

# Photovoltaic Standards Committee



Petition to  
International Standards Committee  
SEMICON West  
July 19, 2007

Presented by  
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CTO Solar Business Group, Applied Materials  
President EPIA



# ERSC Request ISC Approval

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- Formation of “European Regional PV Standards Committee”
  - Charter, Scope, Co-chairs agreed.
- Motion passed at ERSC meeting 27 April 2007

# Background ...

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- SEMI standards are manufacturing needs oriented
- EPIA has expressed its interest to use the SEMI standards platform to look for consensus on product issues also
- This extension is relevant for SEMI, because manufacturing standards often depend on product and materials standards

# PV - Introduction

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- The PV industry has few standards to support manufacturing
- Market
  - Large, Growing Rapidly
  - Many New Entrants
  - Diverse Manufacturing Challenges
  - International User / Supplier Community

→ Standards are urgently needed

# SEMI PV Standards Initiative

## Endorsed by European PV industry

### Participation Pledged as of July 15, 2007

- advanced clean production Information Technology AG
- ALD Vacuum Technologies
- Ami-Presco (Affiliated Manufacturers Inc)
- Applied Materials GmbH & Co. KG
- CaliSolar Inc.
- centrotherm Photovoltaics GmbH+Co.KG
- Deutsche Cell GmbH
- ersol Solar Energy AG
- FSI International (Italy) Srl
- Gebr. Schmid GmbH + Co.
- GT Solar Incorporated
- ib-vogt GmbH
- ICOS Vision Systems NV
- M+W Zander Facility Engineering GmbH
- Meyer + Burger AG
- OC Oerlikon Balzers AG
- Crystalox Solar plc
- Q-Cells AG
- REC Silicon
- Rofin-Sinar Laser GmbH
- Roth & Rau AG
- Stangl Semiconductor Equipment AG
- Tempres Systems B.V.
- VON ARDENNE Anlagentechnik GmbH
- Wacker Chemie AG

# Charter of European Regional Photovoltaic Standards Committee

## Charter:

To explore, evaluate, discuss, and create consensus-based standard measurement methods, specifications, guidelines, and practices that, through voluntary compliance, will:

- promote mutual understanding and improved communication between users and suppliers of photovoltaic manufacturing equipment, materials and services, and
- enhance the manufacturing efficiency and capability and shorten time-to-market so as to *reduce manufacturing cost of the photovoltaic (PV) industry.*

# Scope of European Regional Photovoltaic Standards Committee

## Scope:

To include liaisons and synergies with other SEMI technical committees for the development of PV-related standards.

The PV standards committee scope is limited to exploring and developing standards that pertain to *common criteria, guidelines, methods for control and comparison of PV-related process / metrology equipment, materials, components, or manufacturing operations*. It will seek to support the international need for increasing PV product / process yield and reducing related PV costs per Watt peak.

In anticipation of ANSI accreditation, this committee will investigate opportunities towards ISO/IEC harmonization of efforts.

*In addition to the above, the committee will also facilitate any industry initiatives towards product standardization needs.*

## Committee Leadership: co-chairs

- **Dr. Laszlo Fabry, Senior Scientist, Business Division Polysilicon, Wacker Chemie AG**
  - Extensive SEMI Standards experience since 1988
    - Silicon Wafer, Liquid Chemicals and Gases
    - Was TF leader for SEMI M33 (PV Wafer) Std
  - Earlier long-time Head of Corporate Analytical Services, Siltronic AG
  - Today Dr. Fabry is mainly involved in Innovation Management
- **Dr. Hubert Aulich. PV Crystalox Solar plc.**
  - Initiated several initiatives as board member of EPIA to stimulate standards for PV in Europe and beyond
  - Dr. Aulich started at Siemens 1974 in PV, and is currently Exec. Director of the German operations of PV Crystalox Solar

# Action plan

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1. Obtain ISC Approval
2. Kick-off meetings at PVSEC in Milan, September 2007
  - PV TFs
    - Equipment Interface Spec (EIS)
    - Terminology
  - PV Committee
    - Prioritize recognized / emerging PV Stds needs
    - Approve TFOFs
    - Liaison – EPIA, Academia, Consortia, Other regions / groups
3. Follow-up meeting at SEMICON Europa, October 2007

# Proposal to ISC:

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- Approve Formation and Proposed Charter / Scope of the European Photovoltaic Standards Committee
  - Motion by Werner Bergholz
  - Second by Win Baylies

Note: Starting point for Global PV Standards Committee

# Thank you!

This presentation was endorsed by the ERSC co-chairs Mr. Longford and Dr. Bergholz, ERSC MAL & VC PV committee Mr. Kleinendam, ISC Member Mr. Baylies, Mr. Aulich - Crystalox Solar plc, Mr. Avezzu - FSI International (Italy) Srl, Mr. Böstler - advanced clean production Information Technology AG, Dr. Fabry - Wacker Chemie AG, Mr. Buckland - ib-vogt GmbH, Dr. Binder - centrotherm GmbH+Co.KG, Dr. Hoffmann - Applied Materials GmbH & Co. KG, Mr. Kirscht - BerlinSolar GmbH, Mr. Koch - OC Oerlikon Balzers AG, Dr. Lüdemann - Deutsche Cell GmbH, Mr. Moritz - GT Solar Incorporated, Mr. Neff - M+W Zander Facility Engineering GmbH, Mr. Pauli - Meyer + Burger AG, Mr. Pfaffinger - Rofin-Sinar Laser GmbH, Mr. Raabe - Roth & Rau AG, Mr. Schmidt – Q-Cells AG, Mr. Stoll - Roth & Rau AG, Dr. Strümpfel - VON ARDENNE Anlagentechnik GmbH , Dr. Schulz, ersol Solar Engery AG, Mr. Sutton - REC Silicon, Mr. Vandewalle - ICOS Vision Systems NV