

Now

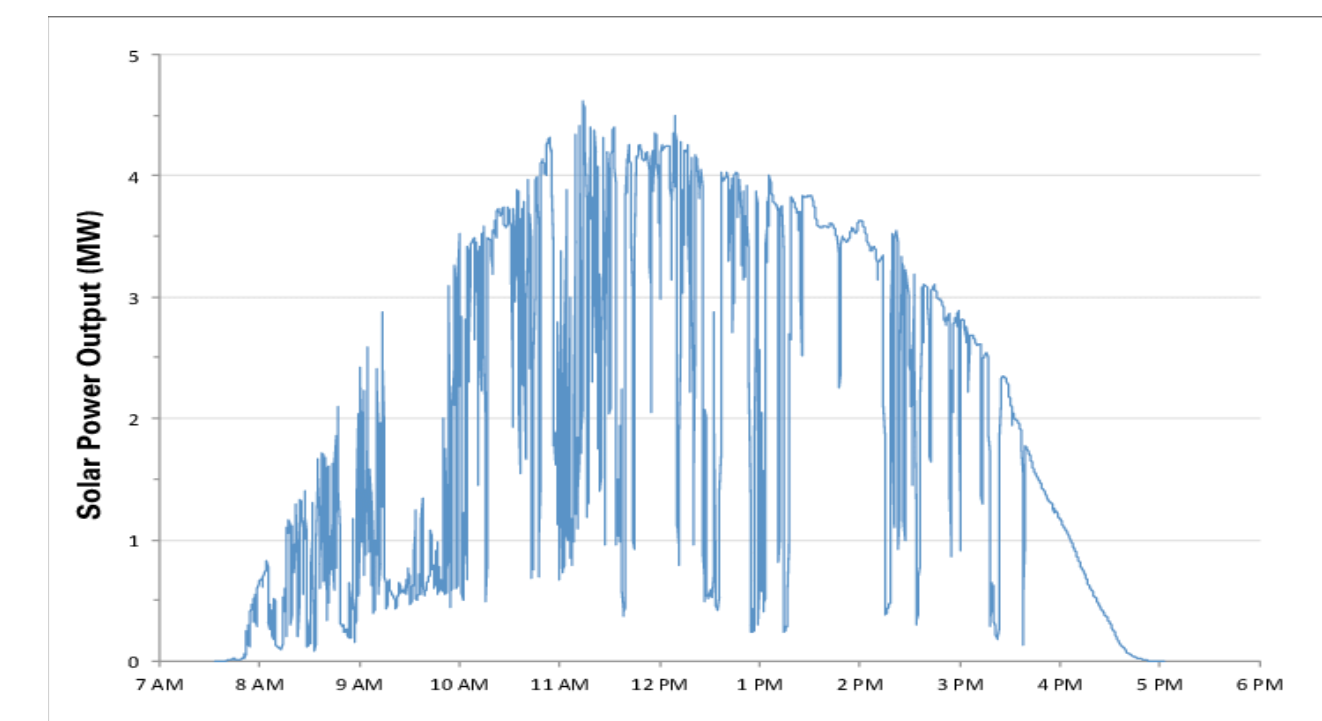
Piles, torque tubes and PV panels are installed in that order over a vast geographical area. Panels are then wired together. This requires a large workforce and is a lossy construction process. Also, we don't know the output of a solar farm precisely ahead of time causing grid problems and sub-optimal operation.



Installing Torque Tubes



Installing PV Panels

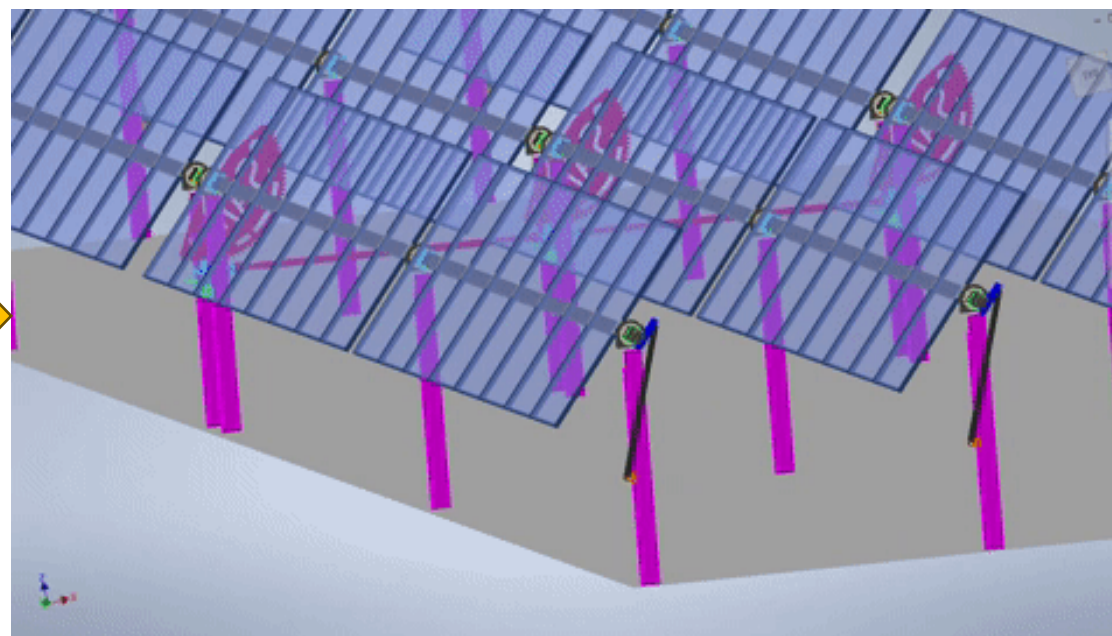


Unpredictable PV Generation Output

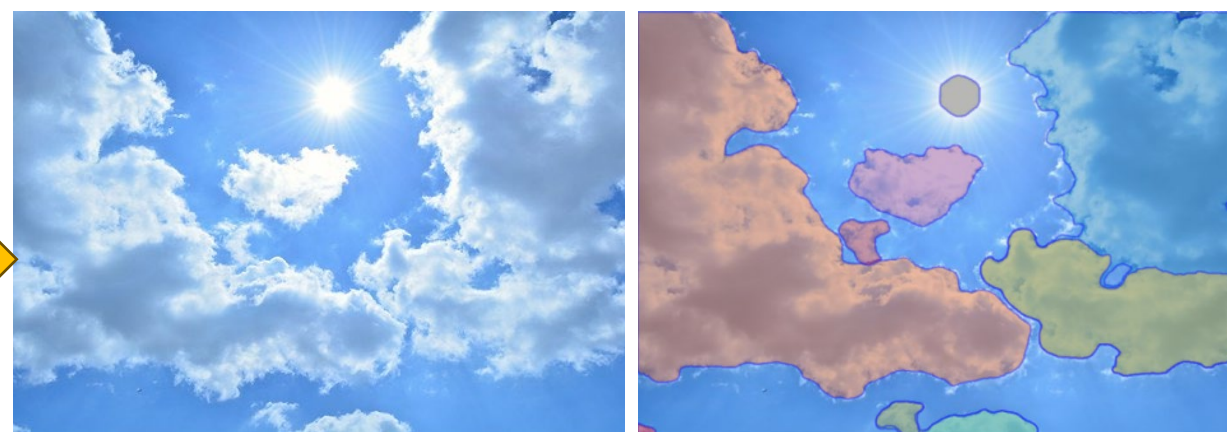
Future

We re-designed the single axis tracker such that torque tubes, PV panels and wiring are all assembled in one location then distributed to the piles on site. Also, we created software that use pictures from ground mount camera to monitor clouds and forecast PV plant output one hour ahead.

What are we doing?



New Design will Allow Tracker to be Installed Faster



Software to detect cloud movements and predict PV generation output up to 50 minutes ahead of time

Benefits

1. Faster installation, less labor, and less risk to the labor force. A big win for EPCs as it reduces insurance and the cost of labor at least by 50%.
2. Pile remediation is eliminated as more error during installation is tolerated.
3. Pseudo-deterministic forecast on a-minute by minute basis for up to one hour ahead of time. This will enable PV plant operators to generate more revenue using spot pricing without having to low ball generation forecast.
4. ISOs will be able to have access to a more precise plant forecast leading to less curtailment.
5. Increased output of the solar plant during cloudy days to take full advantage of diffuse conditions.
6. Society will pay less for electricity as we capture more free electricity from sun without affecting grid reliability
7. Recognize hail and snow in real time and engage active stow of the trackers without depending on human factors