

# ***Energy Conversion Devices*** Technology Roadmap Update

June 1, 2010

UNI-SOLAR.



## **THIS PRESENTATION CONTAINS FORWARD-LOOKING STATEMENTS PURSUANT TO THE SAFE HARBOR PROVISIONS OF THE SECURITIES EXCHANGE ACT OF 1934**

*These forward-looking statements do not constitute guarantees of future performance. Forward-looking statements include statements concerning our plans, objectives, goals, strategies, future events, future net sales or performance, capital expenditures, financing needs, plans or intentions relating to expansions, business trends and other information that is not historical information. All forward-looking statements are based upon information available to us on the date of this presentation and are subject to risks, uncertainties and other factors, many of which are outside of our control, that could cause actual results to differ materially from the results discussed in the forward-looking statements. Risks that could cause such results to differ include: our ability to maintain our customer relationships; the worldwide demand for electricity and the market for solar energy; the supply and price of components and raw materials for our products; and our customers' ability to access the capital needed to finance the purchase of our products. The risk factors identified in the ECD filings with the Securities and Exchange Commission, including the company's most recent Annual Report on Form 10-K and Quarterly Reports on Form 10-Q, could impact any forward-looking statements contained in this presentation.*



- **Growing pipeline**
- **Improving revenue and cash flow**
- **Increasing production**
- **Reducing inventory**

## World's largest integrated roof-top project

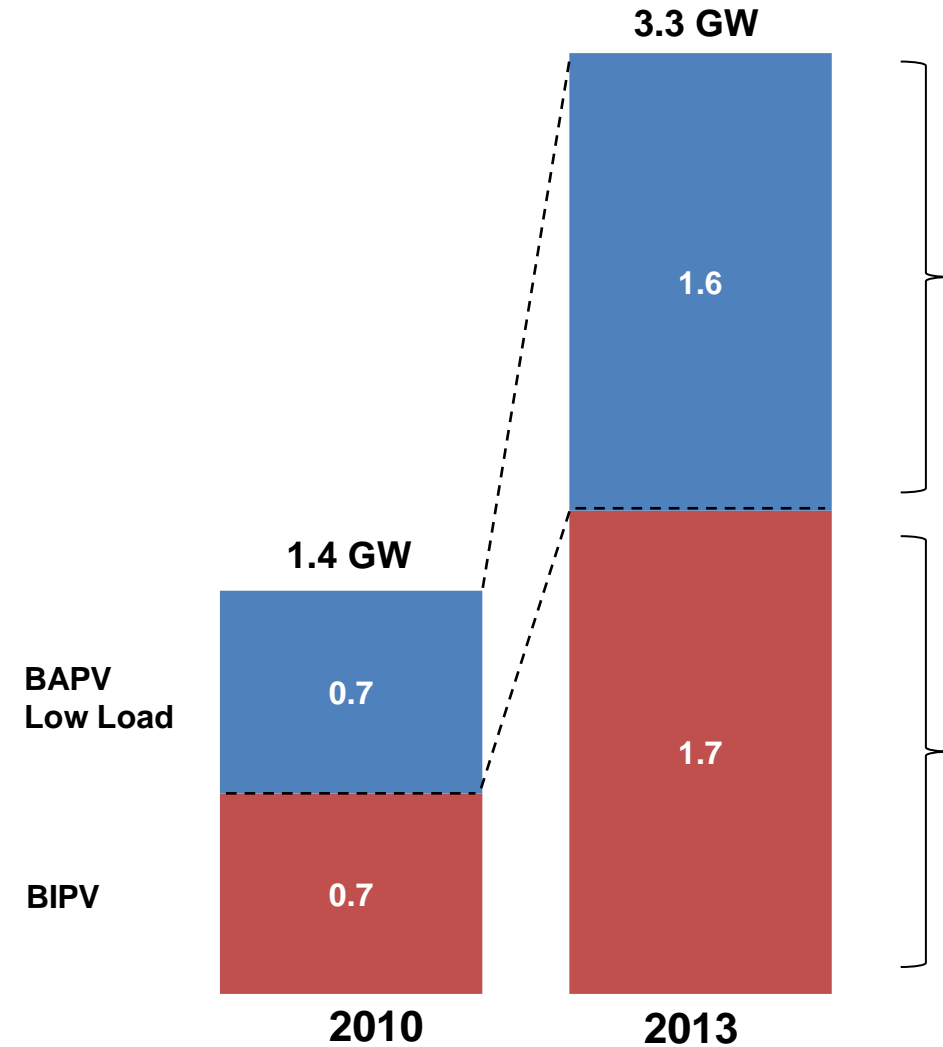


*Photo rendering.*

25 MW ENEL installation sites in Nola, Italy. Equivalent to powering 13,000 households.

# Expanding Commercial

Commercial Market Size (GW)



## UNI-SOLAR Products



New BAPV Power Tilt



Current BIPV Products

Source: 2010 Solarbuzz Market Report – Green World Scenario; EUPD; ECD Analysis

# Residential Product Roadmap

Tile



Shingle



EnerGen



Future

2011

Summer 2010

← Europe →

← North America →

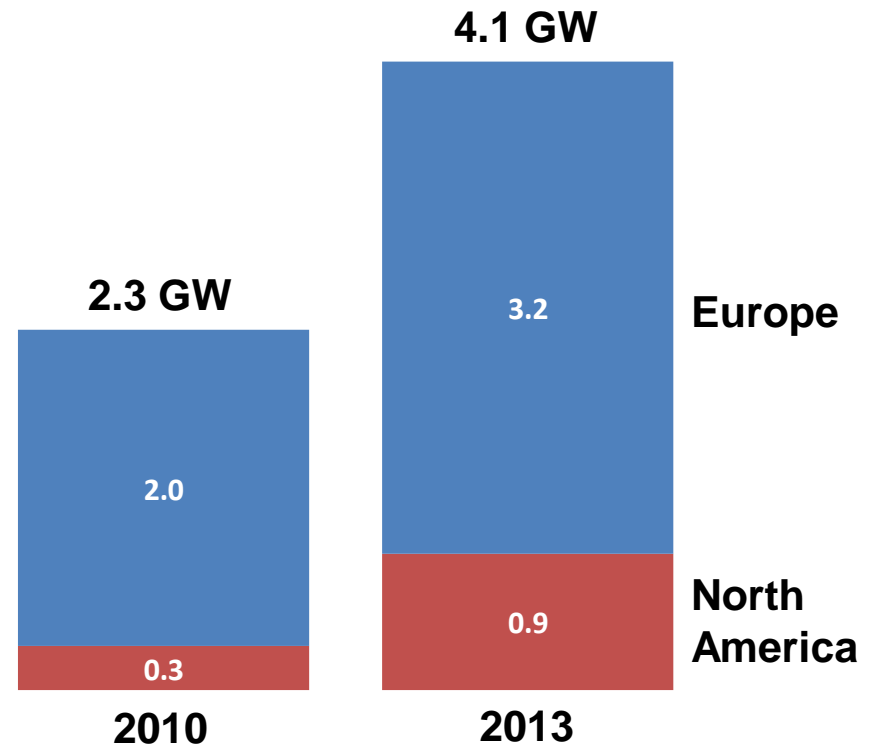


# Entering Residential

Residential Market Size (GW)

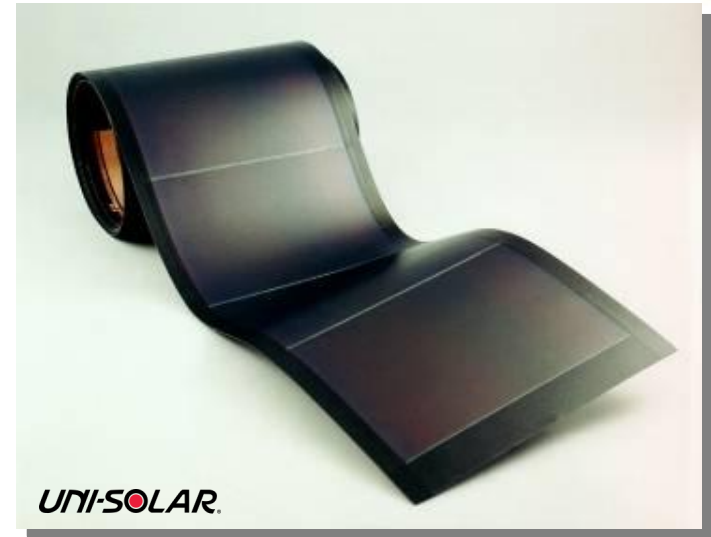


5.6 kW residential installation in Germany





Competition Today

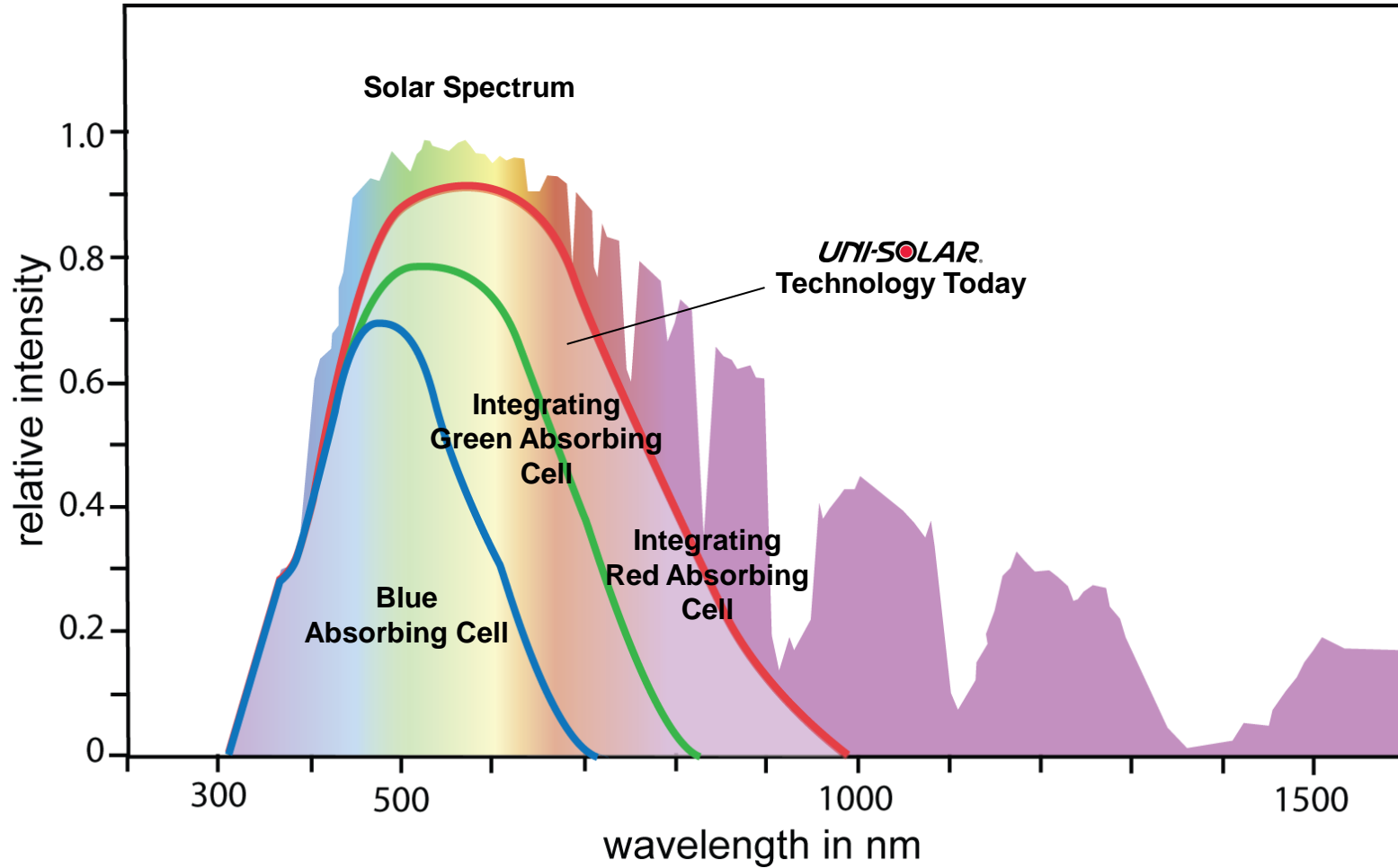


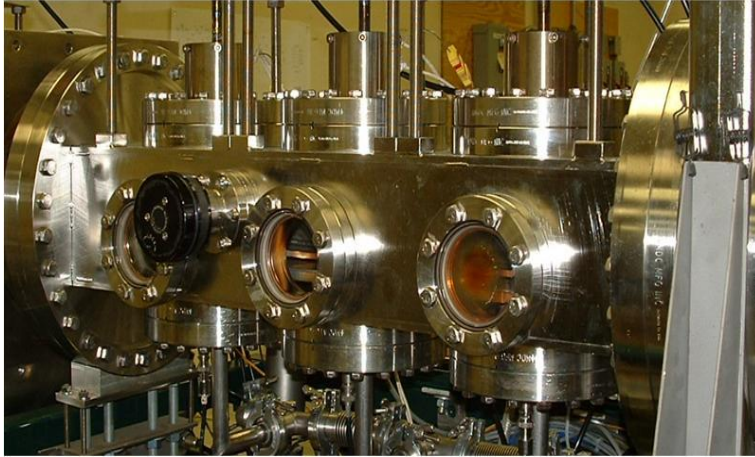
*UNI-SOLAR.* Today

<b>Energy Yield* (kwh/ kW)</b>	<b>1300 – 1500</b>	<b>1600+</b>
<b>Weight (lbs/sq. ft.)</b>	<b>2.4 – 4.0</b>	<b>0.7</b>
<b>Conversion Efficiency (%)</b>	<b>9 – 22</b>	<b>8.2</b>
<b>System Price (\$/Watt)</b>	<b>\$3.50 – \$4.80</b>	<b>\$4.00</b>
<b>LCOE (\$/ kwh)</b>	<b>\$0.18 – \$0.25</b>	<b>\$0.19</b>

*Assumes Southern California example, large project (500KW), 7.5% IRR with 50% levered, 0% ITC, 1.0% commercial retail electricity power price escalator (DOE). Includes installation, O&M costs.*



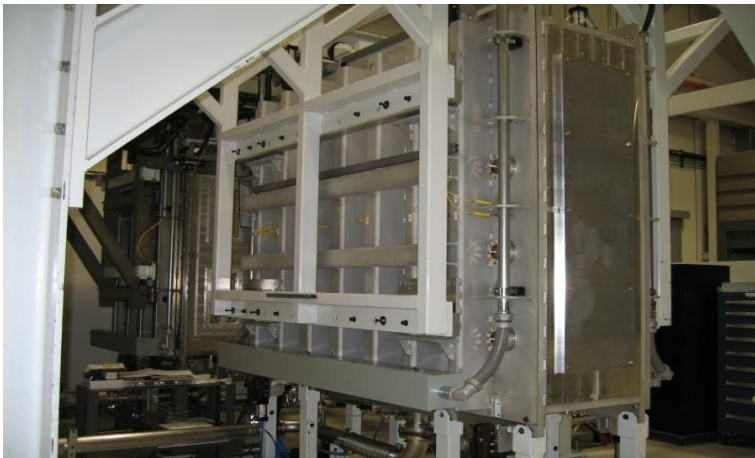




**Small area machine 2'' by 2'' substrate**



**Large area machine 15'' by 14'' substrate**

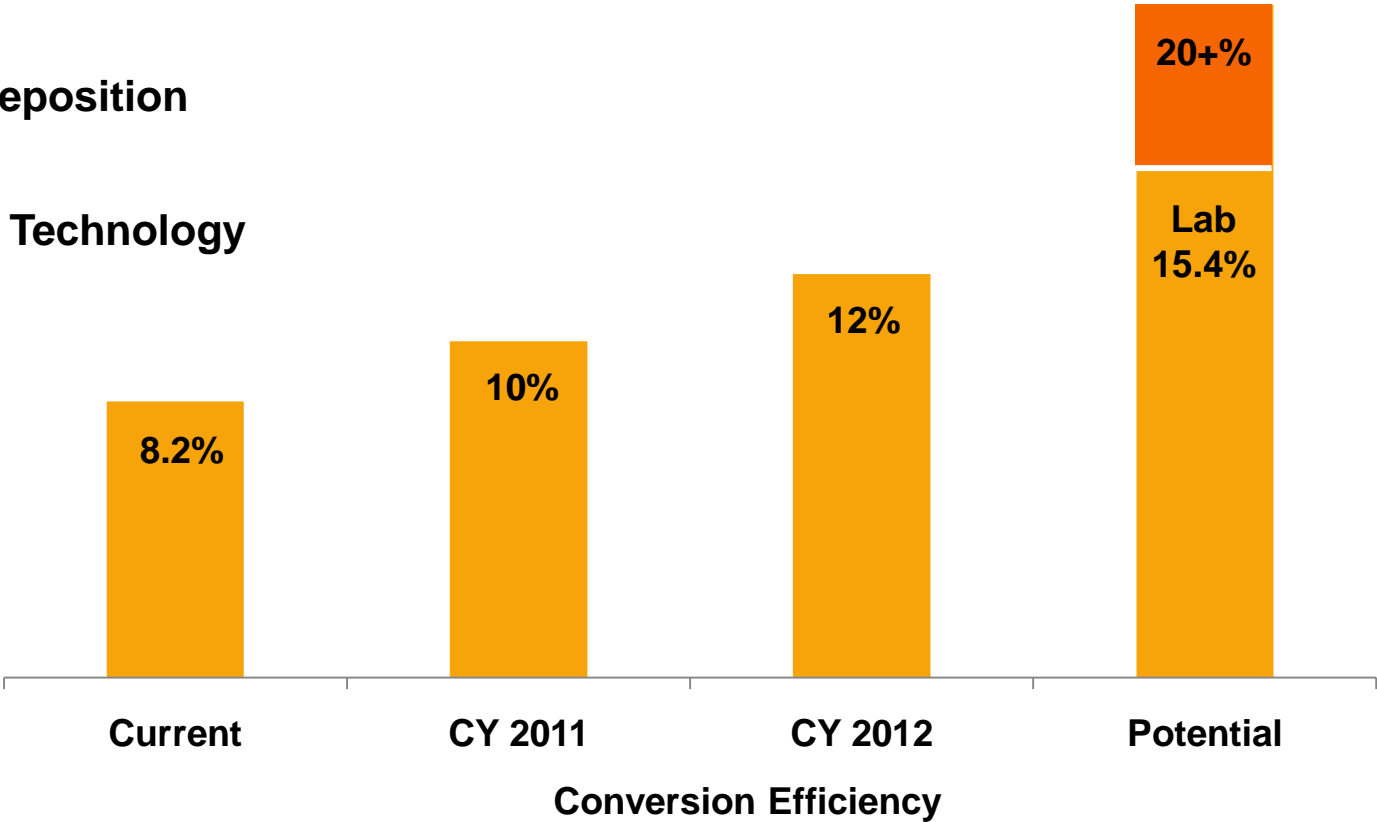


**Large-area machine (three 14'' webs)**

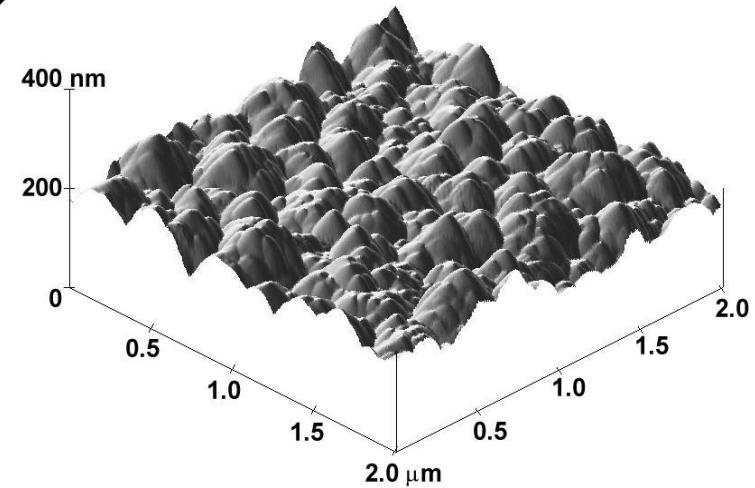
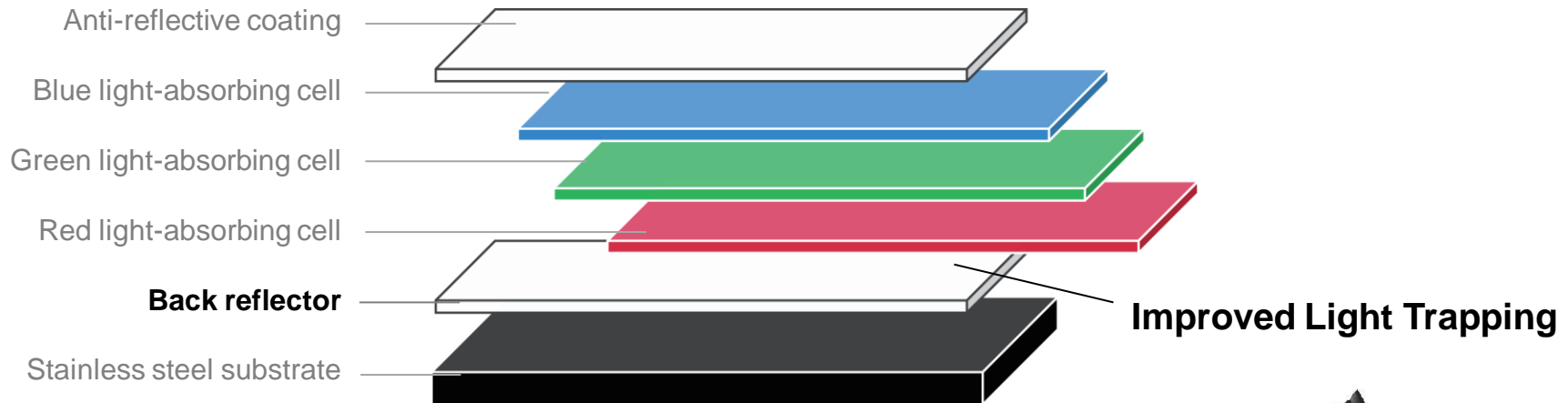


**Roll-to-roll production machine**

- Light Trapping
- High Rate Deposition
- HybridNano Technology



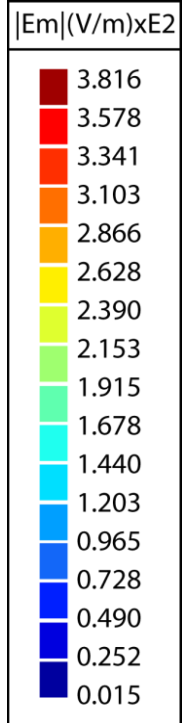
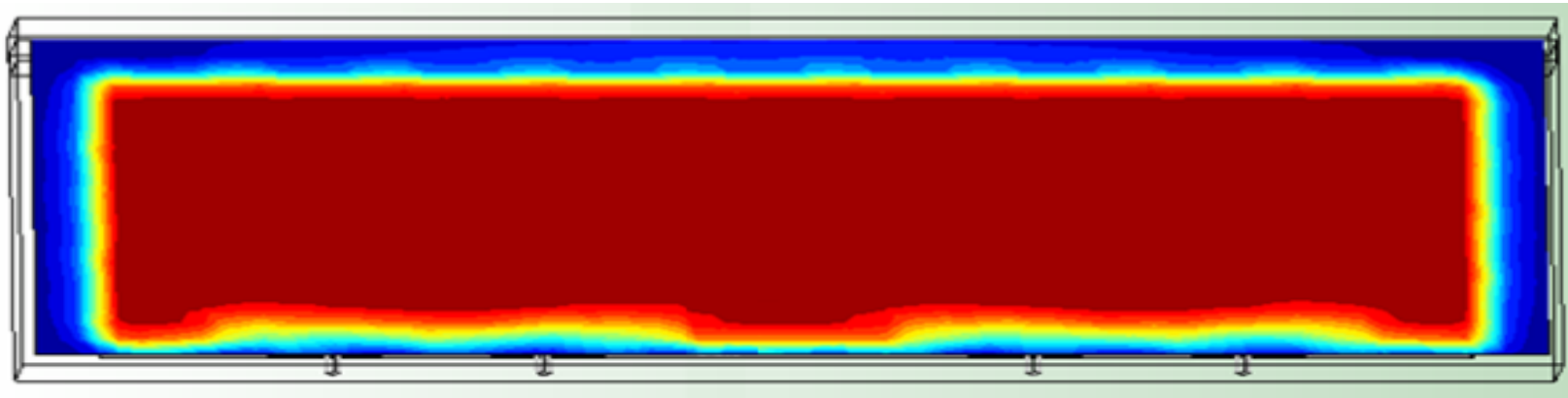
## Cross-section of a UNI-SOLAR solar cell



# High Rate Deposition

Double throughput from same machines at higher conversion efficiencies

## Demonstrated Uniform Deposition Over Large Area



*Proprietary cathode design: demonstrated on 42" wide production machine span*

### Current

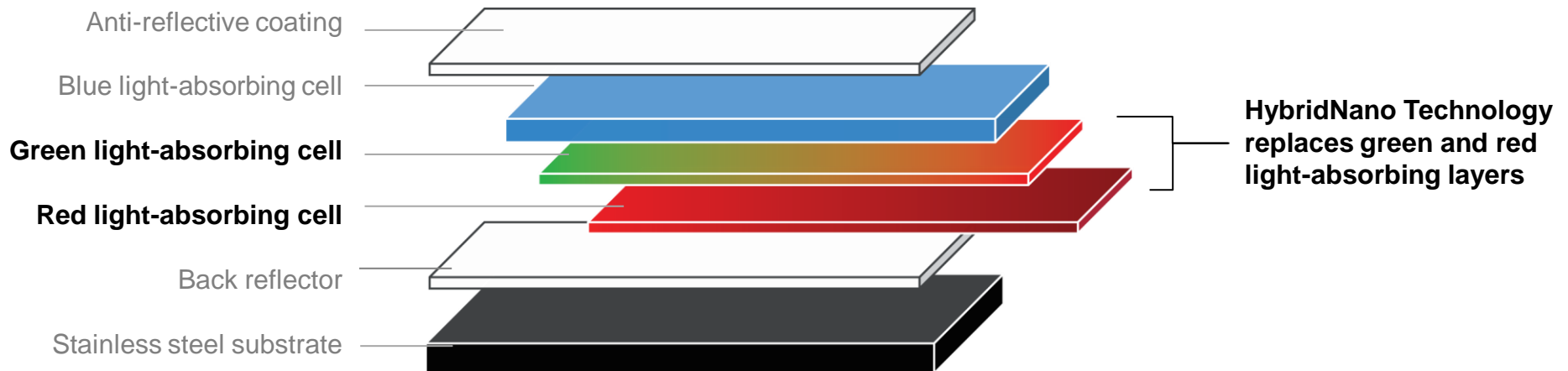
- 8.2% efficiency in production

### Demonstrated

- ~10% efficiency at 2x the deposition rate
- Reduced cost-per-watt and capex-per-watt

Results in greater stability and higher conversion efficiency

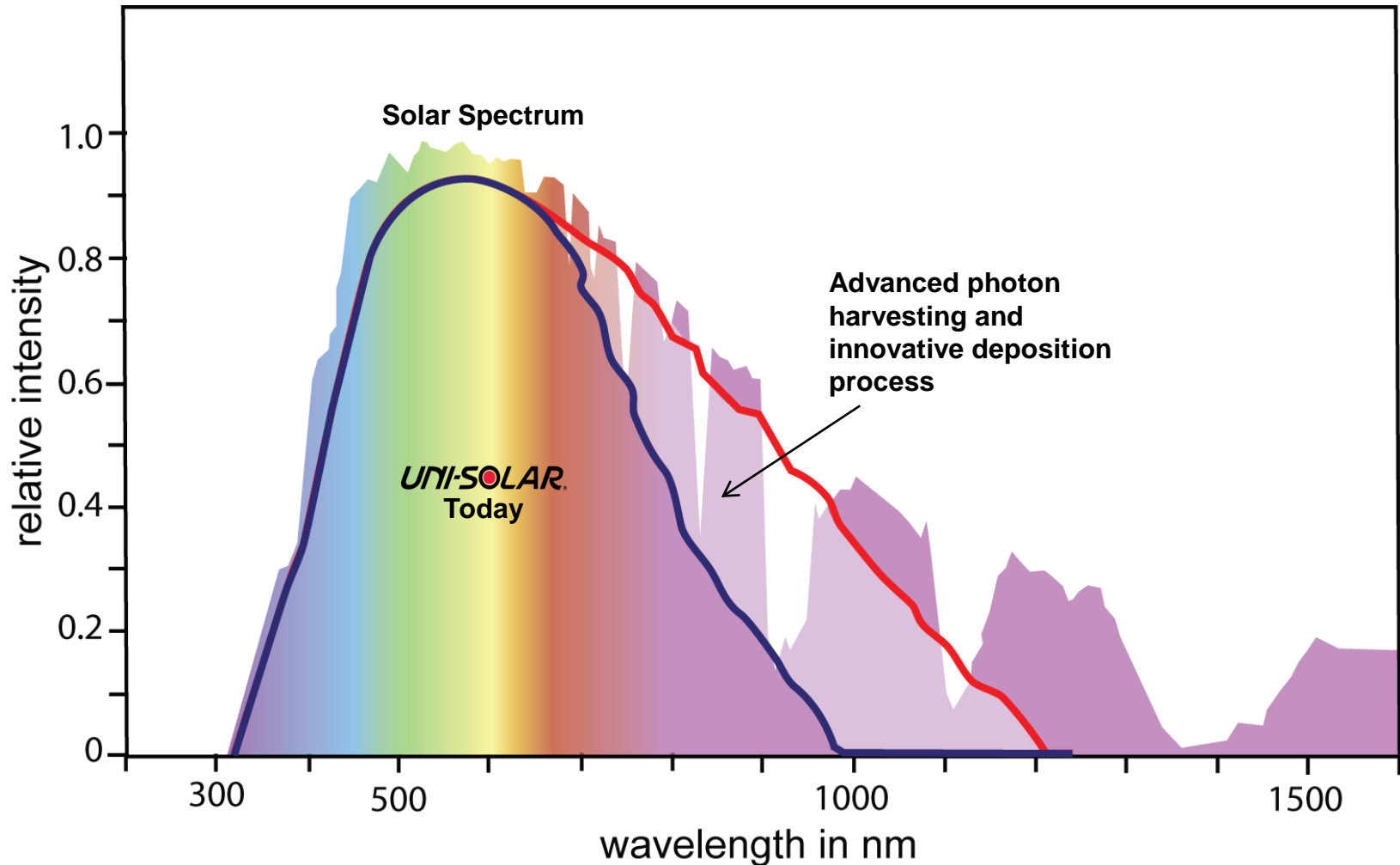
## Cross-section of a UNI-SOLAR<sup>®</sup> solar cell



- **Compatible with a-Si alloy deposition**
- **Ideal for middle and bottom cells of multi-junction structure**
- **Improved light absorption and no light-induced degradation of nano layers has resulted in conversion efficiency of 11%, target of ~12%**

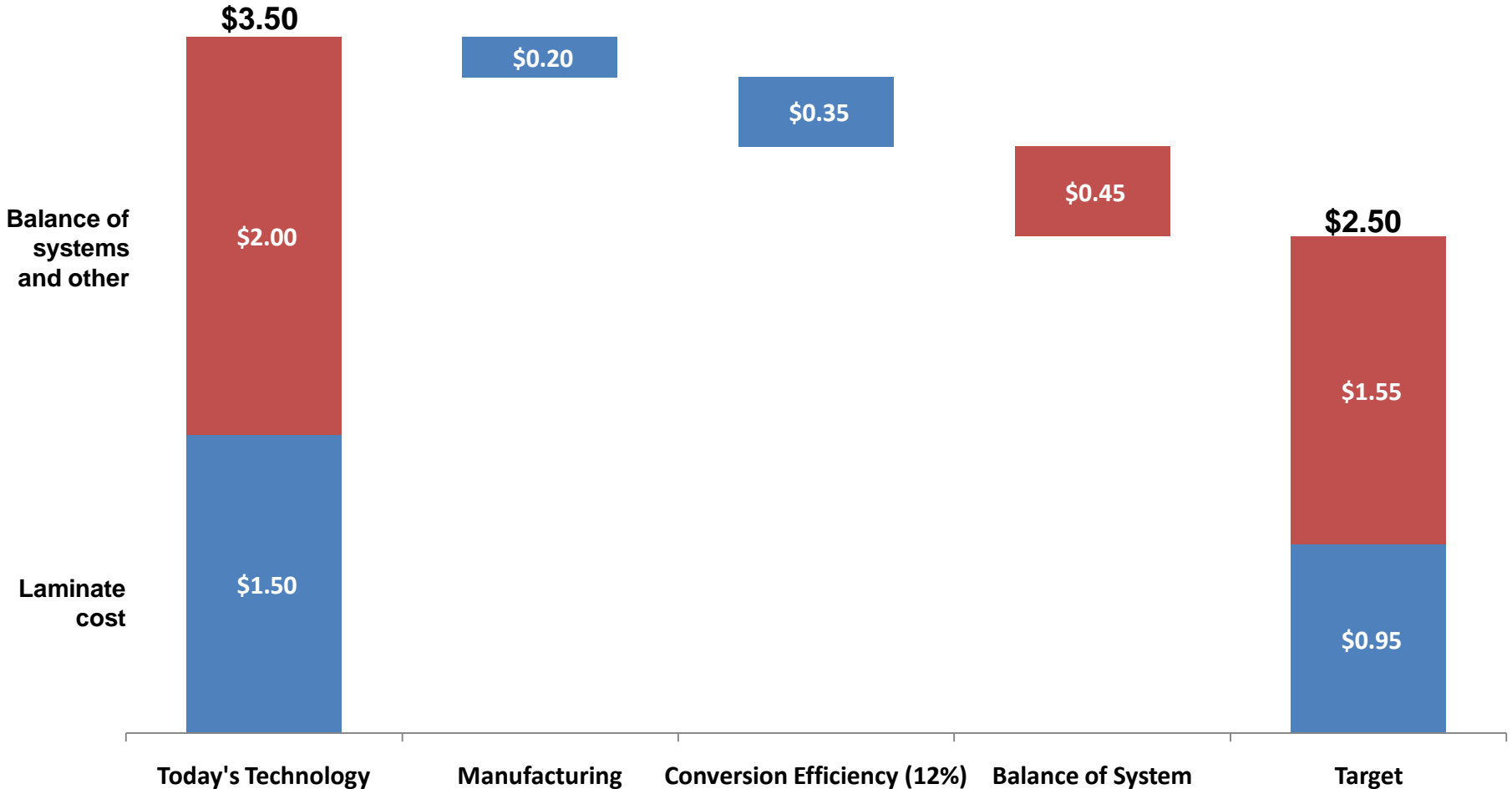
# Advanced Photon Harvesting

Improving cell quality to achieve 25% cell efficiency goal



Total installed price

## Reducing UNI-SOLAR's Total Installed Price



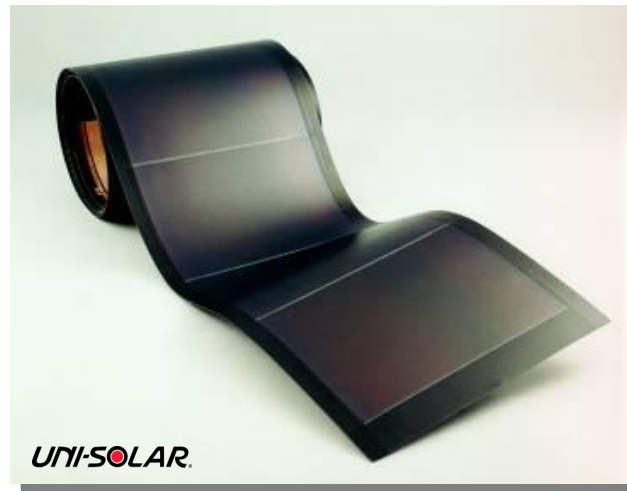
Figures based on full utilization



# The **UNI-SOLAR** Difference

**UNI-SOLAR.**

*Differentiated product with superior energy yield, competitive system price and conversion efficiency*

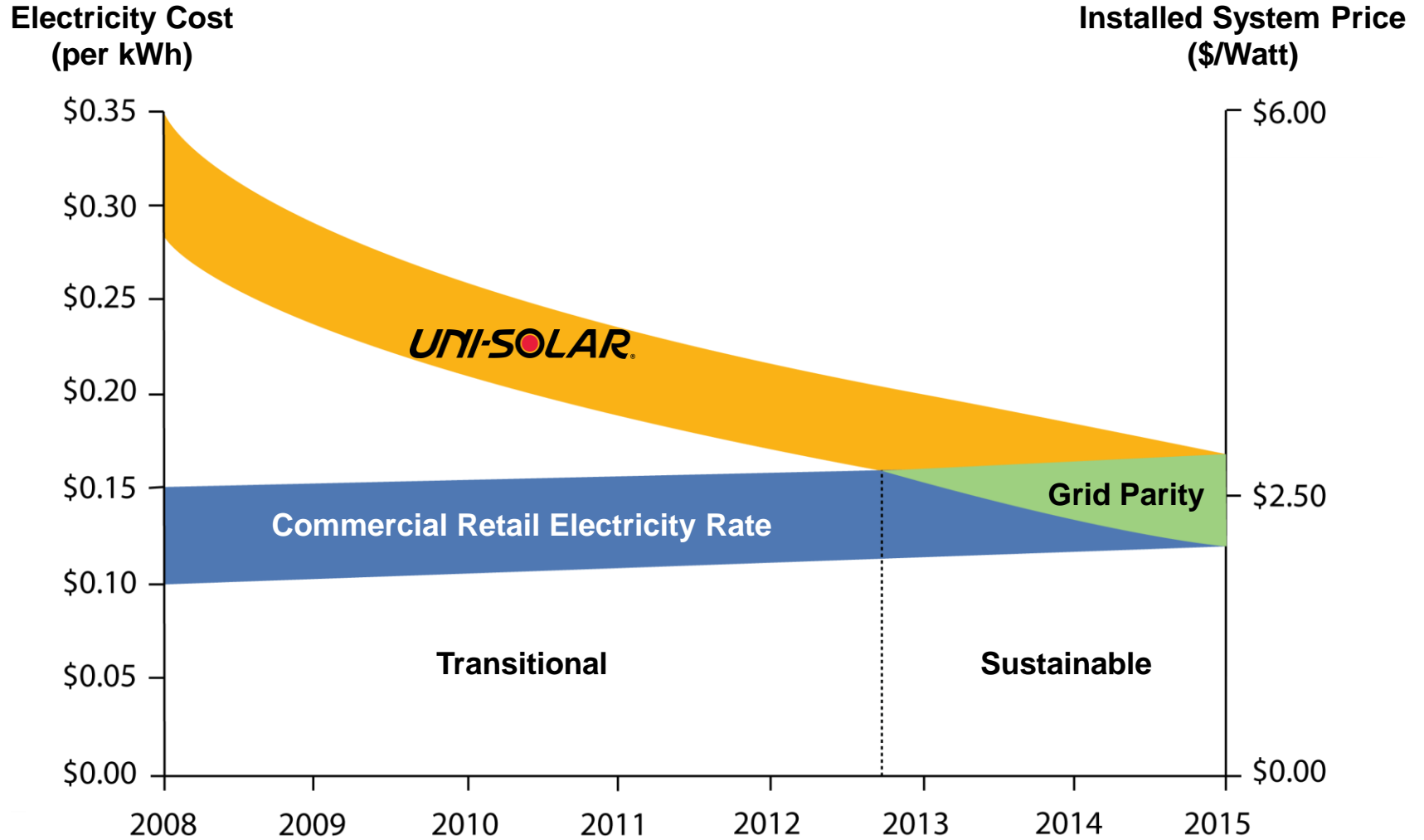


## **UNI-SOLAR.** Target

<b>Energy Yield (kWh/ kW)</b>	<b>1600+</b>
<b>Weight (lbs/ft<sup>2</sup>)</b>	<b>0.7</b>
<b>Conversion Efficiency (%)</b>	<b>12</b>
<b>System Price (\$/Watt)</b>	<b>\$2.50</b>
<b>LCOE unsubsidized (\$/kWh)</b>	<b>\$0.12</b>

*Assumes Southern California example, large project (500KW), 7.5% IRR with 50% levered, 0% ITC, 1.0% commercial retail electricity power price escalator (DOE). Includes installation, O&M costs.*

# Targeting Grid Parity – USA



Assumes Southern California example, large project (500KW), 7.5% IRR with 50% levered, 0% ITC, 1.0% commercial retail electricity power price escalator (DOE). Includes installation, O&M costs.

# ***Questions?***

