



More Boom for the Buck: High Efficiency vs. Conventional Solar Electric Technology

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GovEnergy
www.govenergy.gov



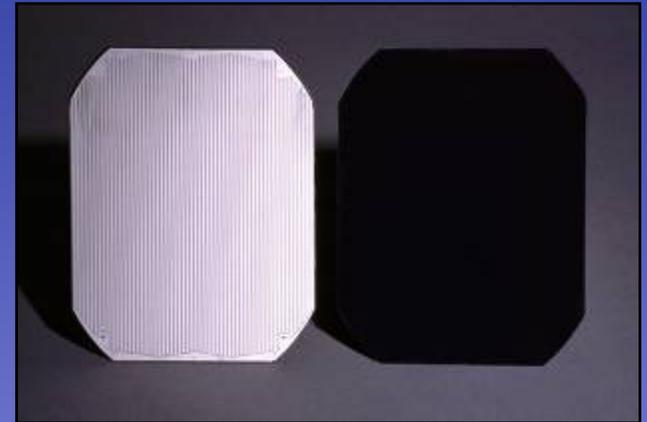
Agenda

1. SunPower Overview
2. High Efficiency Solar Panels
3. Mounting & Tracking Systems
4. Comparison of High vs. Standard Efficiency Output
5. Case Studies



SunPower Overview

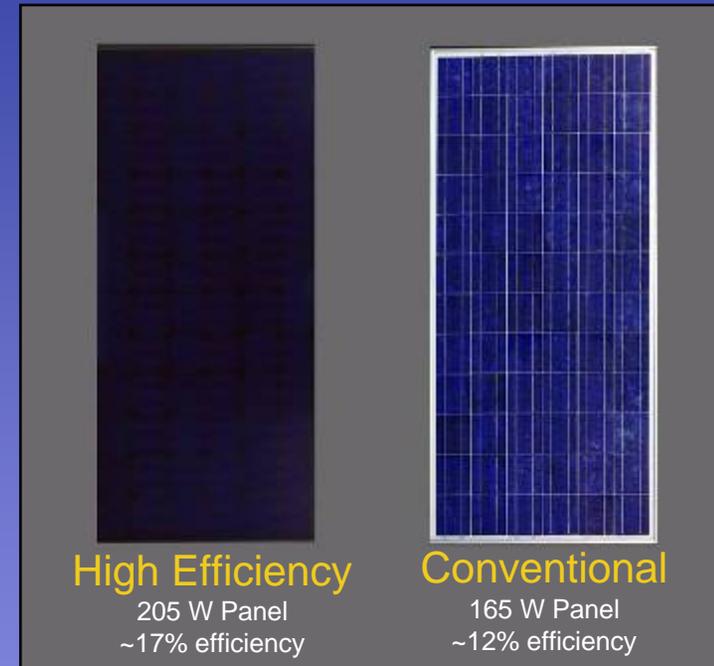
- Incorporated in 1985
- HQ in Silicon Valley California
- Publicly traded (Nasdaq): SPWR
- Manufacturing in the Philippines
- Highest-performing solar electric technology worldwide
- Deliver significantly more solar energy than conventional systems





High vs. Standard Efficiency Panels

- Up to 50% more power
- Or, same power, smaller footprint
- Uniformly black, attractive
- Highest energy delivered per square meter
- Superior Performance & Aesthetics

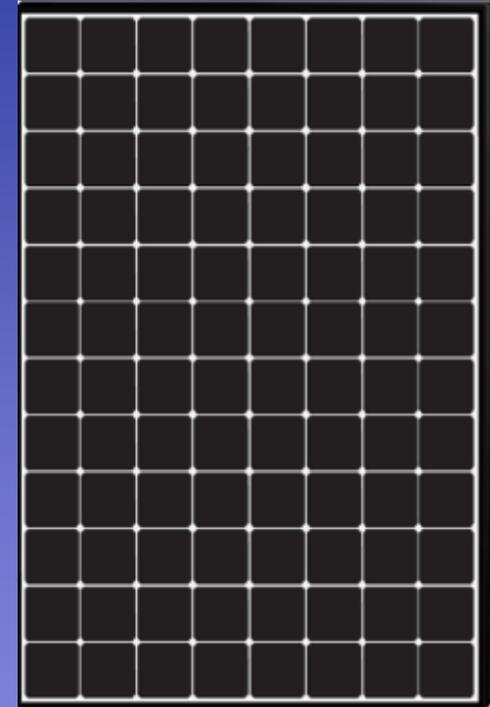


Customers benefit from lower electric bills, higher carbon emissions savings and a superior appearance.



Next Generation High Efficiency Solar Panel

- 22% solar cell efficiency
- 50% greater efficiency vs. conventional solar panels
- Lower total system costs by spreading installation and sales costs over 50% more Watts



SPR 315 panel

5'2" x 3'4"

1.559 x 1.046



PowerGuard Solar Roof Tile

- #1 US solar roofing product
- Light-weight, no roof penetrations
- Lower installation cost due to ease of installation, low labor cost





T10 Solar Roof Tile

- 10 degree slope for greater energy delivery
- No roof attachments or penetrations
- Withstands wind speeds up to 120 mph (193 km/h)





SunPower Tracker

T-0°

- Leading ground mount solution
- Patented, single-axis technology follows the sun across the sky
- Captures up to 25% more sunlight than fixed systems
- “Backtracks” to eliminate row-to-row shading
- Designed to withstand 110 mph wind gusts in any position



Tilted & Pre-Assembled



SunPower Tracker

T-20°

- Patented Next generation ground mount solution
- Captures up to 30%+ more sunlight vs. fixed systems
- Pre-engineered “Plug-and-Play” assembly lowers project installation cost
- Far fewer motors/controllers than conventional trackers



T-20 Tracker



Performance Monitoring

Daily Performance Monitoring

- Solar kWh output
- Sunlight irradiance and ambient temperature
- Wind speed
- Environmental savings

Commercial Monitoring



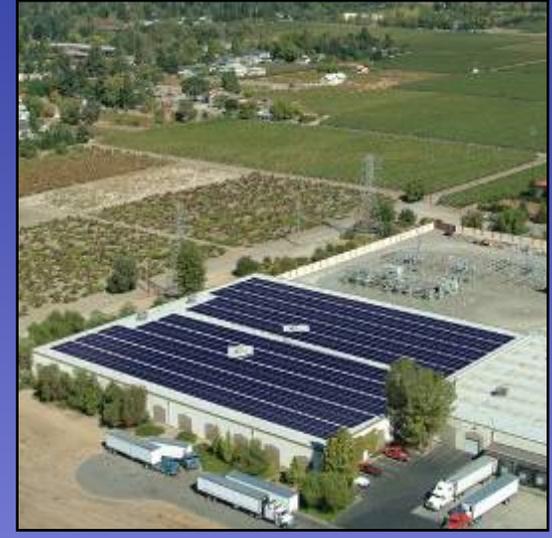
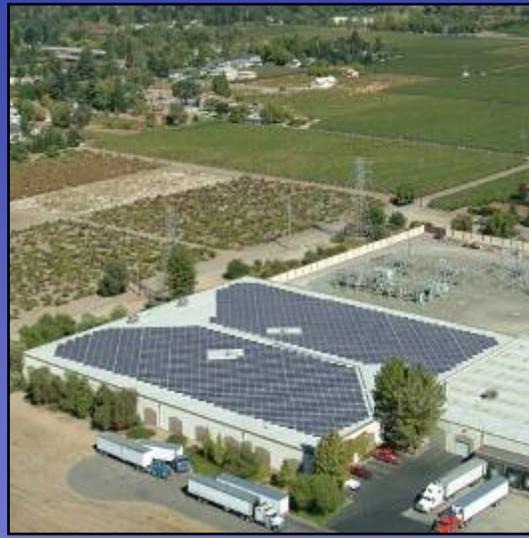
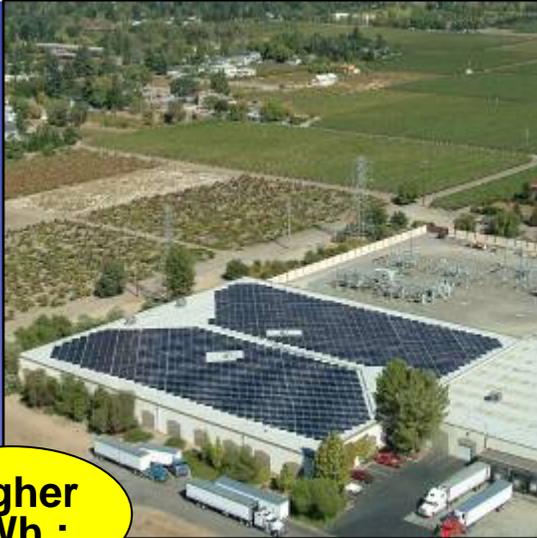
PowerLight is a SunPower Corporation subsidiary

www.sunpowermonitor.com



Commercial Generation Comparison

50,000 Square Feet Constrained Roof Area



Higher kWh :

SunPower

Conventional

Thin Film

1,995 SunPower Panels PowerTilt® 10°	1,995 Conventional Panels PowerTilt® 10°	Flat Amorphous Thin Film Membrane
628 kW	410 kW	204 kW
842,186 Annual kWh	549,001 Annual kWh	263,186 Annual kWh

+53%

+219%

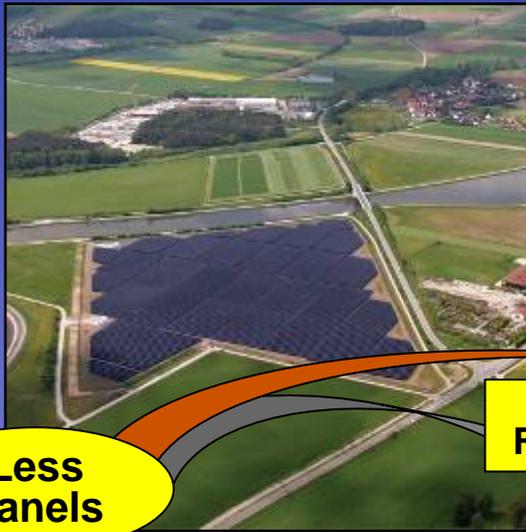
Annual kWh simulation
based in San Jose, CA
SunPower
August 2007

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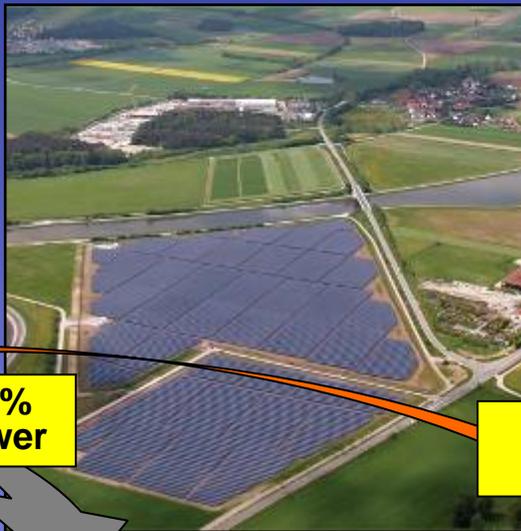


Power Plant Generation Comparison

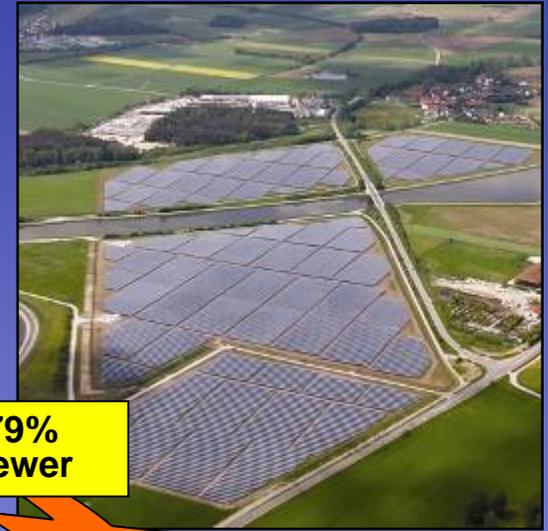
6.5 MW Unconstrained Ground Area



SunPower



Conventional



Thin Film

34% Fewer

79% Fewer

Less Panels

20,653 SunPower Panels SunPower Tracker	31,646 Conventional Panels SunPower Tracker	100,000 Thin Film Panels Fixed Tilt 30°
9,906,000 kWh	9,756,500 kWh	8,034,000 kWh
24 Acres	36 Acres	42 Acres ++

2% More

23% More

More kWh

Annual MWh simulation based in Seville, Spain

SunPower
August 2007



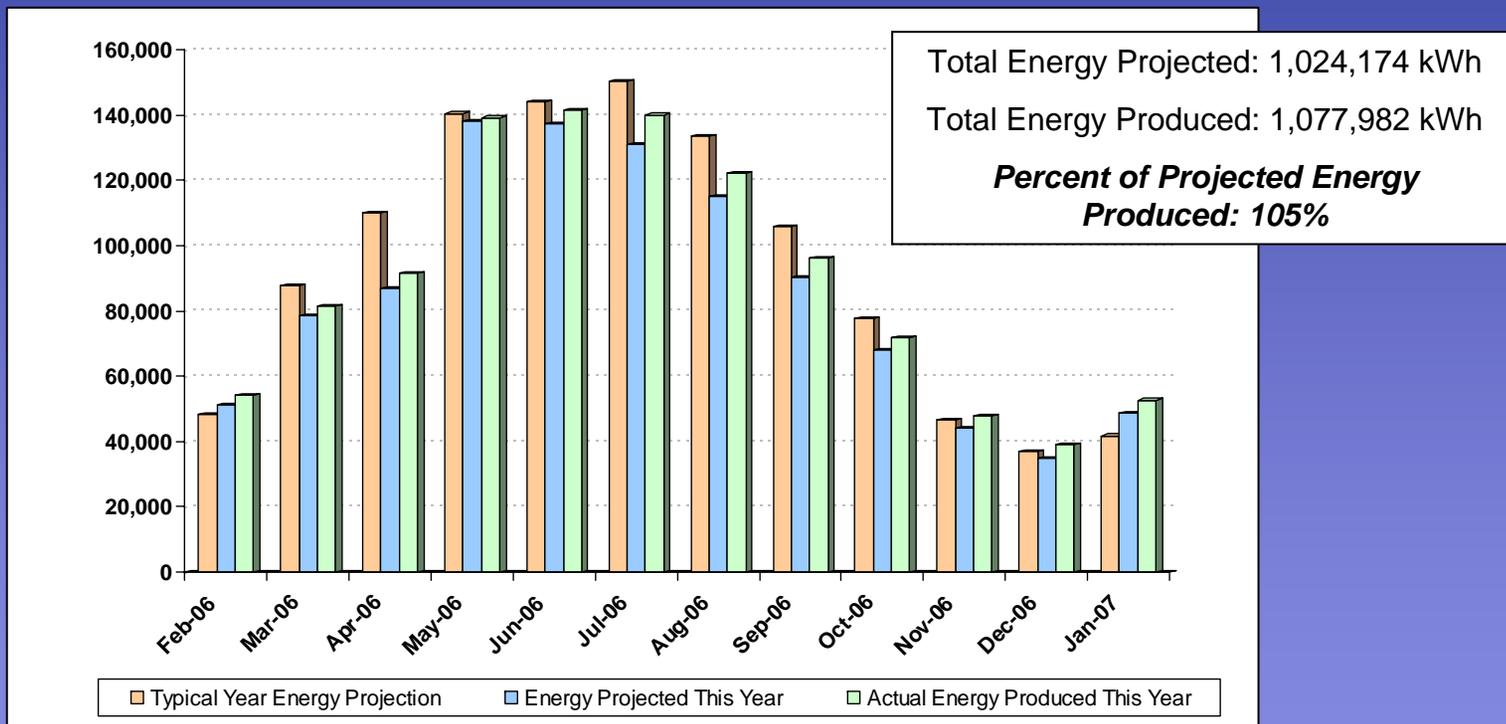
Government Case Study: United States Navy, Coronado





Higher Energy Delivery

SFPUC Fleet Energy Performance (931 kWp) February 2006 – January 2007





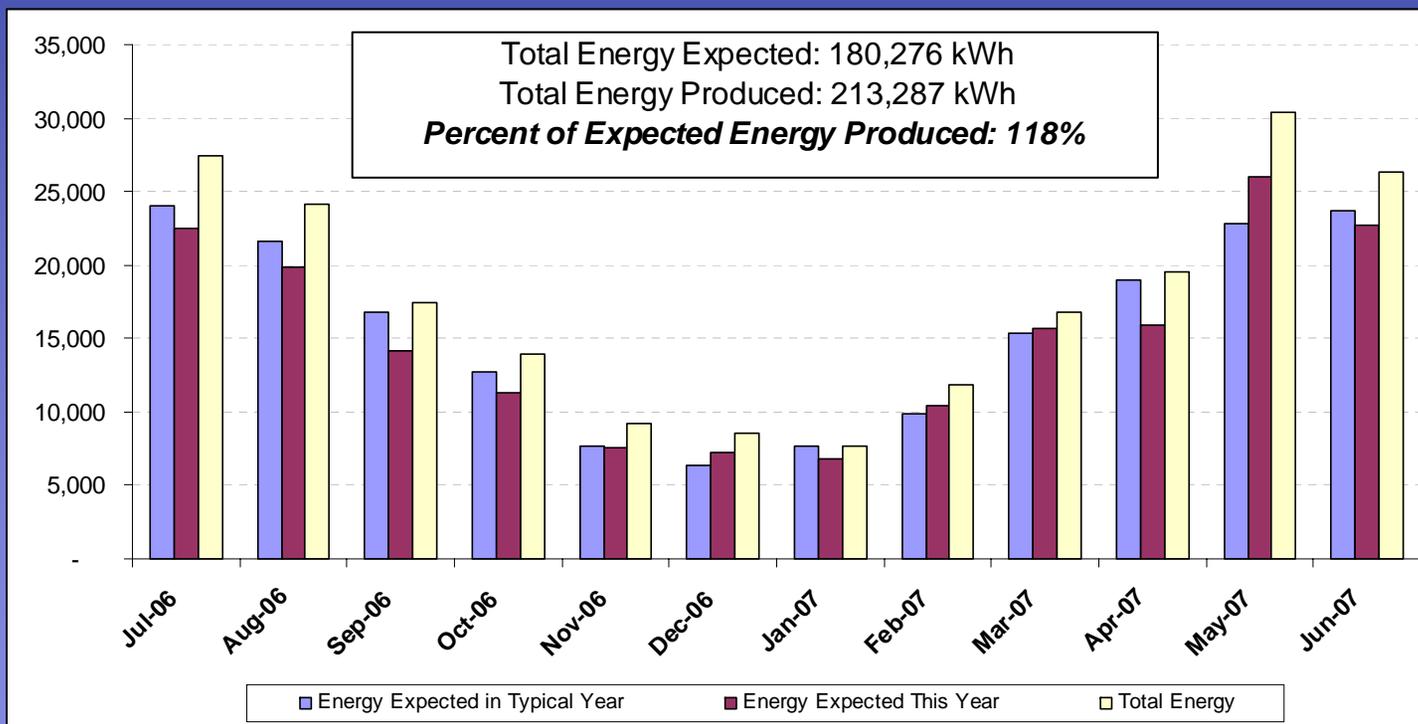
Government Case Study: DMAVA, New Jersey





Higher Energy Delivery

NJDMAVA Joint Training and Training Development Center
Fort Dix, NJ (181 kWp)
Performance July 2006 – June 2007





Government Case Study: Nellis Air Force Base, Nevada

Project Specifications

- System Peak Capacity: 18MW
- Installation Date: Summer-Fall, 2007
- Location: Nellis Air Force Base, NV
- Number of PV trackers: 5,179
- PV surface area of 140 acres
- Number of Solar Panels: ~70,000





SunPower GSA Schedule



GSA Pre-Approved Products:

- SunPower Solar Roof Tiles
 - T10 Roof Tile
 - PowerGuard
- Ground Systems - SunPower Trackers

Streamline your SunPower system procurement process to go solar!

– View price list online at: www.GSAadvantage.gov





For More Information

- Would you like to know more about this session?
 - Speaker: David Eisenbud
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Thank You!!!

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New Orleans
August 5-8