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MODULE SOLUTIONS



3S PHOTOVOLTAICS
SOLAR BUILDING TECHNOLOGIES

Photovoltaic - Common Energy Supply for the Future

Christian Renken, Head of 3S Photovoltaics
30. June 2011

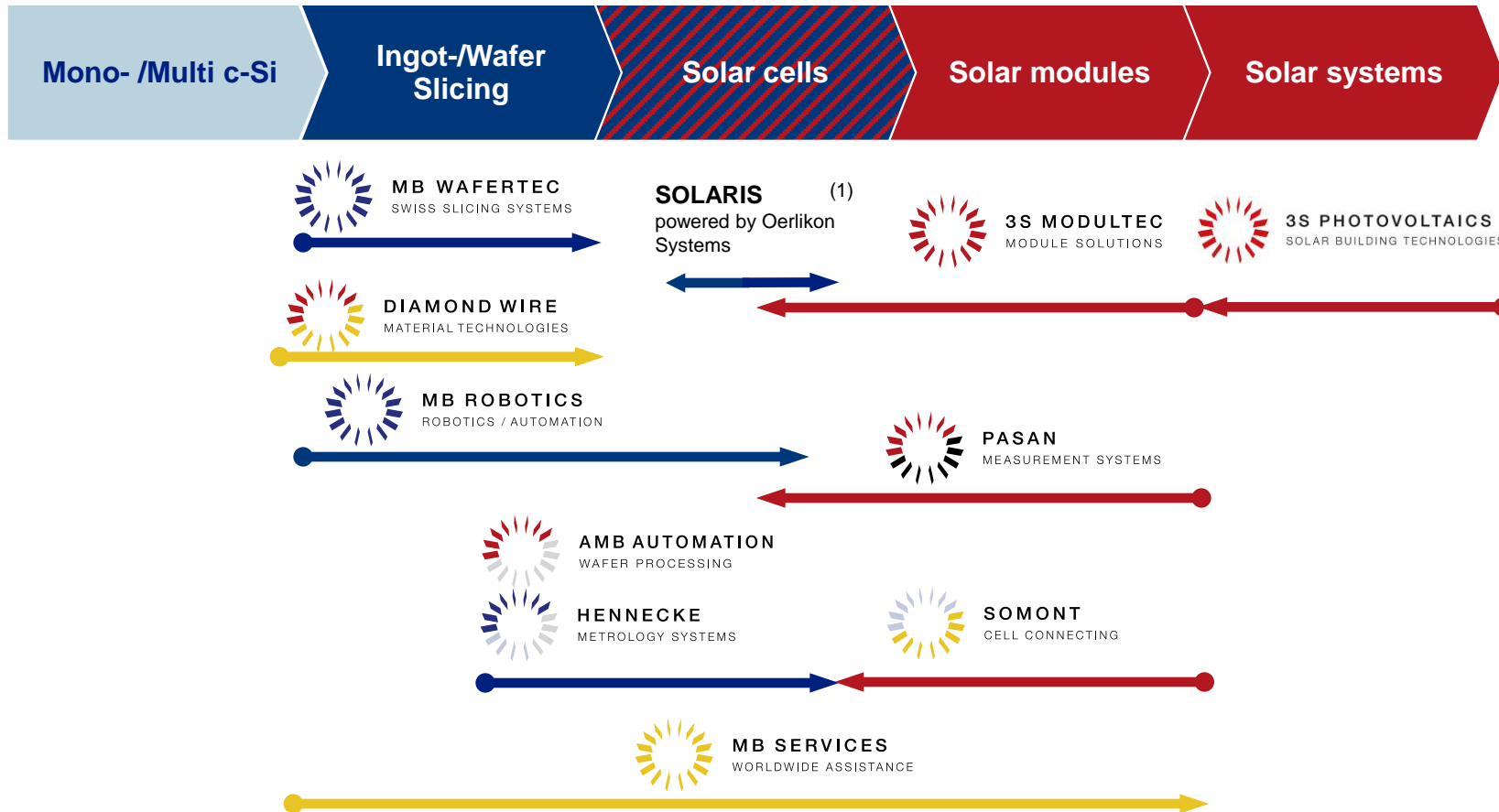


A member of Meyer Burger Group

Integrated Value Chain Enables Innovation & Standardisation



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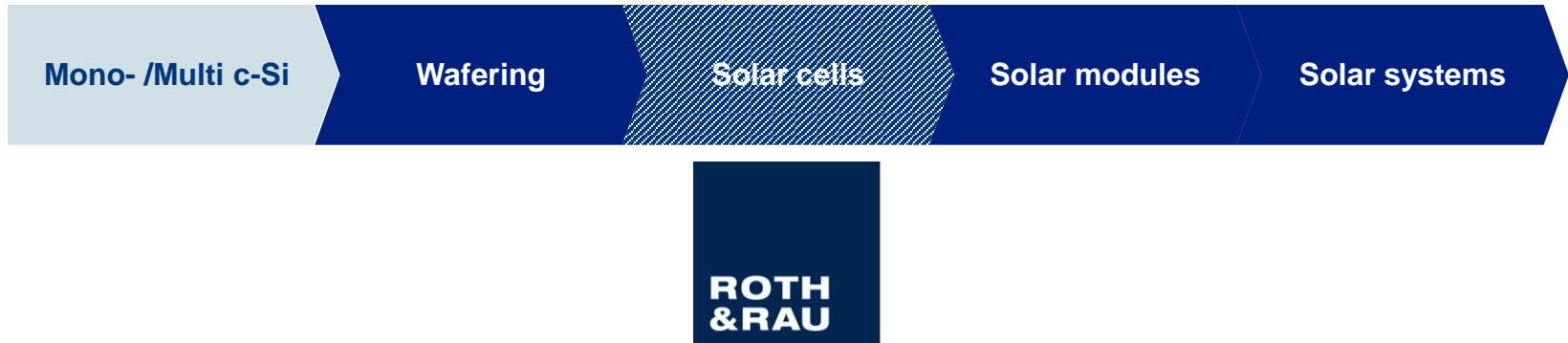


Note: (1) Strategic Marketing- & Distribution Agreement with Oerlikon Systems / Solaris

Expansion Along The Value Chain



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- Meyer Burger closes the „gap“ between wafering and solar modules with the takeover of Roth & Rau
- A further step in our long-term corporate strategy
 - Market leadership along the value chain of the PV industry
 - Meyer Burger Group is a comprehensive systems and solutions provider along the value chain
- Roth & Rau will continue as „enterprise within Meyer Burger Group“ as the core technology competence centre for solar cells
 - Meyer Burger strategy of a decentralised management structure within the Group

Technology Centers



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MBT Core Business



MEYER BURGER
SWISS SOLAR SYSTEMS

R&R Core Business



Other Business



MB WAFERTEC
SWISS SLICING SYSTEMS

Wafering



DIAMOND WIRE
MATERIAL TECHNOLOGIES

Consumables



HENNECKE
METROLOGY SYSTEMS

Metrology



MB ROBOTICS
ROBOTICS / AUTOMATION

Robotics and Automation



AMB AUTOMATION
WAFER PROCESSING

Cell Connecting



SOMONT
CELL CONNECTING

Encapsulation



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Testing/Simulation/Sorting



PASAN
MEASUREMENT SYSTEMS



Cell technology



Cell process



Microwave technology



Plasma- and Ion Beam technology



Production Information Technology



PV Thinfilm Line

Semiconductor Maintenance

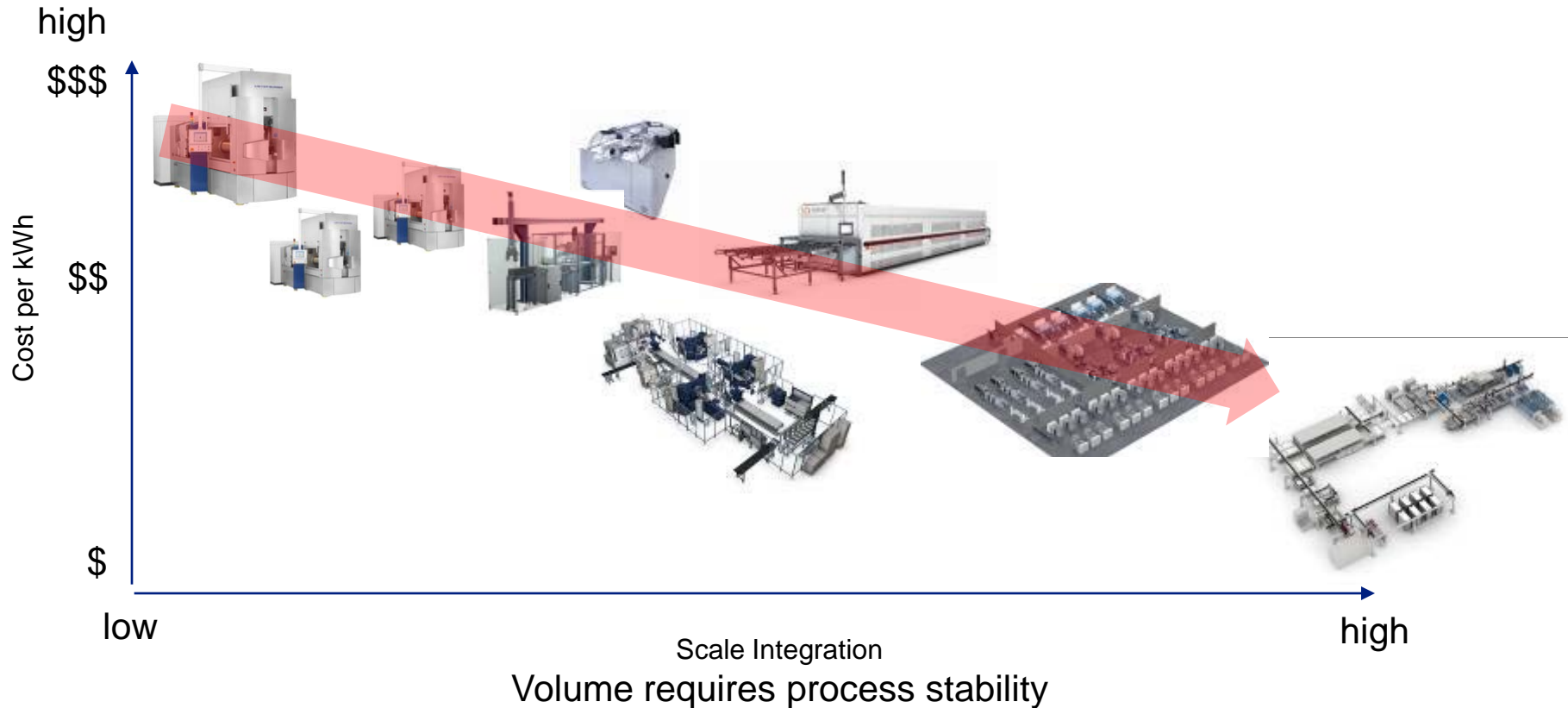
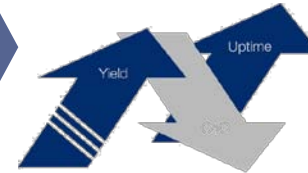


PV Foil Technology

The technology roadmap to reduce cost per kWh



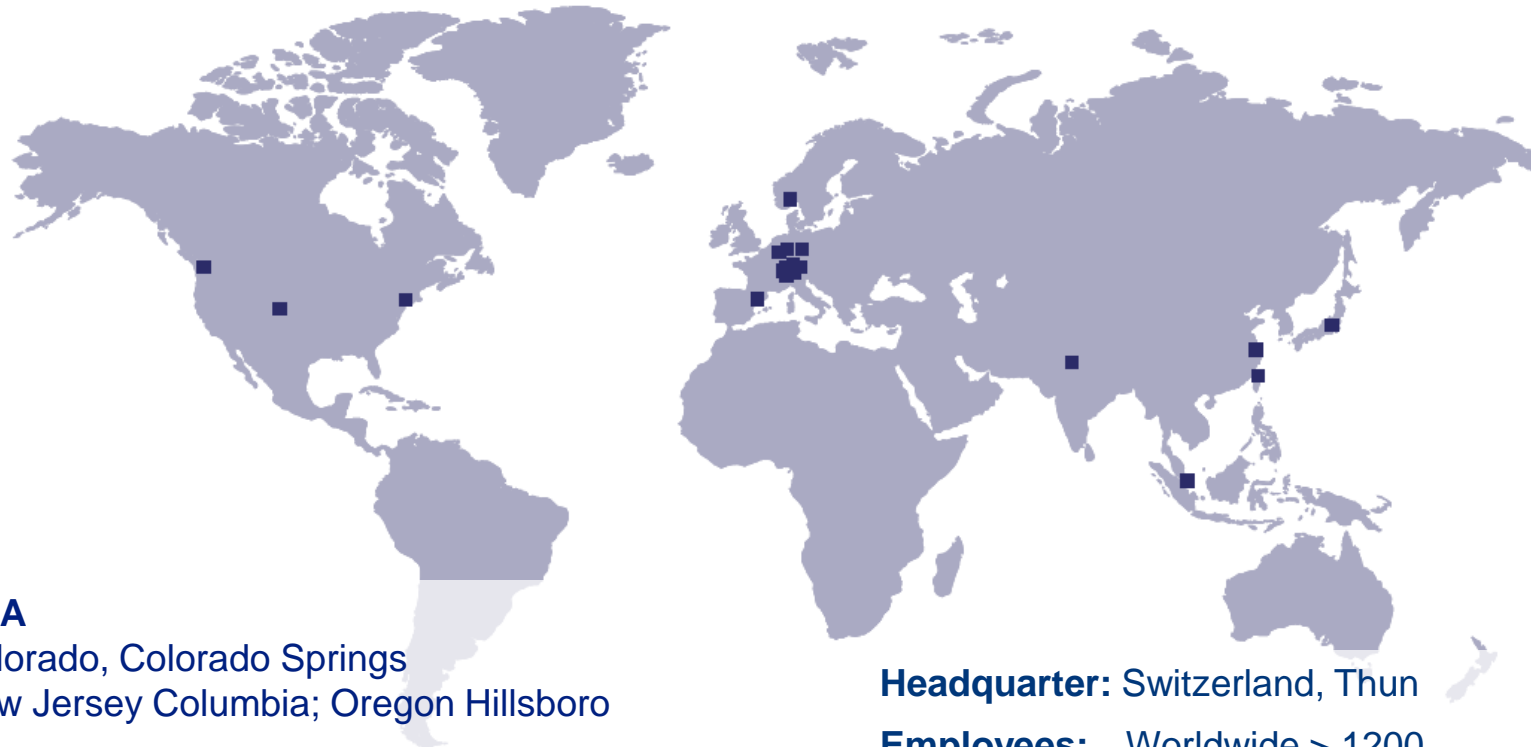
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Worldwide Presence – Close to customer



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USA

Colorado, Colorado Springs
New Jersey Columbia; Oregon Hillsboro

Europe

Switzerland Baar, Lyss, Neuchâtel, Thun;
Germany Langenfeld, Langweid, Umkirch, Halle,
Zülpich; **Norway** Porsgrunn; **Spain** Barcelona

Asia

China Shanghai; **India** Pune; **Japan** Tokio;
Singapore Singapore; **Taiwan** Taoyuan County;
Korea Seoul

Headquarter: Switzerland, Thun

Employees: Worldwide > 1200

Net sales: **2009:** 421 Mio.
2010: 357 Mio. (1. HJ) / FC: 730 Mio.

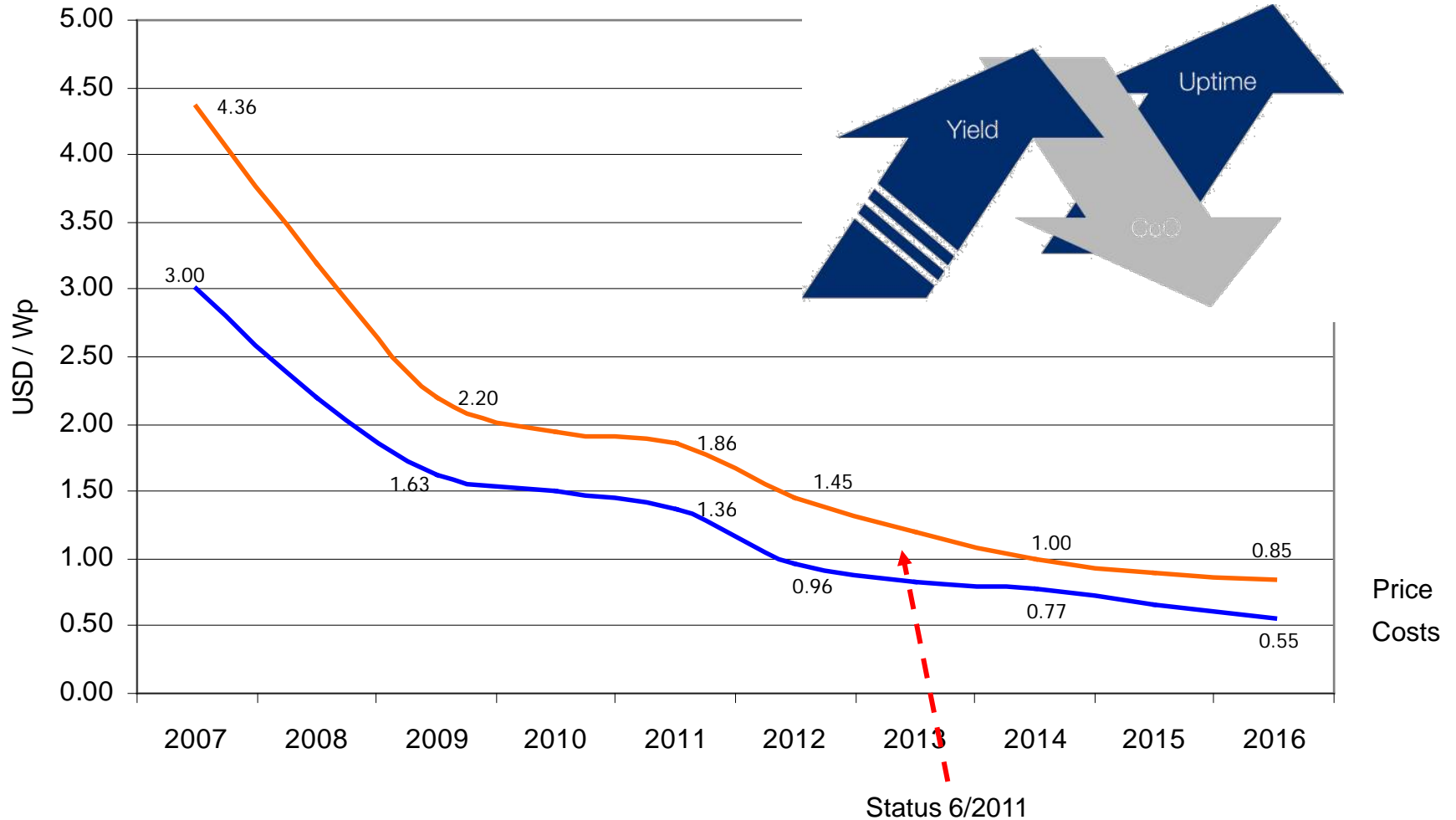
Markets: Solar, Semiconductor, Optics

Management: Peter Pauli, CEO
Patrick Hofer-Noser, CTO
Sylvère Leu, CIO
Michel Hirschi, CFO

Development of costs of Si-panels



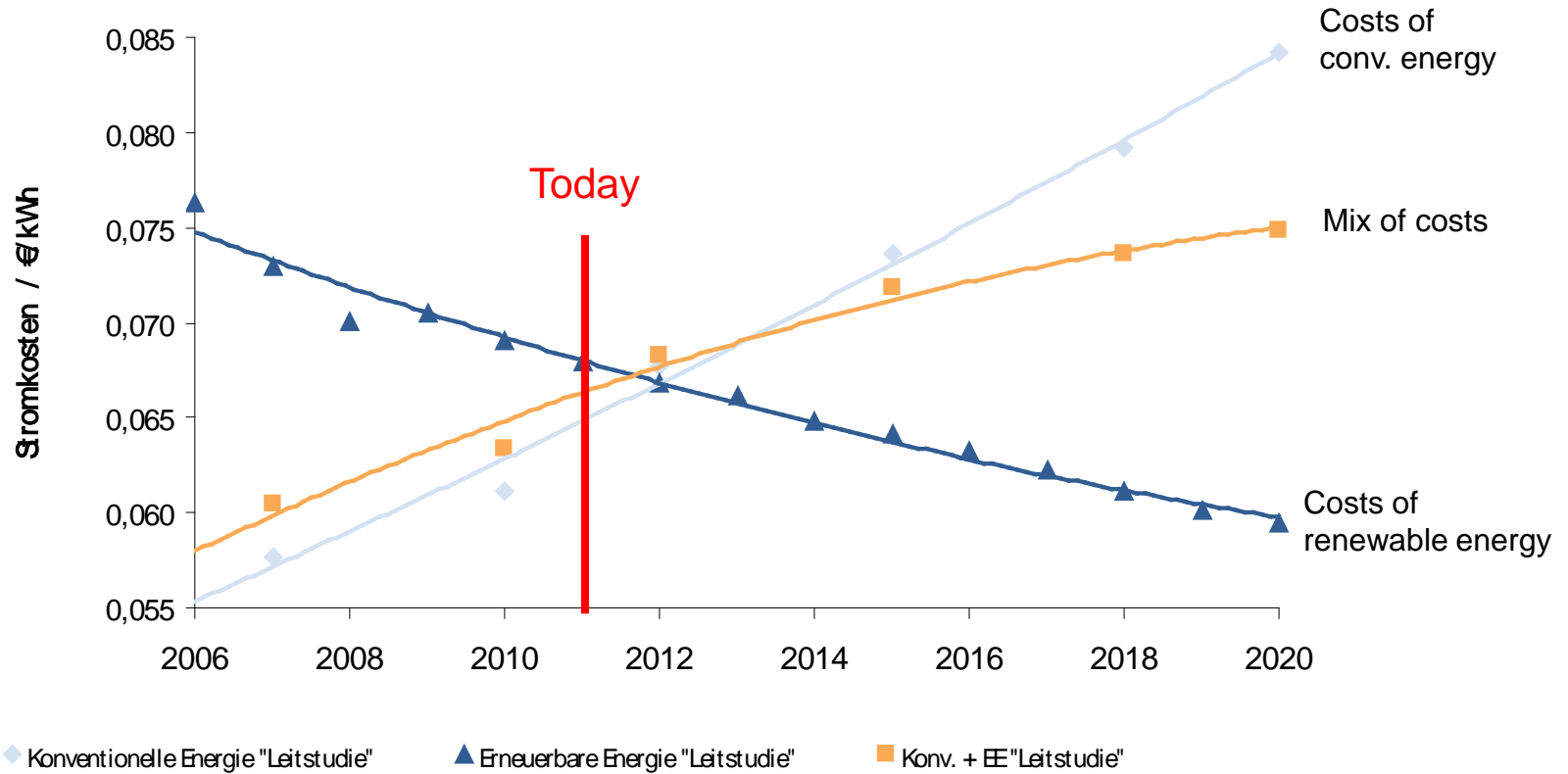
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Costs of energy in the future



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3S Swiss Solar Systems AG



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Business Model

Supplier with in-house production expertise

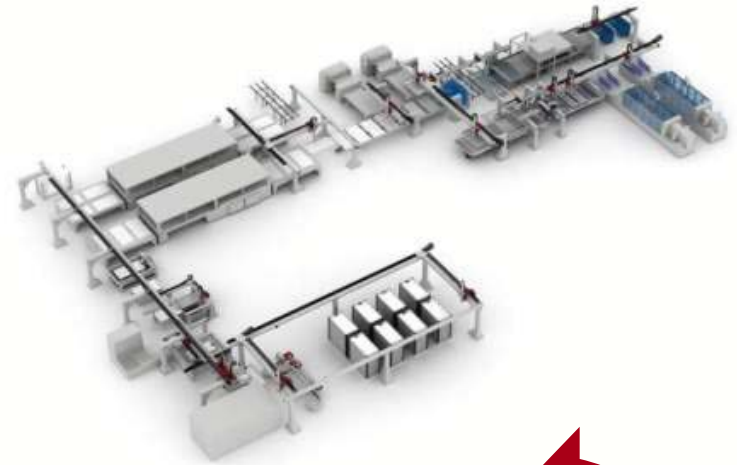


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World's market leader for production equipment for module manufacturing

Know-how accumulated from the conception and production of solar modules flows directly into further development of production equipment



Experts in design, development and certification of innovative building integrated solar systems



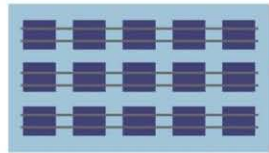
Production Process



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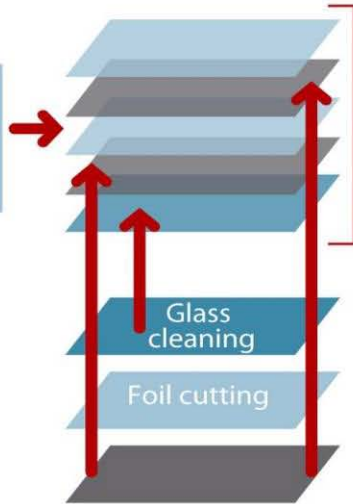
c-Si



Cells



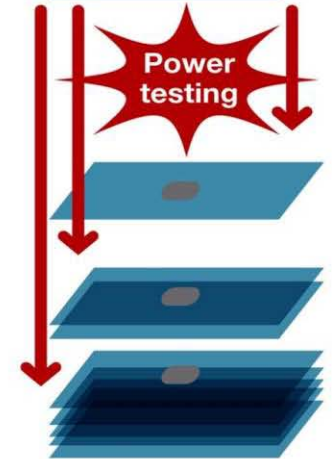
Soldering



1. Heating & vacuum & pressure
2. Cooling



1. Edge trimming
2. Frame press
3. Junction box



Sorting & packaging

High quality products manufactured in Switzerland



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Solar façade „Kleines Matterhorn“
3S glass/glass module applied in the Alps, 3'800m above sea level



MFH Bennau Plusenergiehaus
Megaslate® solar roof system



Solar façade „Monte Rosa“
High efficiency 3S glass/glass modules

Key points for successful solar building materials



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Increase of acceptance due to the availability of asthetical solutions



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Perfect integration through the use of custom made solar panels



Photovoltaic technology in combination with thermal panels & roof lights



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MegaSlate® H&S thermal panel



Integrated solar roof light



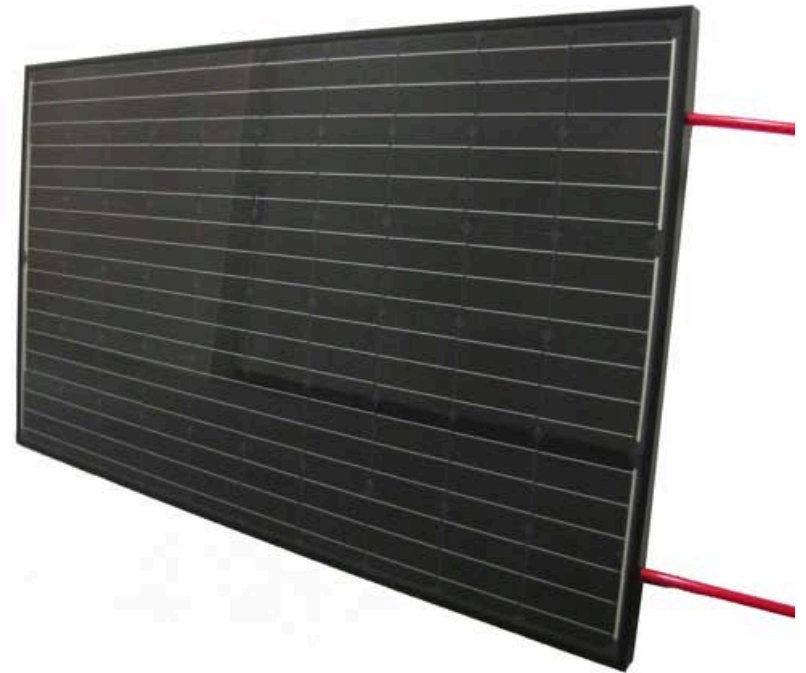
R&D projects

Hybrid solar panel



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ZeroEmission LowEx building system with heating pump & geothermal probe



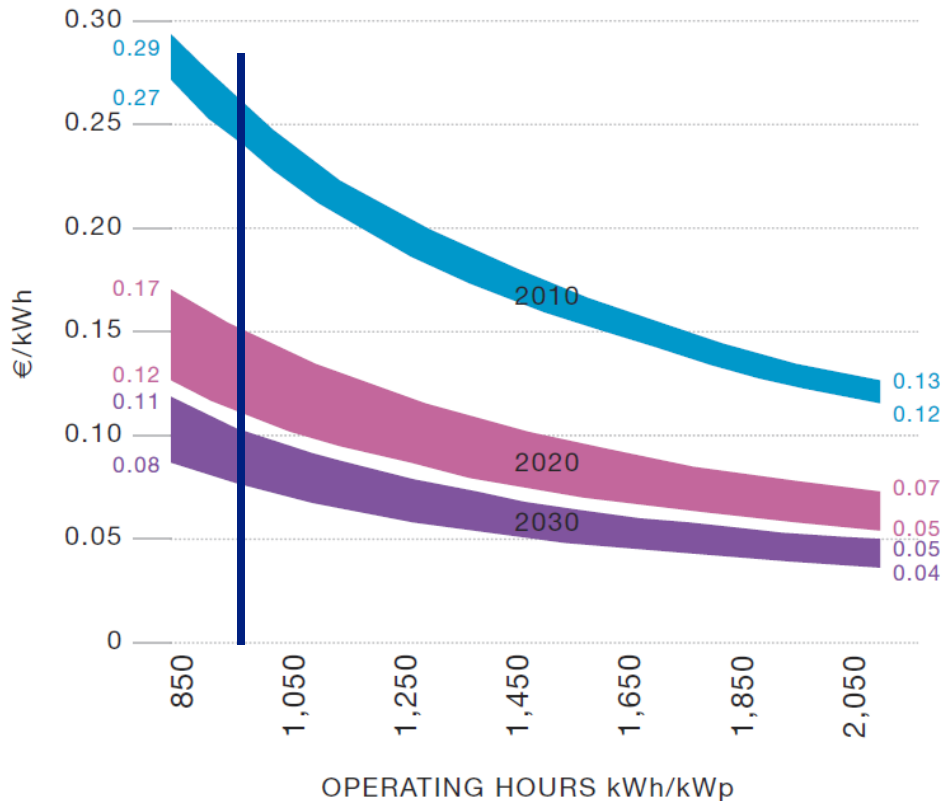
Energy costs by photovoltaic installations



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LEVELISED COST OF ELECTRICITY (LCOE)

€/kWh



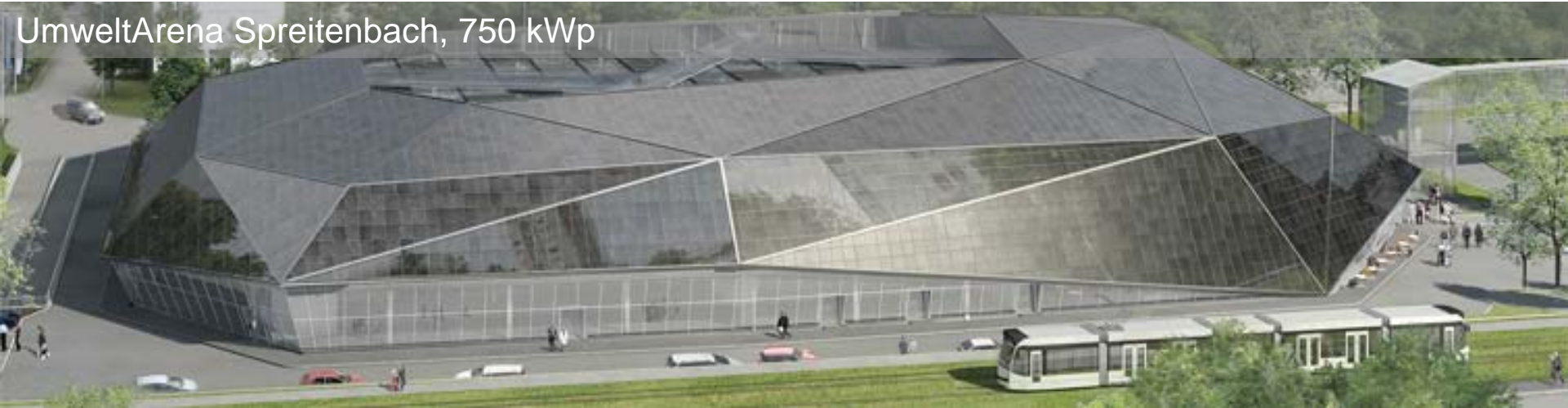
source: Greenpeace/EPIA Solar generation VI 2010.

Highlight-Projects 2011



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UmweltArena Spreitenbach, 750 kWp



Stadion Thun, 410 kWp



Tramdepot Bern, 292 kWp



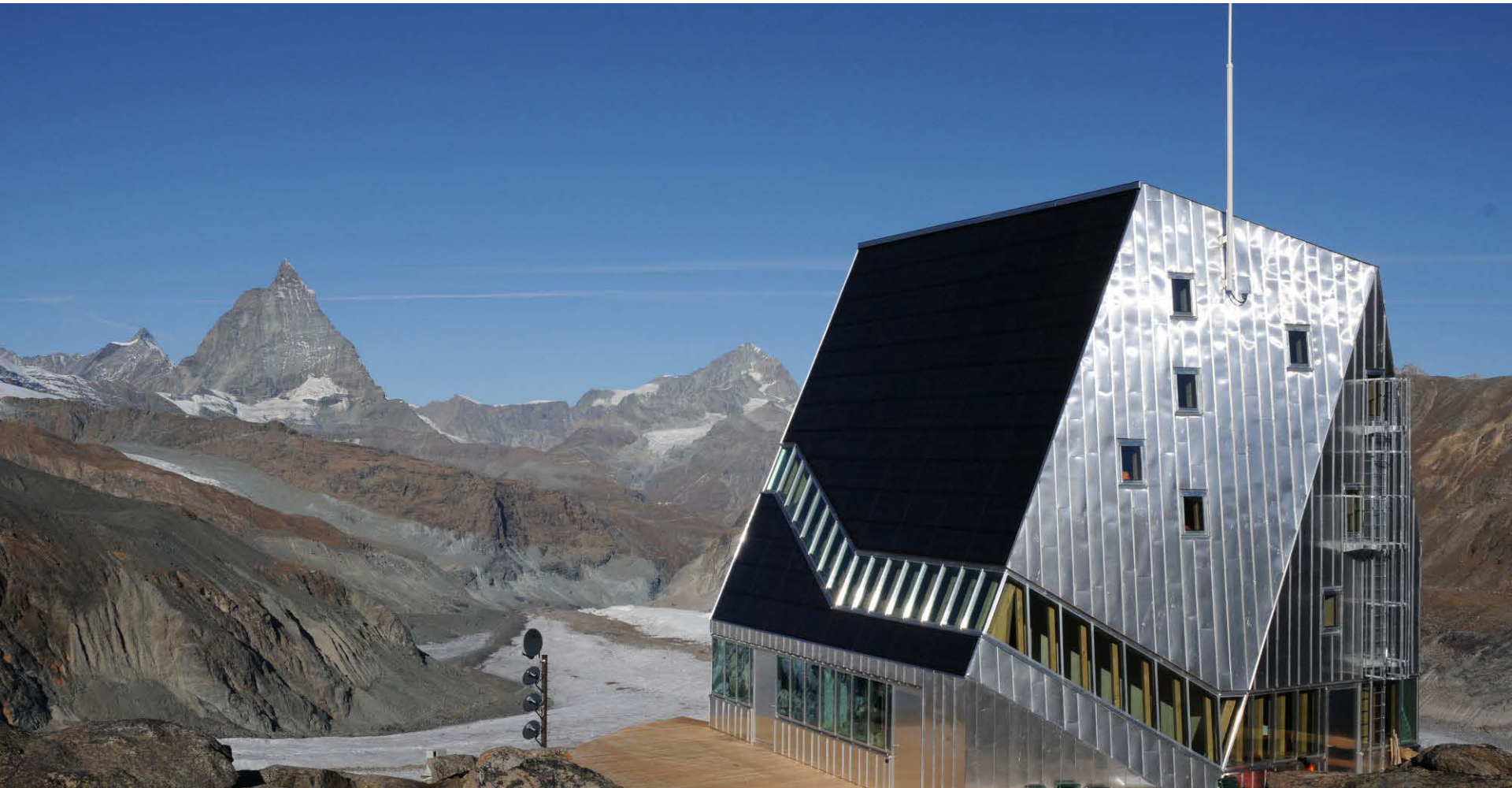
**Leader of
Solar Technology**



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