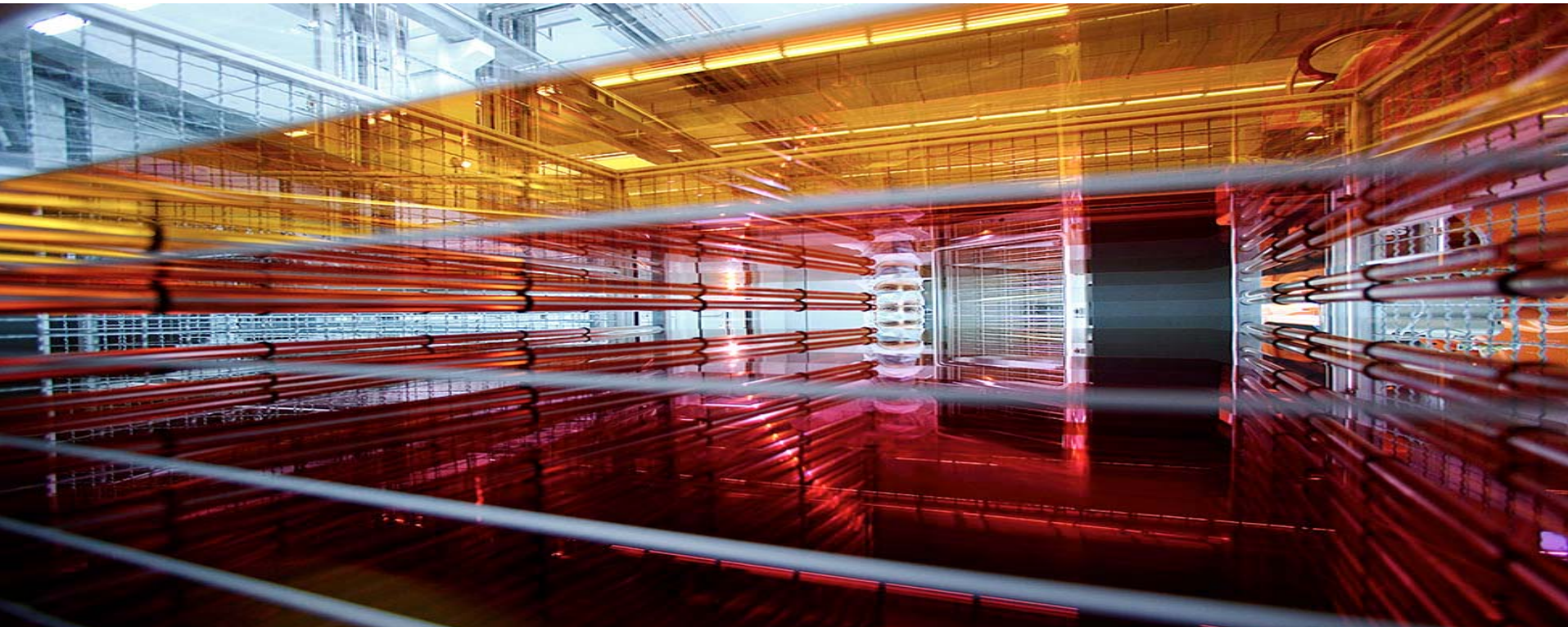


Schlüsselfertige Produktionslösungen für Silizium Dünnschicht Solarmodule

Jürg Steinmann, Marketing Communications Oerlikon Solar
Luzern, 9. November, 2007



Agenda

- Oerlikon Solar, Technology and Market Leader
- Technology and Products
- Outlook and Summary

Oerlikon Solar is becoming a Segment and gets Resources

Group »	oerlikon					
Segments »	Oerlikon Textile	Oerlikon Coating	Oerlikon Solar	Oerlikon Vacuum	Oerlikon Drive Systems	Oerlikon Components
						
Business » Units	oerlikon barmag oerlikon neumag oerlikon saurer oerlikon schlafhorst oerlikon textile components	oerlikon balzers oerlikon systems oerlikon solar	oerlikon solar - Thin Film	oerlikon leybold vacuum	oerlikon graziano oerlikon fairfield	oerlikon esec oerlikon optics - Laser oerlikon space oerlikon solutions

07 Sales > \$ 4 billion – 19,250 employees – 1,500 scientists – 35 countries – 170 locations

Our Vision: Solar Power Everywhere

Mission

Oerlikon Solar is the leading supplier of production systems and fab solutions for the PV industry.

Starting in 2003, Oerlikon Solar is the world's first supplier delivering end-to-end turn-key production solutions for thin-film silicon solar modules.

Oerlikon as First Mover

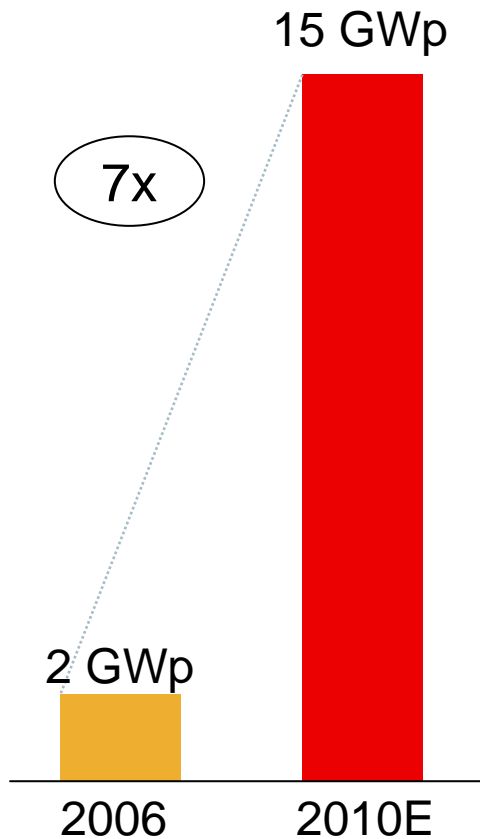
Milestones

Sept 03	Oerlikon Solar R&D Lab with Dr. J. Meier and Dr. U. Kroll, cooperation with IMT
June 04	First 1.4m ² a-Si thin-film module presented
Dec 04	Research facility delivered to SCHOTT Solar, start of joint development
May 06	TÜV Rheinland 1,4m ² module tests passed
Dec 06	40 MW facility delivered to ersol Thin Film
July 07	Start of ramp-up of the ersol Thin Film line first modules reach nominal power on-time
Sept 07	Introducing Micromorph Tandem (8.5% stab.)
Oct 07	40 MWp ramp-up at SCHOTT Solar

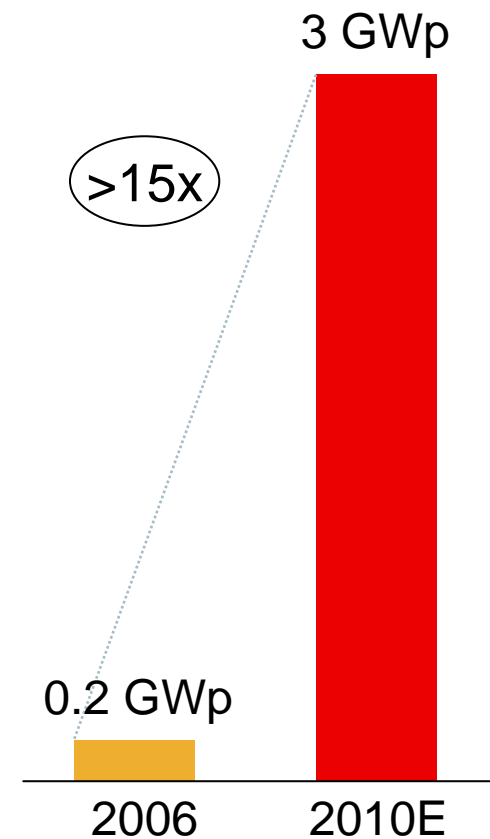


Thin-Film PV, a High Growth Market

Photovoltaic module market (GW installed)

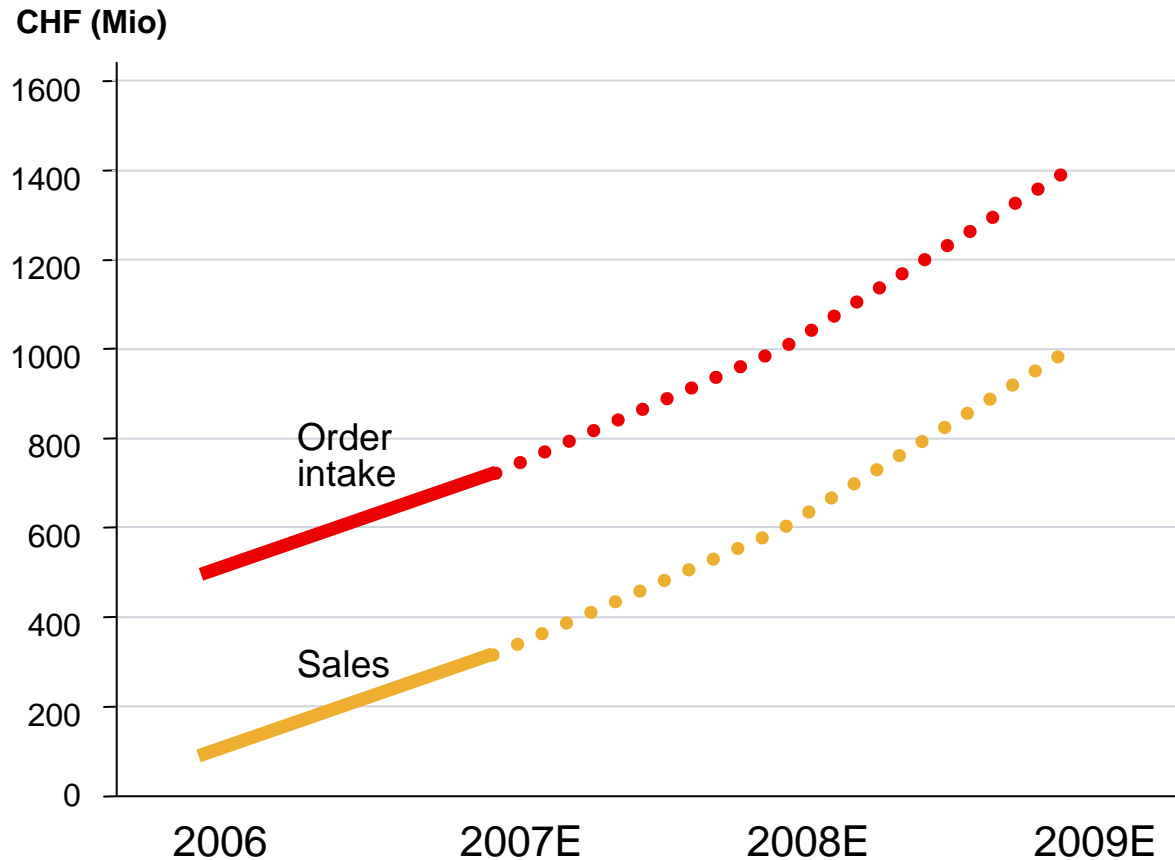


Thin film equipment market (GW installed)



Sustainable Ramp-up of Oerlikon's Solar Business

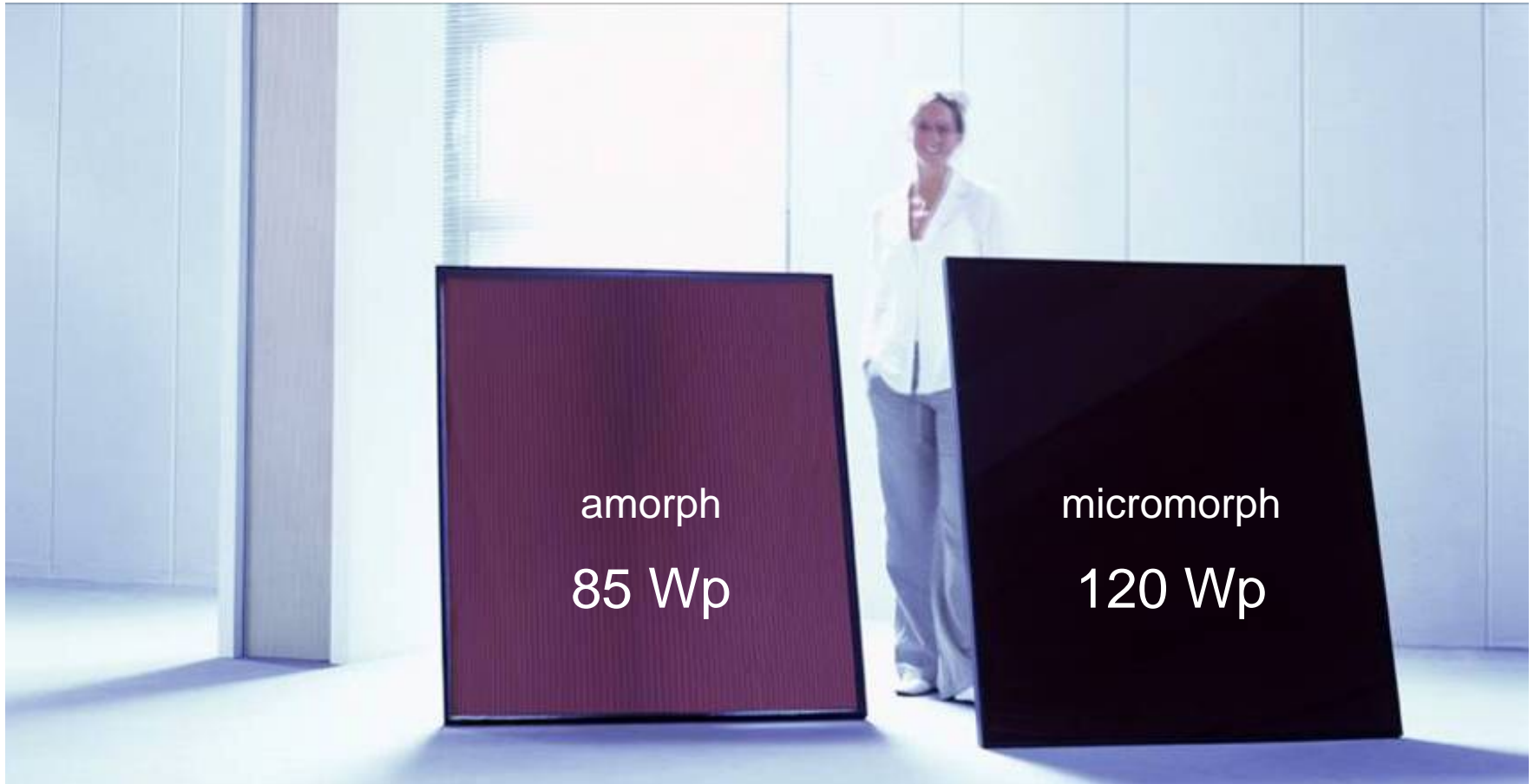
Sales & Order intake



Agenda

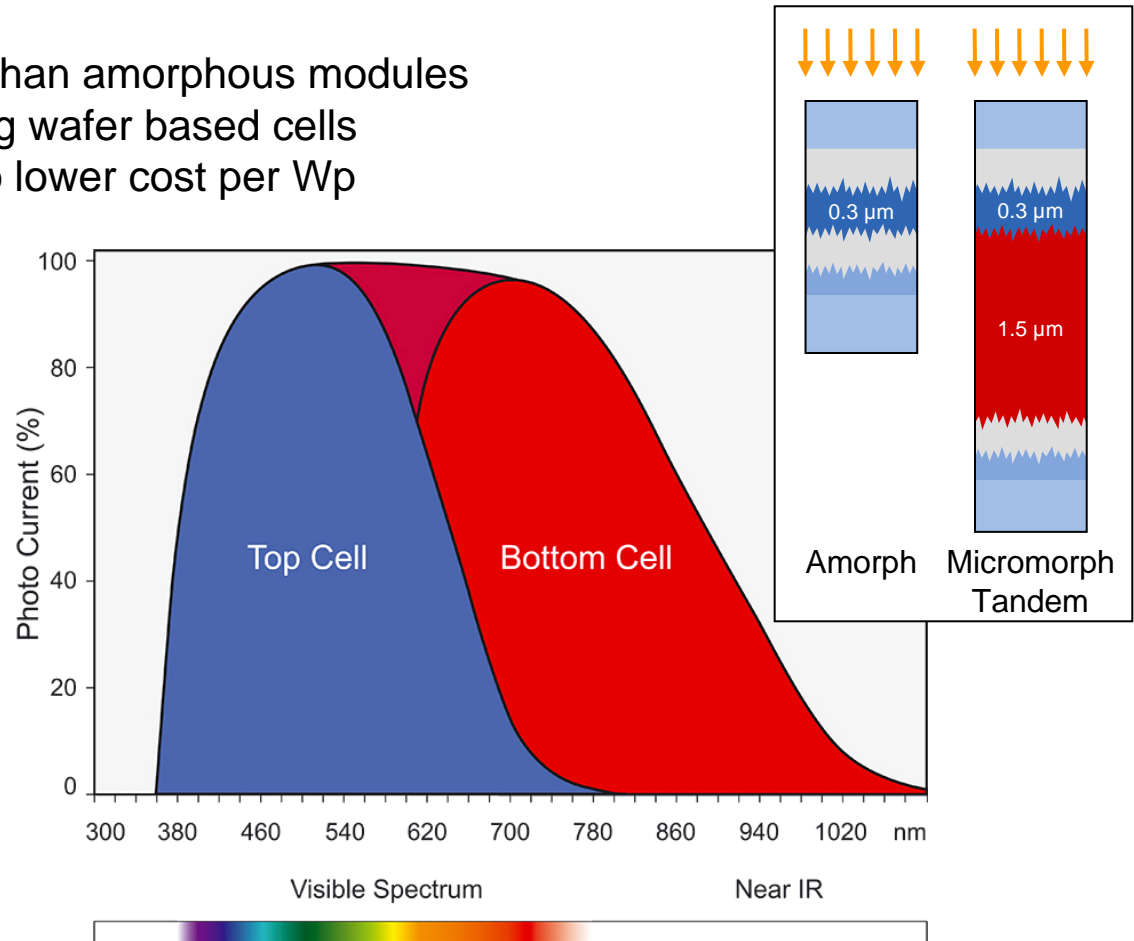
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Technology Roadmap – From Amorph to Micromorph



From Amorph to Micromorph – up to 50% more Energy

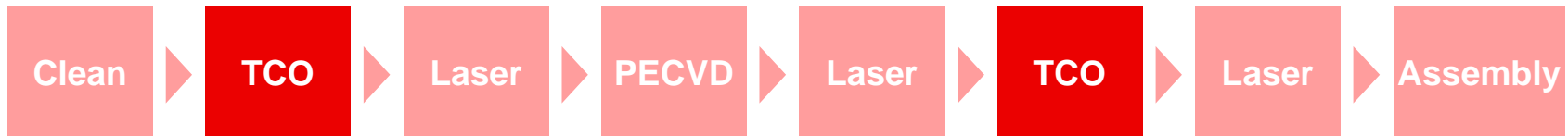
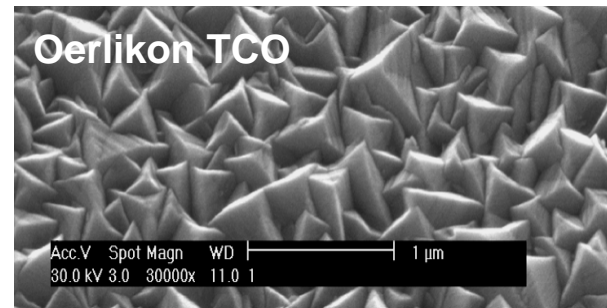
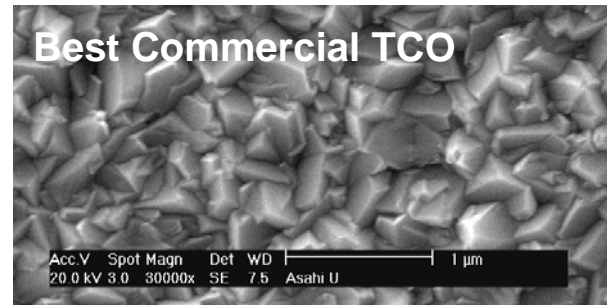
- Up to 50 % more power than amorphous modules
 - Efficiency approaching wafer based cells
 - Higher power leads to lower cost per Wp
- Technology Focus:
Efficiencies > 10%



TCO 1200 – Proprietary TCO Enables Higher Efficiency



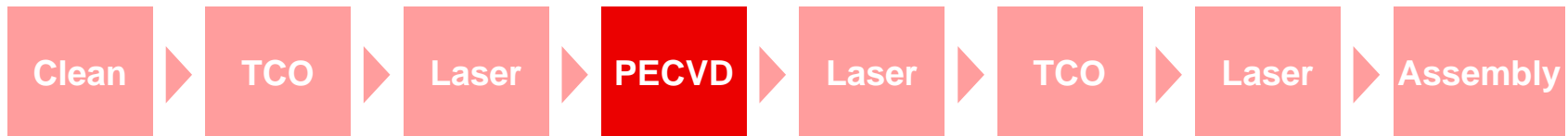
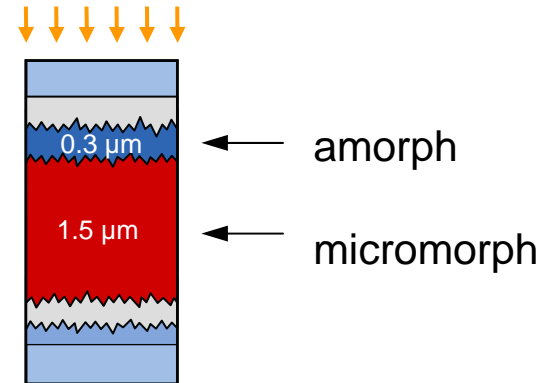
The principle of light trapping



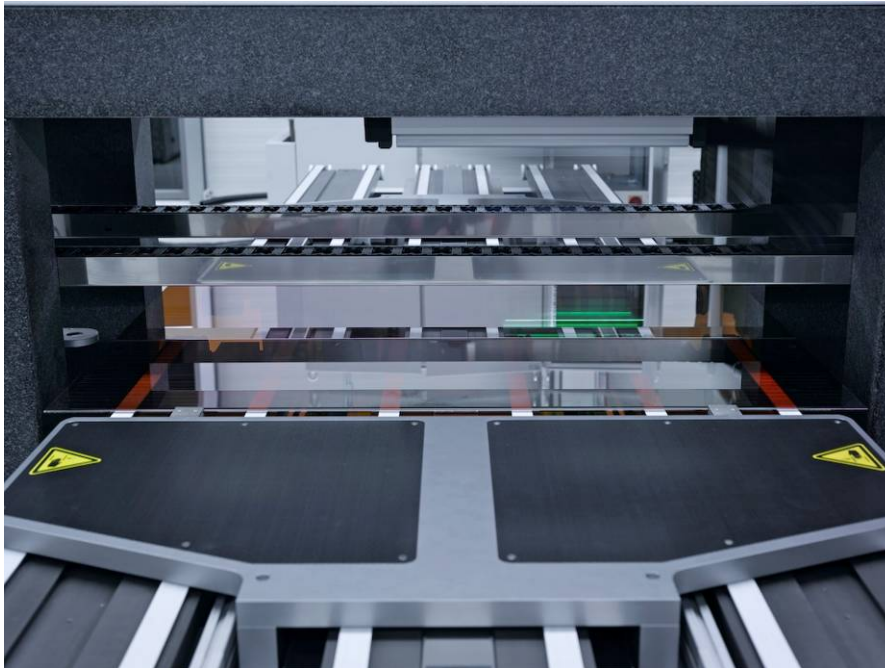
KAI 1200 – Proven Technology for PV Layers



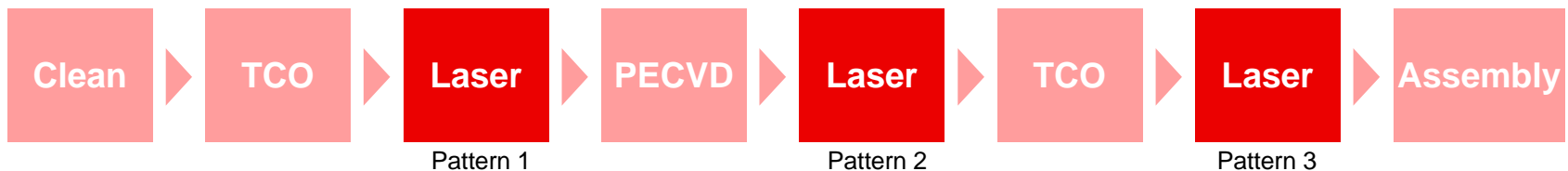
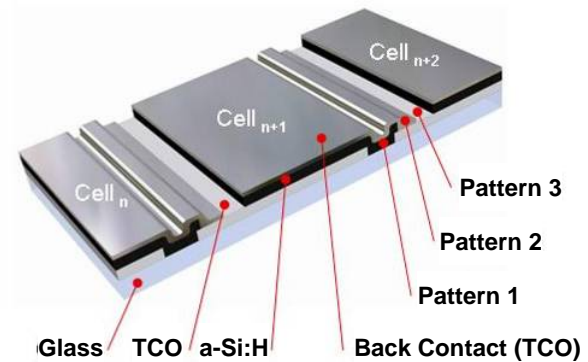
- Plasma Box[®] for single reactor processing
- 40 MHz for increased deposition rates
- Parallel processing (20 reactors) and load lock for high throughput



LSS 1200: Key to Efficiency and Reproducibility

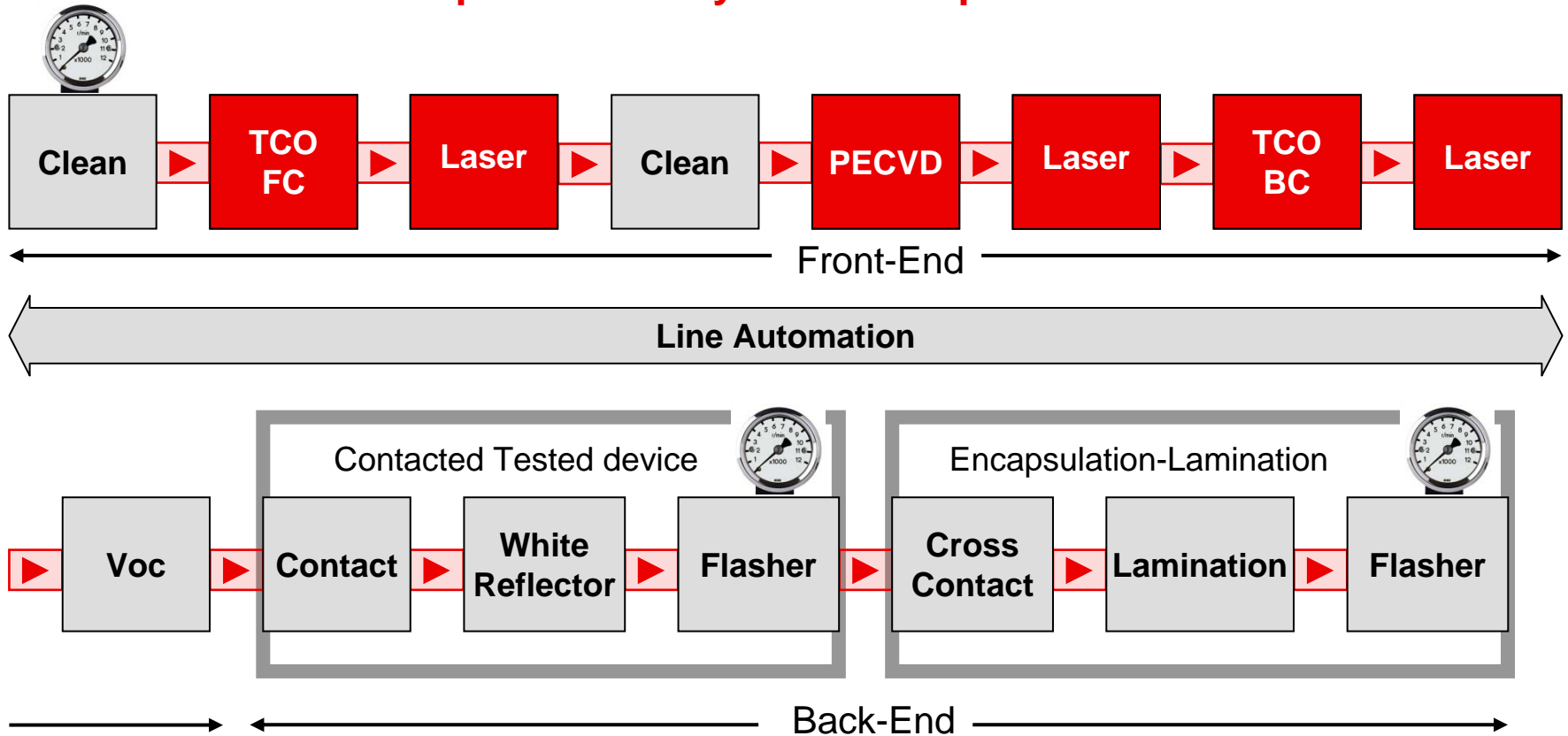


- The only system qualified for
- mass production
- all 3 laser scribing patterns



FAB 1200 – End-to-End Turnkey Production Solutions

- All thin-film production systems and processes from Oerlikon

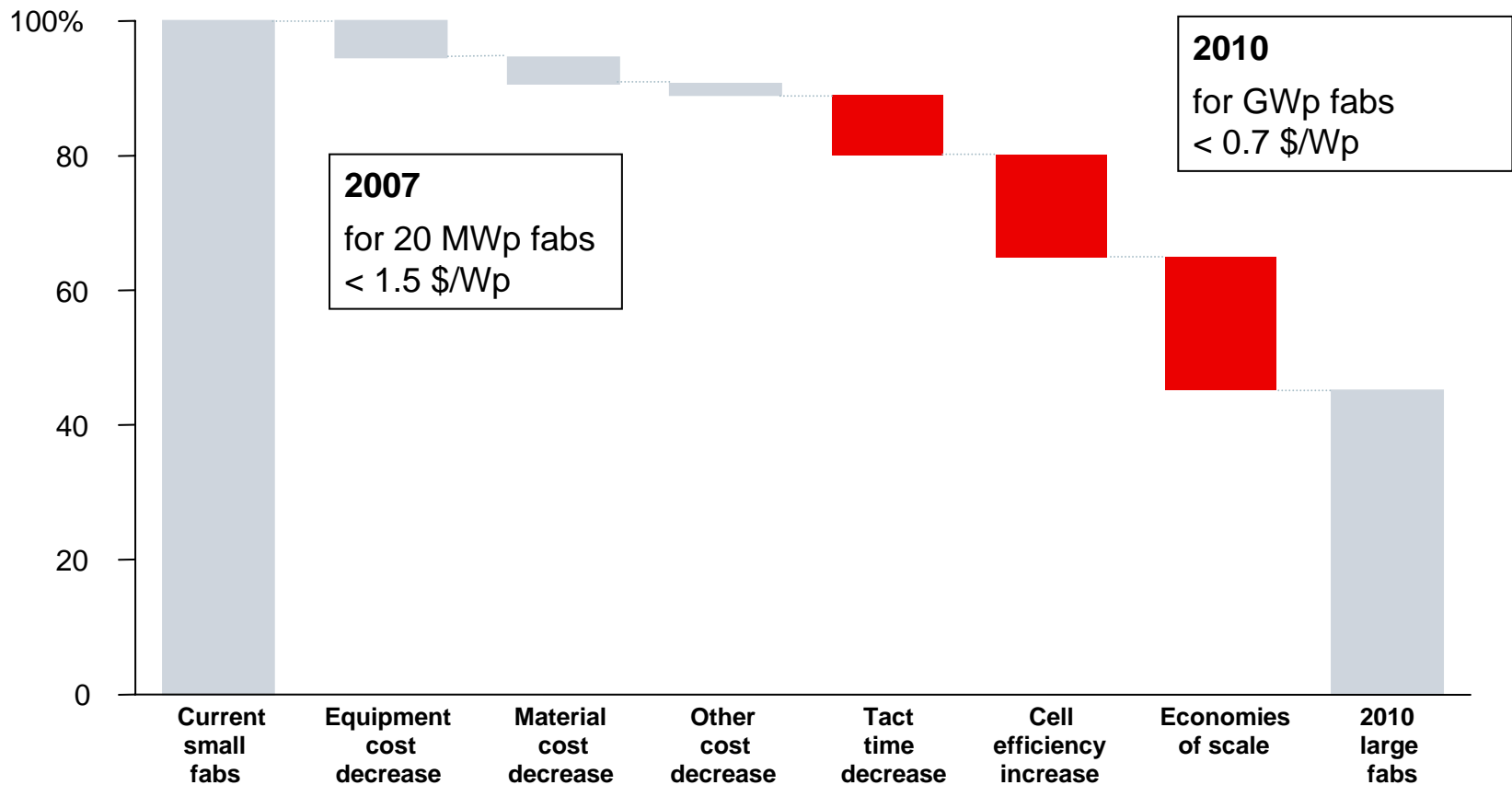


Agenda

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Cost of Ownership Development to Grid Parity

Amorph 2007 to micromorph tandem 2010



Driving Toward the Giga-Fab



Summary



The switch has started

- The switch to renewable energies has started – climate change and finiteness of fossil resources demand action.



Key position of solar energy

- Among the renewable energies, solar energy plays a key role. It has the greatest potential and has no disadvantages.



Oerlikon as first mover

- Oerlikon is the world's first supplier of the thin-film silicon process, which can provide users with industrially ready, turnkey production plants. The use of solar energy presents completely new prospects.



Economic success

- Market demand in the long term will be greater than the supply capability of the suppliers
- Oerlikon Solar is exceptionally well positioned as a technology leader and is expanding this field of business at a rapid pace.

oerlikon
solar