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A Case Study for commercial parking lot owners to reduce electricity cost and to gain EV charging capacity by installing a dual-axis solar tracker canopy: Kahala Tower, Burlingame, California

Commercial Parking Lot Owner Saves $900,000 by Installing Dual Axis Trackers

The multi-story Kahala Tower office complex in Burlingame, CA, was faced with a $134,000 annual electricity bill, rising utility costs, and no ability to charge occupants' EVs parked in the building lot, located just 3 miles from the San Francisco Airport

To solve this issue, the owners of Kahala Tower office complex in August of 2019 hired Mechatron Solar to install their six M18KD-20 Gearless Dual-Axis Trackers as part of a 194.4 kW DC photovoltaic system in the parking lot of the Kahala Tower. The energy produced by the system provided not only 90% of the electricity demand for the building, but also enough to operate multiple EV charging stations.

The cost of the Mechatron trackers as part of the $600,000 total project cost was $368,000 compared to an equivalent fixed-tilt canopy system at $733,300, an overwhelming 49% cost reduction. The per-Watt cost of the M18KD-20 trackers was $1.85/W while the carport canopies would have cost $2.15/W, calculated using industry average prices for solar modules, inverters, electrical switch gear and installation services.

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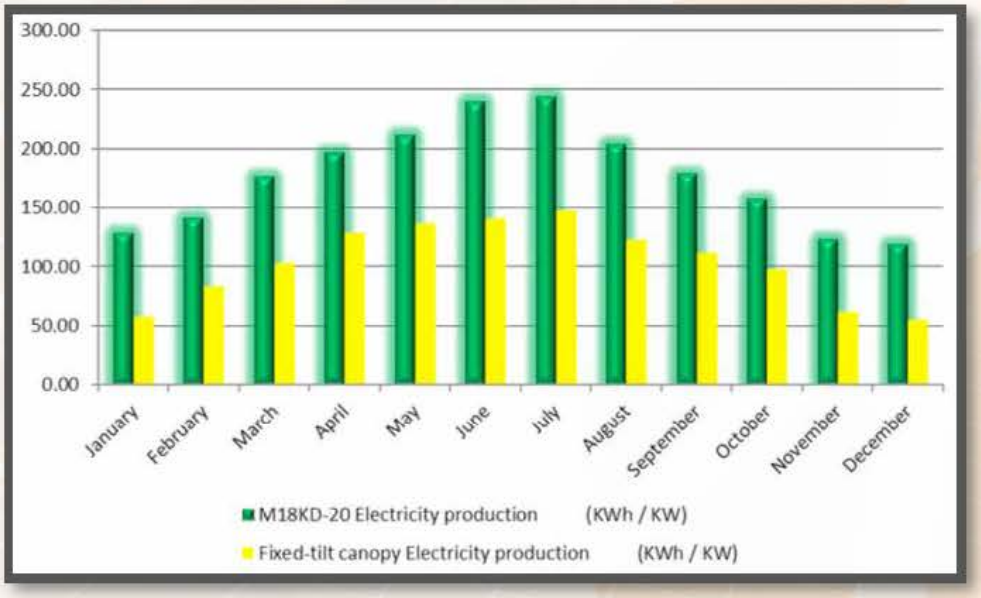
The dual-axis Mechatron trackers yielded over 65% more electricity in some months than a comparable fixed-tilt system, calculated in a PVsyst comparison.



The $368,000 investment in the solar trackers captured the 30% federal solar investment tax credit applicable on that year, with a resulting LCOE of 7 cents/kWh, compared with 24 cents/kWh under the ground mount fixed-tilt scenario. The resulting ROI is just 3.5 years Return On Investment (ROI) compared with an average seven to a 9 year ROI for fixed-tilt canopies.

Equipment Installed by Elio Solar

(Mechatron's EPC division):

- 6 M18KD-20 Gearless Dual-Axis Trackers
- 90 360W Peimar 72-cell panels on each tracker, total power 32.4 kWd each
- 3 Solectria PVI 60K three-phase inverters

Burlingame building codes required that the M18KD-20 tracker tilt angle at the site is limited to 20° on the zenith axis in order to assure a minimum 9.5 foot distance between the low edge of the platform and the parking pavement.

Savings Profile:

- System Size: 194.4 kW
- System Electricity Generation: 360 MWh/year
- Year One Savings: $99,000
- 20 Year Savings: $3.2 million

"We chose the Mechatron tracker for its superior yield and rapid payback, its small footprint, its dual-use as tracking system as well as carport canopy and the extra power for EV charging," says Kahala CEO Elie Mehrdad.