



The 2007 New Jersey Clean Energy Conference

September 28, 2007

EPV Solar, Inc.
James F. Groelinger
President



The State of the State – the SREC Program

The New Jersey Clean Energy Program



- The BPU and NJCEP are to be congratulated for moving in the direction of creating an active SREC market to support PV growth
- Implementation of the SREC system fundamentally shifts from reliance on incentives to reliance on rewards
 - The “incentive” system, funded by a “tax” on all electricity users, rewarded the installation of capacity – “kW”
 - “kW” have been installed – in fact, about 40,000 kW
 - However, “kW” do not light lights, turn motors, or run an economy
 - “kWh” – the energy, not the capacity – do those things
 - The “reward” system, funded by payments from suppliers of “dirty” electricity to suppliers of “clean” electricity, will encourage the production of kWh
 - kWh is the right measurement of success



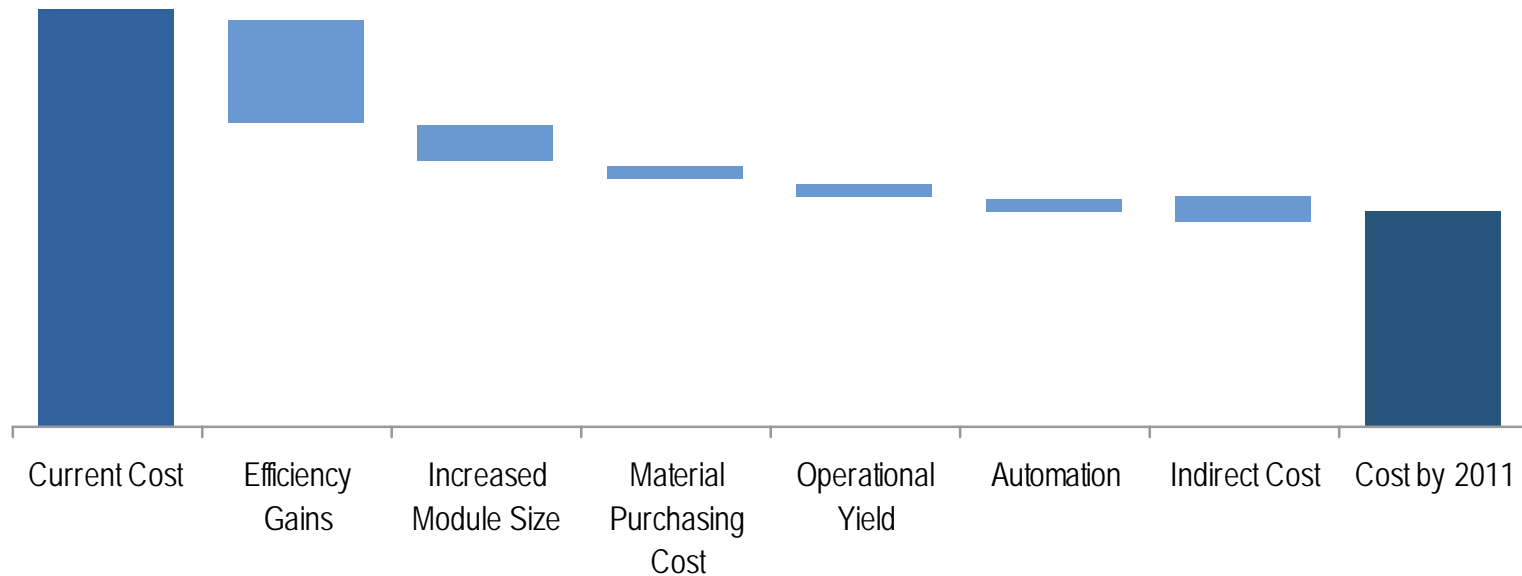
EPV Solar, Inc.

What we are, where we're going



- EPV specializes in thin-film PV processes and products
 - EPV currently has a low-cost commercial a-Si production process
 - Developing capacity around the world
 - New Jersey, Portugal, Taiwan, Germany, China, Italy, and more
 - The keys to location selection are costs and markets
 - Ongoing research and development in advanced technologies
 - A-Si enhancements, including nano-crystalline
 - Hybrid process for CIGS (Copper Indium Gallium diSelenide)
 - Hollow cathode sputtering for deposition of TCO (Transparent Conducting Oxide)
- EPV's amorphous silicon future
 - Strong worldwide demand
 - Hopefully, a New Jersey future that is brighter than ever before
 - A-Si produces more kWh per rated watt, so kWh rewards will provide better economics than did kW incentives

Commercial Path for Amorphous Silicon



By 2011, EPV Expects to Manufacture Modules at Well Below \$1.00 per Watt

BIPV – an exciting application



- Thin-film products – such as EPV’s amorphous silicon PV – are especially desired for BIPV applications
 - BIPV – Building Integrated PV
- Applications that EPV has supplied product to include:
 - Philadelphia/Microsoft School of the Future
 - Partially transparent insulated windows

BIPV – School of the Future



BIPV – an exciting application



- Thin-film products – such as EPV’s amorphous silicon PV – are especially desired for BIPV applications
 - BIPV – Building Integrated PV
- Applications that EPV has supplied product to include:
 - Philadelphia/Microsoft School of the Future
 - Partially transparent insulated windows
 - **88 Laight Street, Manhattan**
 - **Partially transparent Solarail balcony walls**

BIPV – 88 Laight Street, NYC



BIPV – an exciting application



- Thin-film products – such as EPV’s amorphous silicon PV – are especially desired for BIPV applications
 - BIPV – Building Integrated PV
- Applications that EPV has supplied product to include:
 - Philadelphia/Microsoft School of the Future
 - Partially transparent insulated windows
 - 80 Laight Street, Manhattan
 - Partially transparent Solarail balcony walls
 - **Science & Technology Museum, Thessaloniki, Greece**
 - **Entry canopy**

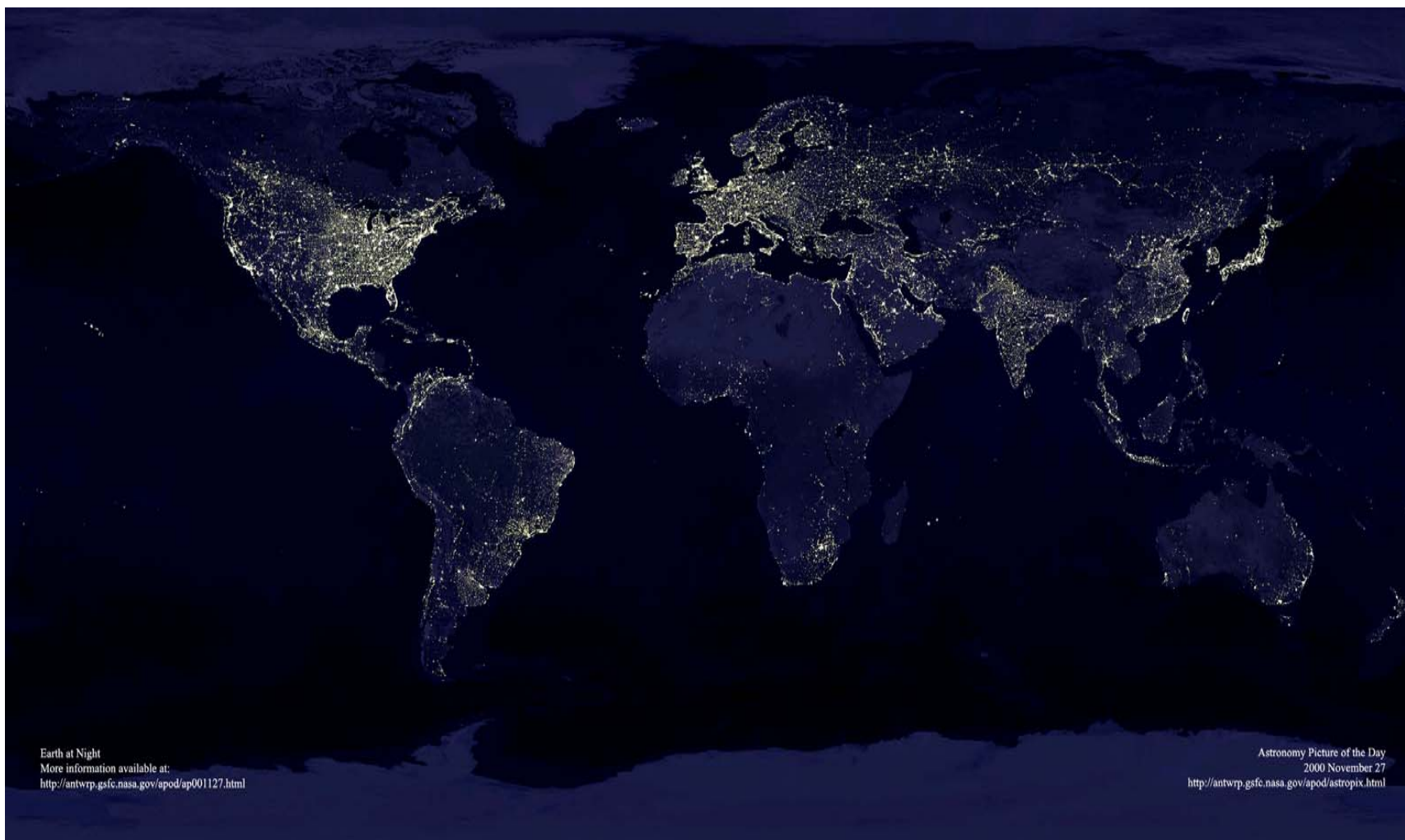
BIPV – Science & Technology Museum





A Major Challenge – Made for PV

The World at Night



Earth at Night
More information available at:
<http://antwrp.gsfc.nasa.gov/apod/ap001127.html>

Astronomy Picture of the Day
2000 November 27
<http://antwrp.gsfc.nasa.gov/apod/astropix.html>

Africa – the “dark” continent



- In Sub-Saharan Africa, more than 500 million people lack modern energy
 - Rural electricity access rates are less than 2%
- The poorest of the poor spend 10-15% of total income on energy
 - Expenditures are estimated to total US\$38 billion
- Imagine the difference PV energy can make



The Economics of Lighting



- Of the world's population, 25% obtain light exclusively with kerosene, other fuels, candles, and battery-powered torches
 - Users of kerosene lighting pay 150-times more per unit of useful energy than do those in electrified homes with efficient compact fluorescent lamps...
 - ...and 600-times more than lighting from traditional incandescent lamps
- New advancements in lighting, battery, and PV technologies offer the potential to provide clean, portable, durable, economical, and higher quality lighting
- **THE CHALLENGE IS FOR PV TO SEIZE THE OPPORTUNITY AND DELIVER ON THE PROMISE!!!**
 - It's not simple, but it can – AND MUST – be done.