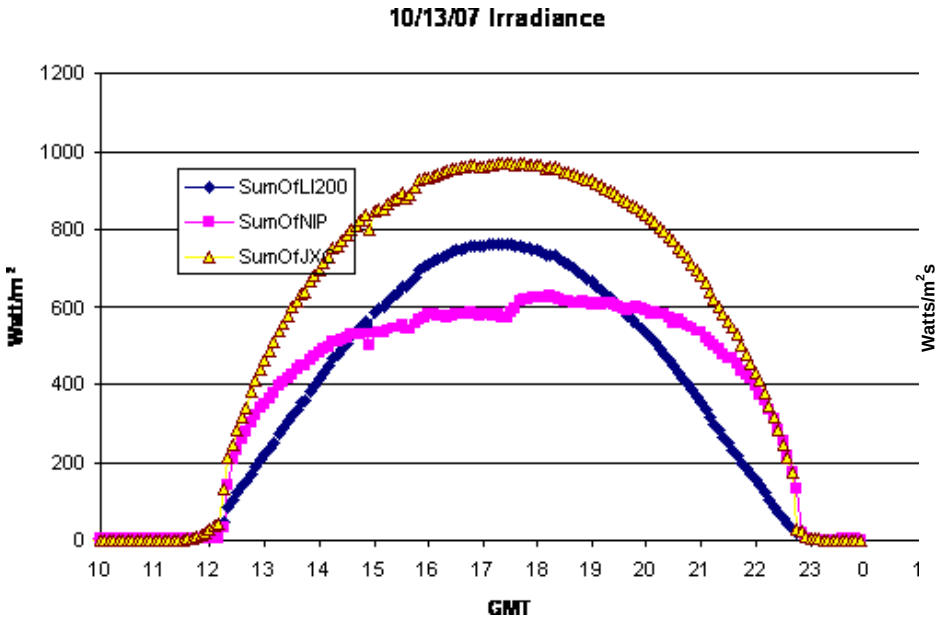
5. First carousel

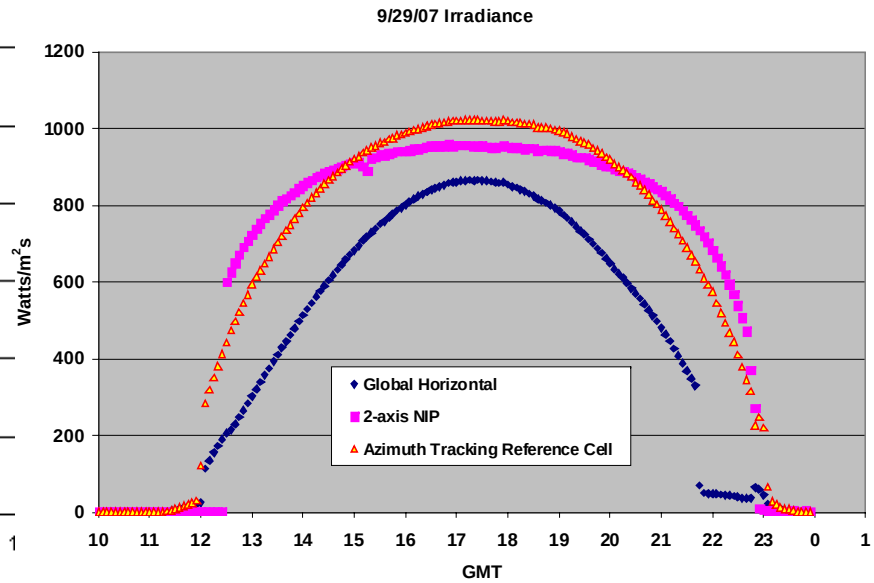
6. Multiple carousels

JXC Carousel with 3-Sun Panels at ORNL

Advantage of Azimuth Tracking

(see yellow and orange curves)





Carousel Holds 4 Panels of Various Sizes

Module Size	1-sun	3-sun	Carousel Power
180 W	Yes	Photo	720 W
208 W	Photos	Yes	832 W
280 W	Yes	Yes	1.12 kW

Carousel Projected Price

Low volume production $1 per W

High volume manufacturing $0.33 per W