This report provides a complete understanding of the PV industry.

- Raw materials
- Equipment
- Cells
- Modules

Our goal is to offer a full overview on technology and describe market mechanisms.
The report offers a full description of photovoltaic market, technologies, manufacturing processes, equipment and materials and it also includes key figures, analyses and useful tools for strategic decisions.

Scope of the report

Description of main technologies

- Wafer based,
- Thin wafer based,
- a-Si,
- Tandem: a-Si/µ-Si,
- III-V,
- CIS/CIGS,
- CdTe,
- Dye sensitized solar cells,
- Organic solar cells.

A large part of the report is exclusively focusing on market opportunities for main manufacturing equipment:

- PECVD (edge isolation, active layer deposition, antireflective coating)
- PVD (electrode deposition, antireflective coating)
- Lasers scribers (edge isolation, patterning)
- Screen printers
- Wet bench (saw damage and PSG removal)
- Diffusion and firing furnaces
- MOCVD

For each machine, we describe:

- Players with estimated market shares
- Technical challenges
- ASP and main technical parameters
- Innovative concepts
- …

Objectives of the report

We understood from our customers that maturity level of different PV technologies needed to be clarified. Some reached mass production through standard or proprietary manufacturing process. Others are still in development for bringing innovation at low cost. We observed a strong variation on equipment and materials needed in production between the different technologies.

Yole’s objectives through this report, were to point out specific challenges and issues for each process, brings key answers and evaluates the potential market for equipment and material suppliers. Suppliers of lasers, screen printers, wet benches, furnaces, CVD and PVD systems... and all associated materials must all be aware of the photovoltaic market opportunities.

Companies listed

Report content

Executive summary

Market description and forecast
- Technology segmentation
- Comparison technologies
- Production forecast with technological breakdown 2005-2015
- Technologies market shares 2005-2015

Market per geography
- Germany
- Spain
- USA
- France
- Italy
- South Korea

Supply chain and business model
- Wafer based
- Thin films

Focus on main players
- End 2008 top ten
- Sharp
- Q-Cells
- Solarworld
- Suntech
- Others...

Value chain
- Wafer based
- Thin films

Production capacity and equipment park
(polynomial, cells and modules including thin films)
- Capacity breakdown per technology
- Capacity breakdown per country with number of fabs
- China activity overview

Technologies and process
(Si Wafer based, thin Si wafer based, a-Si, a-Si/µSi, CIS/CIGS, CdTe, III-V, DSSC, Organic)
- Description of cell structure
- Production flowchart
- Description of production steps
- Players
- Equipment
- Materials

Industrial park estimation

PV manufacturing equipments:
Wet bench (SDR and PSG removal), Diffusion furnace, PECVD (SiNx), PVD (SiNx), Screen printers, Firing furnace, cell testers and sorters, PECVD for active layer deposition, Laser scribers, PVD for TCO, MOCVD
- Global park estimation 2008
- Estimated annual demand in equipment 2008-2012
- Players market shares
- Main characteristics
- Technological innovations
- Requested material needed
- Equipment manufacturers
- Main customers
- Competitive technologies

New equipment - RIE, Electroplating, Plasma PSG removal
- Equipment manufacturers
- Main customers
- Issues
- Competitive technologies

List of Charts

- PV technology comparison efficiency/stability/market status
- Main players per business model in wafer based technologies
- Main players per business model in thin film technologies
- Production capacity evolution of main players
- Global production capacity evolution per main country to 2012
- PV market forecast with technology breakdown 2005-2015
- PV technologies market shares forecast 2005-2015
- End 2008 Top ten PV players estimation
- Wafer based technology value chain analysis ($/Wp)
- Wafer based technology module price forecast 2002-2015 ($/Wp, cumulated production)
- Thin film technologies value chain analysis ($/Wp)
- Thin film technologies module price forecast 2002-2015 ($/Wp, cumulated production)
- Wafer based PV technology flow chart
- Thin wafer based PV technology flow chart
- a-Si and a-Si/µ-Si flow chart
- CIS/CIGS flow chart
- DSSC general flow chart
- Evolution of equipment installed base to 2012
- Estimation of annual machine demand until 2012 in studied equipment
  - c-Si: 7 machines
  - thin film: 4 machines
- Alliance of players in turkey solution player
- And more....

Who should buy this report?

Both established PV established players and new entrants will quickly recoup “PV Technology and Equipment and Materials” purchase.

This report offer high value to:
- Marketing executives of equipment and materials companies will find key figures for their strategic plans and offer design.
- Sales and business development managers will have market potential (# of machine/year) and operational tools (equipment/ techno; techno/market segments).
- Technical directors will find global overview of all processes with a benchmark on main equipments. They will find all relevant information to evaluate the customization of their equipments or materials and even find new opportunities
- Investors will get a complete overview of turnkey solution providers.

Bio

Gaetan Rull was granted a master degree of industrial marketing and strategy and a science master degree. Working with Yole Développement for three years, he is in charge of the market analysis in the field of photovoltaic.

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