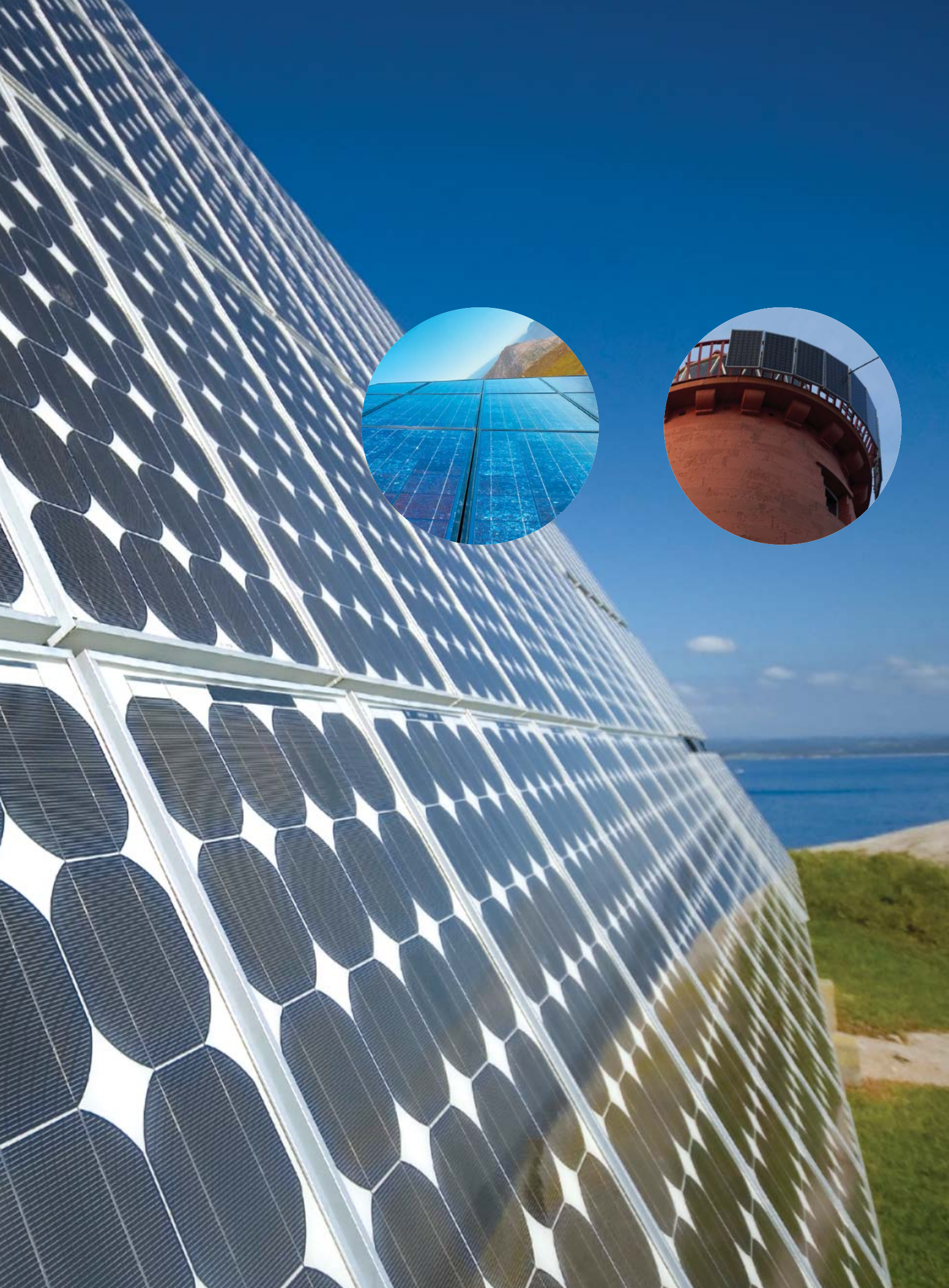


Together, we can change the world.



A tiny fraction of today's energy needs are met by alternative sources. Yet with concerns about the scarcity of fossil fuels, environmental degradation, and increased energy dependence, photovoltaic (PV) technology offers an abundant energy source for the future. Solar power use has expanded dramatically in recent years, with the certainty of exponential growth ahead.

## **PV will change our world.**



However, we all face challenges in accelerating this potential.

No one will overcome them alone.

PV manufacturers and their suppliers are in a unique position to find the answers. It will take a global collaborative effort to lower costs and bring PV to the mass market. You can help us lead this effort.

Today, over 20 percent of SEMI® members are actively involved in entering and revolutionizing PV manufacturing. Together, they form the SEMI PV Group to address the opportunities and obstacles to bringing low-cost PV technology and sustainable, clean energy to the world.

## **A confluence of leaders.**

There has never been a global industry group to help PV materials suppliers and manufacturers thrive. Until now.

SEMI PV Group was conceived by leaders in photovoltaic manufacturing. The industry's materials and equipment suppliers have inspired its foundation and are shaping its expanding role. As the only global industry group focused on PV materials, equipment, and manufacturing, SEMI PV Group facilitates international standards, provides research into market opportunities and conditions, brings industry leaders together to network, and gives voice and focus to the global PV supply chain.

In the process, the group has leveraged its affiliation with SEMI, the global association for the microelectronics, display, and related industries, which has vast experience in many activities relevant to PV: not only standards, market research, and network development, but also the promotion of environmental best practices and technology roadmaps.

With these strengths, SEMI PV Group serves as a vital focal point to make members profitable—and help them change the world.



## Setting the standards.

The creation of consistent cross-border standards could revolutionize PV—and turn adoption into reality worldwide. But who will take the lead in such a task?

SEMI PV Group will—by gathering the industry's key stakeholders to develop global standards that may dramatically lower costs and speed commercialization. Supported by SEMI's proven expertise in this area (nearly 800 manufacturing standards and safety guidelines are currently in place), we will continue to develop standards for all aspects of PV—thin films, machine interface, process control, and many others—in collaboration with partner associations around the globe.

## Standards development update

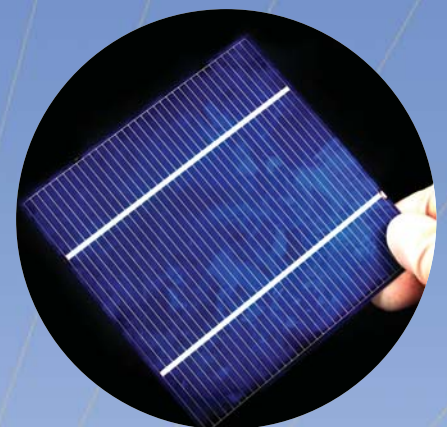
Industry standards activities are desperately needed in the PV industry to reduce cost and accelerate investment in innovation. Although some standards are applicable, the PV industry has been dominated by *de-facto* standards from dominant players or by no standards at all.

SEMI International Standards are in a unique position to accelerate appropriate standards activities for the PV industry. First, many semiconductor standards are immediately applicable to the PV industry. Materials and equipment suppliers who serve display, semiconductor and PV industries do not want to support a new set of communication protocols, labeling requirements, testing metrics, physical interfaces and other features where they add no value to the customer.

Second, SEMI International Standards has a proven standards development process with a thirty-five year history promulgating over 800 standards and safety guidelines, many directly applicable. Third, PV Group member companies have demanded effective standards for the industry.

In order to become a cost effective energy source, any inefficiency such as buffer-stock, change of carrier, machine-to-machine communication and process observables for advanced process control needs to be eliminated or reduced to their basic minimum. Many semiconductor equipment manufacturers that have diversified their product mix to PV are using some existing SEMI standards. But the PV equipment and materials industry has to intensify the standardization effort in order to generate additional industry-wide cost reductions. PV standards effort must be for, and by, the PV industry. They need to be managed by independent committees comprised of PV industry representatives whose interest lies with the solar power industry.

PV Group is committed to PV industry standards development in order to enable and accelerate this process. Key market players have been assembled to address this global industry need. PV standards committees in North America, Asia and Europe have been assembled with task forces and working groups on equipment interface specifications (PV EIS), silicon wafers, gases/liquid chemicals, and test methods for impurity concentrations for PV silicon feedstock.



## Connecting the industry.

Imagine how efficiently the PV supply chain could work if participants truly understood one another's business. Imagine if the PV supply chain could collaborate on industry roadmaps, align with customer priorities, and focus on common industry obstacles. To that end, SEMI PV Group unites professionals from every part of the photovoltaic supply chain, so everyone can exchange ideas, build networks, and move the industry forward. We connect you through a wide range of venues.

- ✧ At the popular Photovoltaic Fab Managers Forums, device manufacturers discuss their most pressing issues with materials suppliers and equipment makers. Topics range from silicon feedstock to cell and module production.
- ✧ Technical programs (like our Advanced Photovoltaic Manufacturing Technology Conference) enable engineers and designers in all phases of PV to track the state of the art and bring ideas back to their own businesses.
- ✧ Through symposia, exhibit opportunities, company presentations, and other formats, PVJapan and regional SOLARCON® expositions held in conjunction with SEMICON® events maximize exposure for participants and keep them informed of the latest industry trends.
- ✧ Groups such as the regional advisory committees and the Silicon Manufacturers Group bring together professionals to network and exchange ideas.

## Exposition policy update

The PV Group goal in expositions for the PV industry is to rationalize the global event calendar and improve the value of existing trade shows for its members. The PV Group accomplishes this goal through extending the role of worldwide SEMICON events to also address the PV market (by co-locating with regional SOLARCON events) and by partnering with established exhibitions such as Intersolar (in North America and Europe) to ensure the highest possible value for members (and, by partnering with other industry associations such as JPEA, SEIA and EPIA.) These activities are conducted through the oversight of regional and global PV Group advisory boards comprised of member companies and key constituencies. By advocating member interests in the management of existing events, the PV Group can best assure that member value and industry growth can be accomplished.

The PV Group goal in managing and co-managing PV events is to put the interests of the attendee and exhibitor first and maximize the value for PV Group member companies. To accomplish this goal, PV Group priorities are focused on attracting high-value attendees, accelerating the diffusion of new technologies and product life cycles through program content, and improving the productivity of the industry through access to Best Practices information. As an event manager and co-manager, the PV Group will comply with all world-class show management guidelines, standards and practices.

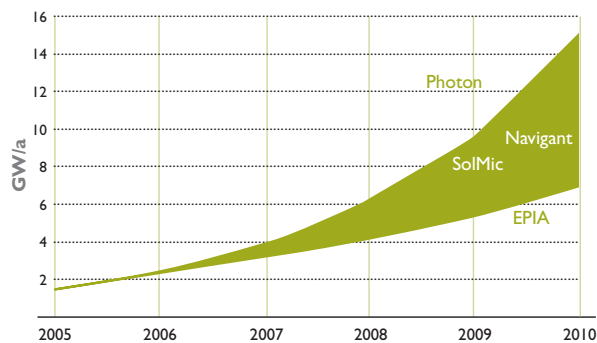


## Bringing clarity to changing markets.

How much more successful could you be with accurate, global market information that focuses on the needs of the supply chain? The prospects for PV growth vary widely by region, by country, and by industry analyst—from 7 GW to over 14 GW—primarily due to uncertainties in the projected experience curve cost reductions, as well as assumptions about polysilicon supply and government subsidies.

Working with its own staff of analysts, industry data collection programs, and research affiliates the world over, the SEMI PV Group serves its members with a variety of services to help plan and grow their business.

### PV Market Forecasts: The Spread



Growth projections for PV vary wildly—from 7 GW to over 14 GW—primarily due to uncertainties in the projected experience curve cost reductions, as well as assumptions about polysilicon supply and government subsidies.

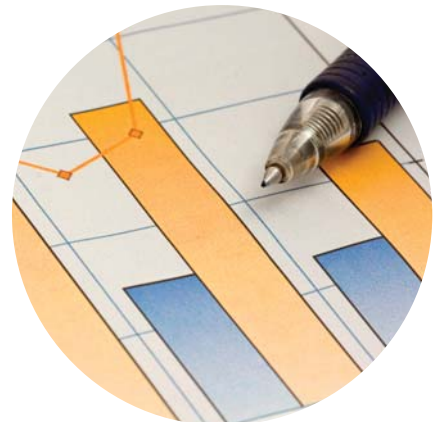
## Market data update

The PV Group is committed to supporting members by developing market research and statistics programs, and collaborating with other associations to influence and support their best interests.

Enabling more informed investment and strategic planning decisions through market research and statistics activities has long been an important service to SEMI members. SEMI maintains active market research programs in all the segments it serves, helping guide research, development, and market expansion investments by its members.

The PV Group is in the process of establishing a quarterly Book-to-Bill report for the PV equipment industry that will give members and other industry stakeholders accurate insights into the market environment for PV manufacturing. Patterned after the widely used Book-to-Bill reports for the semiconductor industry, these reports will help members and others make informed investment decisions and know their position in the industry in relation to competitors.

The PV Group has formed effective working relationships with nearly every industry analyst and research firm in the PV industry. At every PV Group exposition and event, these experts are able to provide attendees with valuable market insights and perspectives on the industry. The PV Group website also serves as an information portal for members with articles, insights and perspectives from leading experts on technology, regional markets, and other subjects.



## Raising our collective voice.

Every emerging industry can benefit from productive relationships with key stakeholders, especially government and industry. Fostering those relationships, however, is often a challenge amid today's complex web of influencers.

Through advisory committees, affiliated organizations, and an extensive network of executive and governmental relationships, we stay abreast of community, country, regional, and global issues—and coordinate the PV industry's vast resources to address those issues. For instance:

- In Environmental, Health, and Safety (EHS), we identify industry needs, share information, and create tools to help the industry attain EHS, regulatory, and sustainable development objectives.
- In legislative initiatives, we work directly with governmental and regulatory authorities, as well as other organizations and coalitions, to promote member interests in tax, tariff, export control, education, and competitiveness.
- In trade, we build on SEMI's considerable track record in influencing world trade agreements that have fostered semiconductor and display industry growth.

## Public policy update

The PV Group is committed to working with other associations such as EPIA, JPEA and SEIA to advance the interests of its members in legislative and regulatory affairs. The PV Group participates in coalitions with other industry groups to support member public policy interests and work to keep members informed of important public policy matters. The PV Group works with members to assure that the unique expertise and interests of the manufacturing supply chain is properly integrated into the legislative and regulatory process so that decisions makers are well informed.

In industry advocacy, workforce development, public education, and public policy, the PV Group draws upon SEMI staff and a history of successful collaborations with other industry groups to identify and serve members. The process of identifying programs, allocating staff, prioritizing and funding programs is conducted under the guidance and oversight of both regional and global PV advisory boards, and a Board of Directors comprised of member companies. As new initiatives and programs are identified, these governance structures will be utilized to ensure that member interests are met in the most effective and most representative way possible.

## EHS & Sustainability policy update

For the PV industry, the challenge is to reconcile and harmonize Environmental Health & Safety (EHS) and sustainable supply standards, guidelines and practices to allow the industry to reach high levels of performance without excessive costs or redundant or conflicting requirements. This is an effort that must emerge from the PV supply chain and serve the needs of cell and module makers, equipment, materials, and component suppliers.

The SEMI PV Group is committed to supporting members by developing EHS Standards, facilitating education and information exchange within the PV industry.

## Critical objective: reduce costs.

There is only one way to make economical PV manufacturing a reality: by acting together and applying lessons learned from the semiconductor and other advanced technology industries. Together we can create the standards so urgently needed to reduce costs. Together we can exchange insights to advance the technology and the industry. Together we can optimize the supply chain and garner government support for adoption.

The more we collaborate, the greater the growth. And the shorter the path to a better world.

## Join us.

Who knows more about PV than the people who live it every day? For that reason, SEMI PV Group enables you to make yourself heard throughout the industry—take an active role in shaping your organization—and change the world. Members can:

- ∴ Shape standards by joining the PV Standards Committee.
- ∴ Help guide the industry by serving on the Global Advisory Committee, which represents all stakeholders, technologies, and regions.
- ∴ Advance PV in their own area through regional PV committees in North America, Europe, and Asia.



[www.pvgroup.org](http://www.pvgroup.org)