



PRESS RELEASE

Photovoltaic Technology Roadmap

Latest technology trends in crystalline and thin-film solar cells:
An overview on the PV industry up to 2015

Get a clear picture of tomorrow's winning PV technologies

August 26, Lyon, France – Making photovoltaics a low-cost source of clean and renewable energy is the main goal for most developed countries. Many of them have agreed on a 20% renewable energy target by 2020, and some already started to implement aggressive feed-in-tariffs to finance this objective. But the question is how do we get there from what has been achieved so far? What would happen if governments partially stop financing the PV industry through incentive program cuts as in Germany for instance? Can today's technologies be competitive without the incentives or do we need technical evolutions, or even technical breakthroughs to get there?

Yole Développement announces today the release of its latest photovoltaic research study, named **Photovoltaic Technology Roadmap**, which presents and analyses the latest technology trends in crystalline and thin-film solar cells.

The results were obtained as a result of a meticulous data collection process over more than 80 companies and R&D labs.

There is no doubt that the government incentive programs helped industrial to achieve, step by step, drastic cost reduction and performance improvements in a very short period of time but without real revolutions.

The photovoltaic (PV) industry has also seen the emergence of large scale production facilities, international R&D centres, and innovative equipment makers thus resulting in the impressive cost reduction Yole Développement knows. But if large production facilities can play the scale effect card to lower the cost of raw material and increase their yield, many other levers exist in order to reduce the production cost.

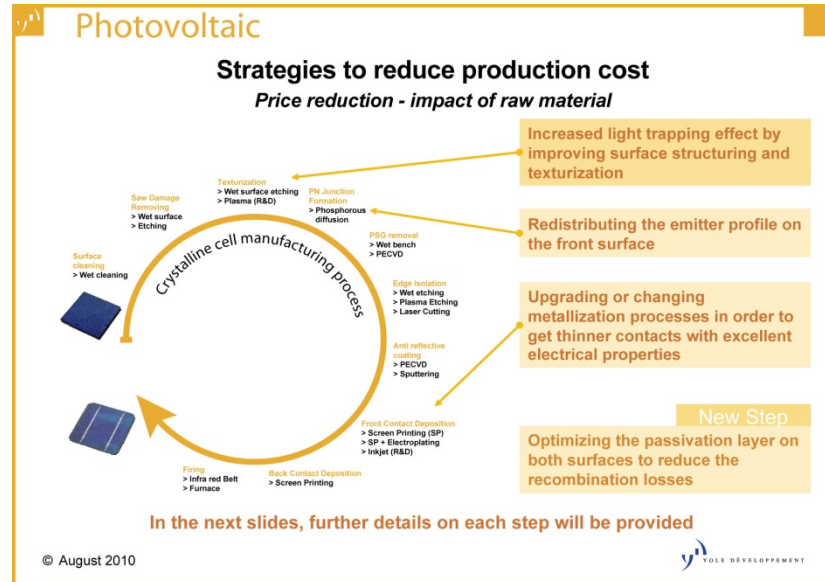
“In this PV Technology roadmap report, we describes all the different aspects linked to production cost reduction, explains Arnaud Duteil, Market & Technology Analyst at Yole Développement: from cell structure innovations to modification of manufacturing processes.” The microtech market research company in fact describes all the existing technologies: From those developed by the University of New South Wales (UNSW), to the metal wrap through (MWT) concept developed by the ECN and industrialized with Solland, to the new emitter wrap through (EWT) technology being developed by Bosh Solar.

Conventional crystalline silicon cells could bump up against their theoretical maximum efficiency of 29% as soon as 2020. Sanyo Electric Co. Ltd., for instance, demonstrated ~23% efficiency with a 10cm² R&D unit of its heterojunction with intrinsic thin layer (HIT) cells last year.

It figures that thinner surface contacts, better transparent conductors, and lower defect density can improve performance by several more percentage points, to likely get commer-



cial efficiency up to about as close as practical to the theoretical limit within about ten years.



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About the author

Arnaud Duteil was granted a Master's Degree in Innovation and Technology Management and a Master's Degree in Engineering. He is in charge of photovoltaic market analysis and reports at Yole Développement.

Photovoltaic Technology Roadmap report

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For special offers and the price in dollars, please contact David Jourdan (jourdan@yole.fr or +33 472 83 01 95)

Other Photovoltaic reports:

- Photovoltaic Market Trends Report, 2010 Edition:

In its "PV Market trends" report, Yole Développement looks at the trends towards more sophisticated business strategies in order to maintain profit margins despite the highly competitive climate...

- PV Fab database, July 2010 Edition :

An exclusive tool for equipment & material suppliers to develop worldwide business with the key players of the PV value chain...

About Yole Développement

Created in 1998, Yole Développement is a market research and strategy consulting firm analyzing emerging applications using silicon and/or micro manufacturing. With 20 full time analysts tracking MEMS, Microfluidics, Compound Semiconductor, Power Electronics, Photovoltaic, Advanced Packaging and Nanomaterials, Yole Développement supports companies and investors worldwide to help them understand markets and follow technology trends.

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