

## AS You Sow on Creating Greener Solar PV Panels

Andrew Burger. March 28, 2012

Advocating solar PV manufacturers adopt a set of industry best practices, a new survey and report highlights the environmental benefits of using solar photovoltaic (PV) energy as compared to fossil fuels, while at the same time criticizing ongoing, outsized government support for fossil fuel production.

“Even though there are toxic compounds used in the manufacturing of many solar panels, the generation of electricity from solar energy is much safer to both the environment and workers than production of electricity from coal, natural gas, or nuclear,” stated Amy Galland, PhD and research director at non-profit group [As You Sow](#).

*“For example, once a solar panel is installed, it generates electricity with no emissions of any kind for decades, whereas coal-fired power plants in the U.S. emitted nearly two billion tons of carbon dioxide and millions of tons of toxic compounds in 2010 alone.”*

Based on an international survey of more than 100 solar PV manufacturers, the best practices in [As You Sow’s report, “Clean & Green: Best Practices in Photovoltaics”](#) aim to protect the employee and community health and safety, as well as the broader environment. Also analyzed are investor considerations regarding environmental, social and governance for responsible management of solar PV manufacturing businesses. The best practices listed were determined in consultation with scientists, engineers, academics, government labs and industry consultants.



### Solar PV CSR survey and report card

“We have been working with solar companies to study and minimize the environmental health and safety risks in the production of solar panels and the industry has embraced the opportunities,” Vasilis Fthenakis, PhD and director of the National PV Environmental Health and Safety Research Center at [Brookhaven National Laboratory](#) and director of the Center for Life Cycle Analysis at [Columbia University](#), explained.

“This report clearly lays out the main challenges and the steps industry leaders have taken to reduce the environmental impacts of their products – steps that the rest of the industry should follow.”

Solar PV manufacturers’ responses to [As You Sow’s](#) survey indicate that many already exceed standards for greenhouse gas emissions, that they’re “reducing water use and reusing water...and are participating in voluntary international programs related to worker safety,” according to an [As You Sow](#) press release.

Several solar PV manufacturers are also using safer materials, relying on renewable energy to power their production processes and operations, and reducing waste through recycling programs that recover materials for reuse. They are also improving employee and community relations along their supply chains, according to [As You Sow](#).

[As You Sow’s list of best practices](#) for solar PV manufacturers includes:

- Implementing worker safety and public health protocols. First Solar has a laboratory at each manufacturing facility to monitor treated water and ensure their outflows are safe.

- Reducing water use. Between 2006 and 2010, Suntech reduced its water use by 51% per MW by recycling discharged water and supplying it to its HVAC systems. SunPower, Suntech, and Trina Solar all clean and reuse water.
- Implementing producer responsibility programs. First Solar has a prefunded collection and recycling program that enables up to 95% of the semiconductor material to be reused in new modules. Abound Solar has a cradle-to-cradle program to reclaim hazardous compounds.
- Considering environmental and social criteria when selecting suppliers. Companies require their suppliers to implement environmental management systems and meet their standards for treatment of workers.
- Ensuring a system for audits that contain transparent criteria, corrective actions, and regular auditing cycles. REC, SunPower, Suntech, and United Solar Ovonic incorporate each of these into their auditing programs.
- Publishing corporate social responsibility (CSR) reports. SunPower, Suntech, and Trina Solar already publish CSR reports and SolarWorld and Q-Cells publish integrated reports.
- Using recycled and recyclable materials. One company's panels are made from 85% recycled material and are themselves 100% recyclable and non-toxic, and Suntech uses easily recyclable materials.
- Linking executive compensation to environmental or safety metrics. Compensation for executives at SunPower is tied to environmental health and safety performance.

### **The spiraling, unaccounted for costs of fossil fuel production and use**

The serious and irreparable damage and high costs of fossil fuels in terms of the environment, employee and community health and safety are precisely those that aren't accounted for by longstanding economic and financial convention. Yet solar energy can supply more than 2/3 of US electricity needs by 2050, As You Sow notes.

*"The sun is the world's most abundant and cleanest source of energy, yet our electricity and transportation systems are almost completely reliant on fossil fuels," stated Andrew Behar, As You Sow CEO. "In order for solar to be competitive with other forms of energy, there needs to be a significant change in the allocation of federal funding for research and incentive programs."*

Despite this, the energy policy deck remains stacked against solar PV and renewable energy. Funding for fossil energy research is five times that of the solar PV research budget at present, As You Sow adds. In addition, fossil fuels receive "significant and ongoing support in the form of subsidies and tax incentives not available to technology for renewable energy generation sources."