


50 mega Watt Solar farm – 350 Acres - Alpine, Texas.
Energy Harvest for the City of Houston. View looking ESE



Initial construction







315 watt solar panel – times 197,000

 **CSUN**
energy for today

Photovoltaic Module
Type: CSUN315-72P


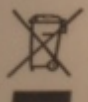
Maximum Power(Pmpp)	315W	Tolerance of Pmpp	0~+5W
Open Circuit Voltage(Voc)	44.9 V	Measuring uncertainty of power	±3%
Short Circuit Current(Isc)	9.11 A	Series Fuse Rating	20A/15A
Maximum Power Voltage(Vmpp)	36.1 V	Dimension	1956 × 990 × 50 mm
Maximum Power Current(Imp)	8.73 A	Weight	22.3kg
Module Fire Performance	Type 1	Standard Test Condition: 1000W/m ² , 25°C, AM1.5	
Fire Rating	Class C		

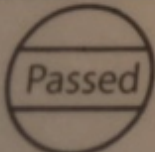
   

Conforms to UL STD No. 1703
Certified to UCL/ORD-C 1703-01
Product accordance with
IEC61215 IEC 61730

Max System Voltage: 1000V
Module Application Class A

WARNING
Hazardous Electricity Can Shock, Burn or Cause Death. Do Not Touch Terminals. For Field Connections, Use 13AWG Wire Insulated for Minimum of 90°C.
Danger Electricité Provoqué un Choc, une Brûle ou Causer la Mort Ne pas toucher aux Termiaux.

 **Manufactured by CSUN Eurasia Energy Systems Industry and Trade Inc.**
Aydınlı FTZ Neighbourhood 4. street No.4 34957 Tuzla/Istanbul
MADE IN TURKEY

Mechanism to tilt 80 panels:

1. Small panel on the left provides power for tilt motor.
2. Worm gearbox is being driven by a small DC motor. – The duty cycle is intermittent.
3. Wifi antenna (top, partially visible) - antenna to report motor position.
4. The bent tube allows the center of gravity of the array to be located on the axis of rotation.
Hence the motor and solar panel powering the motor, can be small.



Looking North



Looking west – with 2 mega watt inverter from Kaco – 1 of 26



Shock absorber to dampen out any wind induced vibrations.



Intermediate support. The 5" EMT horizontal tube supports the panels. The rotation axis is above the tube. The columns are driven into the soil (30 seconds -typical drive time), using GPS to locate them. The brackets shown, allow slight adjustment, in 3 dimensions.

