Welcome to Oerlikon Solar
Lazard Alternative Energy Conference

New York: June 3-4, 2009
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CEO
Disclaimer

This presentation is based on information currently available to management. The forward-looking statements contained herein could be substantially impacted by risks and influences that are not foreseeable at present, so that actual results may vary materially from those anticipated, expected or projected.
Agenda

1. OC Oerlikon Overview
2. Oerlikon Solar Segment Overview
3. Solar Market
4. Highlights 2008
5. Business Snapshot 2009
6. Focus on Cents per kWh
7. Progress on the Path to Grid Parity
8. Proven Thin-Film Manufacturing Solutions
enabling high performance
Enabling high technology

The Oerlikon group is one of the most innovative industrial groups in the world.

We are active in various markets around the world, machine and plant engineering, solar technology, thin-film coating, vacuum systems, textile machines, drive systems and precision components.

With over 18,000 employees at 180 sites in 37 countries, we develop solutions for leading industry applications and future-oriented markets.
Six areas of high tech competencies
Overview of 2008

Oerlikon Textile
Market pos. Sales CHF 08 Employees (31.12.2008)
# 1-2 1,690m 7,008

Oerlikon Coating
# 1 509m 2,892

Oerlikon Solar
# 1 598m 868

Oerlikon Vacuum
# 2 465m 1,583

Oerlikon Drive Systems
# 1-4 1'204m 5,080

Oerlikon Advanced Technologies
# 1-4 284m 805

Total Group: (FY 2007)
- CHF 4.8 billion Sales
- CHF 0.5 million EBITDA
- CHF 274 million R&D investment / 6,700 living patents / 1,500 engineers
Oerlikon Solar
Segment Overview
Three consecutive years of profitable growth

(in CHF m)

Orders received

<table>
<thead>
<tr>
<th>FY 07</th>
<th>FY 08</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>650</td>
<td>566</td>
<td>-13%</td>
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Sales

<table>
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<th>FY 07</th>
<th>FY 08</th>
<th>Change</th>
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<tr>
<td>266</td>
<td>598</td>
<td>+125%</td>
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EBIT

<table>
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<th>FY 07</th>
<th>FY 08</th>
<th>Change</th>
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</thead>
<tbody>
<tr>
<td>63</td>
<td>107</td>
<td>+70%</td>
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</table>

17.8% EBIT margin in FY 2008

Business Development

- Further strong market growth in 1HY08, financial crisis triggered temporary “stand-still” in new orders in 2HY08
- Oerlikon Solar recognized technology leader in thin-film silicon, technology roadmap for 0.70$/Wp
- Thin-film remains fastest growing PV market segment

Key Topics

- Delivering all projects on schedule and performance, 1st micromorph SOP
- Manufacturing capacity expansion Europe, Flextronics partnership; pilot line Trubbach in operation
- >100% sales growth despite customer project delay
- amorph|HIGH PERFORMANCE launched, master TÜV certification

Outlook / Priorities

- Fundamental needs and benefits of PV unchanged, political winds favorable
- Focus on new customers with financial strength, leverage TEL partnership to maintain 2008 order levels
- Stay on R&D / technology roadmap
- Adjust expansion pace to market conditions
A global footprint and growing

<table>
<thead>
<tr>
<th>North America</th>
<th>Europe</th>
<th>Asia</th>
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</thead>
<tbody>
<tr>
<td>Sales / Business Dev.</td>
<td>Oerlikon Solar Headquarters</td>
<td>Sales</td>
</tr>
<tr>
<td>Strategic Sourcing</td>
<td>Sales</td>
<td>Sourcing Hub</td>
</tr>
<tr>
<td>Customer Support</td>
<td>Operations</td>
<td>Customer Support &amp; Training</td>
</tr>
<tr>
<td></td>
<td>Customer Support &amp; Training</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Advanced R&amp;D / Pilot Line</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Product Development</td>
<td></td>
</tr>
</tbody>
</table>
TEL and Oerlikon Solar join forces in Asia

TEL becomes the exclusive representative and installation and service provider in parts of Asia, Oceania and Japan.
Oerlikon Solar’s mission is to make solar power economically viable.
Business Snapshot

- Thin-Film silicon continues to be the fastest growing sector of the PV market.
- The technology is well positioned to deliver competitive lowest cost per KWh.
- Oerlikon Solar has become a leading player in Thin-Film PV.
- All projects delivered on schedule and on performance.
- Greater than 100% year on year revenue growth since 2006.
- Technology roadmap on schedule for $0.70/Wp by end of 2010.
- Proven ability to scale. World class sales, manufacturing and support partnerships with Flextronics and TEL.
Strong upstream position in the thin-film silicon PV value chain

End-to-end solutions: Provide customers with the entire scope of equipment and processes for thin-film silicon PV manufacturing

Front-end production steps – deposition and laser patterning

Back-end production steps – automation, pre and post processing to prepare glass substrates and finish the modules

Tools: Supply customers with all three critical tools in the thin-film silicon PV manufacturing process (TCO, LSS and PECVD)

Business services/ maintenance: Offer additional services to ensure that customers are provided with manufacturing and maintenance support
Solar Market
Drivers for new energy sources
Fundamentals don’t change

- Increased Energy Demand
- Rising Costs
- Diminishing Fossil Fuel Resources
- Environmental Concerns and Regulations
- National Security
Fast growing global energy demand
Total electricity production mix

World electricity production in 2006 was 19 million GWh total.

Source: EIA
Long term global energy supply

Forecast of the German Scientific Advisory Board

Source: solarwirtschaft.de
Growth in the PV market
Thin-Film to grow faster than the rest of the solar market

Thin-Film expected to increase strongly in the next 5 years, gradually gaining market share.
Why thin-film instead of c-Si?
Absolute lowest cost of electricity!

- Much lower manufacturing cost than c-Si
- Lower efficiency does result in slightly higher BOS cost
- However, overall result is lowest cost of electricity

- Better performance at higher operating temperatures
- Better performance in diffused light, wider range of incidence angles
- Better suited to building integrated applications

- Higher margins in manufacturing
- Higher rates of return on investment for solar projects
## Comparison of thin-film technologies

### Silicon based thin-film technologies have the highest cost reduction potential

<table>
<thead>
<tr>
<th>Technology</th>
<th>Silicon-based</th>
<th>CdTe</th>
<th>CIS, CIGS, CIGSS</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Amorphous silicon</td>
<td>Amorphous silicon/µ-Si</td>
<td>Volume production</td>
</tr>
<tr>
<td>Development status</td>
<td>Volume production</td>
<td>Start of volume production</td>
<td>Start of volume production</td>
</tr>
<tr>
<td>Stabilized module efficiency</td>
<td>5% – 8%</td>
<td>8%-10%</td>
<td>8% – 11%</td>
</tr>
<tr>
<td>Projected stabilized module efficiency in 2010</td>
<td>6% – 8%</td>
<td>10%-12%</td>
<td>9% – 11%</td>
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<tr>
<td>Price</td>
<td>€2.0/Wp</td>
<td>€2.0/Wp</td>
<td>€1.5/Wp</td>
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<tr>
<td>Projected price in 2010</td>
<td>€1.3/Wp</td>
<td>€1.4/Wp</td>
<td>€1.1/Wp</td>
</tr>
<tr>
<td>Projected available production capacity in 2010</td>
<td>480 MW</td>
<td>960 MW</td>
<td>1,440 MW</td>
</tr>
<tr>
<td>Advantages</td>
<td>Established production and field track record</td>
<td>Stable efficiency</td>
<td>Lowest production cost per watt</td>
</tr>
<tr>
<td></td>
<td>Stable efficiency</td>
<td>Highest cost reduction potential</td>
<td>First Solar with mass production</td>
</tr>
<tr>
<td></td>
<td>Ideally suited for large scale applications</td>
<td></td>
<td>Attractive cell efficiencies in lab environment</td>
</tr>
<tr>
<td>Main issues</td>
<td>Currently low module efficiency</td>
<td>Safety/ toxicology</td>
<td>Process complexity and resultant reliability</td>
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<tr>
<td></td>
<td></td>
<td>Future Te availability</td>
<td>Little volume production data</td>
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<tr>
<td>Players</td>
<td>&gt;35 players</td>
<td>Limited players</td>
<td>&gt;25 players</td>
</tr>
</tbody>
</table>

* According to Oerlikon Solar estimates
Key policy market drivers and trends

China / Japan
- Recent announced solar incentives via 'Tentative Solar Energy Photo-electricity Construction Application Finance Subsidy Fund'
- New program will pay up to 20 RMB/ watt (US$2.93) for projects of 50 kW and above
- Subsidies only for leading edge technology products
- No details yet on overall size, duration of the plan or installation goals
- Japan added plan for solar panel subsidy in Q2 09

USA
- Federal tax benefit
  - Current stimulus legislation
    - ITC liquidity, manufacturing tax credit, loan guarantees, large scale government procurement
  - Additional legislation expected
    - National renewable energy requirements, carbon cap and trade system
- State level policies
  - California
    - Renewable Portfolio Standard, expect feed-in tariff policy for 1-20MW projects
  - Florida, Texas, NY
    - Incentives being debated

European Union
- Feed-in tariff is primary market driver
  - Germany remains stable, though decline in tariff will require lower costs
  - Spain limits MW’s
  - Emerging FiT markets – Italy, Greece, France, Bulgaria, Czech Rep

European RE and PV targets – reality or posturing?
- EPIA Goal – 12% PV electricity by 2020
- Germany Goal (BEE) – 47% RE (incl. 7% PV) by 2020

Recent positive market developments worldwide.
Thin-film silicon equipment market
Oerlikon Solar has the largest installed base for thin-film silicon PV

Total market size of thin-film silicon equipment

Market size: €1,100 million

Source: Oerlikon Solar

Thin-film silicon end-to-end (moved-in)

As of 12/08

Market size: €1,100 million

Source: Oerlikon Solar

Thin-film silicon is the most well-developed technology and Oerlikon Solar is ideally placed to capitalize on its growth potential.
Highlights 2008
Highlights in 2008
What was achieved

- Established as a recognized technology leader
- Manufacturing capacity expanded in Europe
- Strategic manufacturing partnership with Flextronics
- Strategic sales and service partnership with TEL
- Expanded low cost sourcing supply chain in Asia
- Expanded service operations base in Asia
- Pilot line officially opened in Switzerland
- More than 900,000 panels manufactured by our customers
- Installed customer capacity increased to more than 350 MW
Highlights in 2008
Technology achievements

- Launched: amorph!HIGH PERFORMANCE > 7% efficiency
- Received: IEC master certification from TÜV
- Achieved: Champion cell above 13% efficiency for Micromorph®
Highlights in 2008
New customers in production

- Start of production at Sun Well (Taiwan)
- Start of first Micromorph® production at Inventux (Germany)
Customer base
International customer base with strong traction due to high value proposition

- The key for success and customer traction is the record of delivering fabs on schedule at unequalled performance levels.
- Providing a unique value proposition and enabling our customers to achieve rapid and predictable entry into the thin-film silicon module production by providing the fastest time to market.
- Critical performance characteristics of the installed production lines are guaranteed, giving our customers certainty of their investments.
- Superior end-to-end fab support, encompassing equipment move-in, installation, testing as well as fab ramp-up and optimization.

Breakdown of Revenues 2008 (based on MW)

- China: 30%
- Taiwan: 19%
- Spain: 15%
- Germany: 11%
- Switzerland: 11%
- Greece: 14%
- Other: 11%
Solar customers
Market players
Solar customers
Our customers
## Operational silicon thin-film fields

### 3.4 MWp a-Si installation (Zahna, Germany)
- 39,000 thin-film modules & 747 trackers
- Start of operation: 19 February 2009
- System integrator: AC Energy GmbH & Co. KG
- Capex: approx. €11 million

### 1.3 MWp a-Si installation
Cooperation with Schott Solar on thin-film silicon development

Start of first micromorph® production at Inventux

Champion cell with above 13% efficiency for micromorph®

First micromorph® end-to-end production line contract

Sun Well ramps first Asian line

Contracts for end-to-end solutions

VHF PECVD deposition technology

Oerlikon displays first functional 1.4 m² a-Si module

Oerlikon presents first micromorph® tandem module ~125W

Micromorph® solar cell (tandem amorphous, microcrystalline)

First R&D equipment delivered to Schott Solar

First 40MWp front end line contract with Ersol

Oerlikon presents first micromorph® tandem module ~125W

Sun Well SOP on Asian line

Inventux achieves record efficiency with micromorph® 120W (>9% efficiency)

Recorded full size module performance of 151W (>11% efficiency)
Business Snapshot 2009
## Business snapshot

### Short term challenge, long term opportunity

**In the first half of 2008 Oerlikon Solar established a strong market position.**

- Order targets were being met.
- Demonstrated technical leadership with highest performance.
- All projects delivered on time.
- All projects meeting performance promises.

**And then... the financial crisis hit!**

- New orders delayed due to the inability for customers to get financing.

**Expect 6 to 9 months before growth returns.**

- Customers build plants today for markets in 2010.
- Fundamental need and benefits of PV have not changed.
- Political winds are favorable.
Priority one
Focus on customers

- Keep existing customers satisfied by continuing to deliver on time and at or above performance.
- Focus on new customers with state or balance sheet funded projects.
- Enhance Customer Service Program.
Priority two
Full speed on research and development

- Stay on our technology roadmap.
- New upgraded products stay on schedule.
- $0.70/Wp (Grid Parity) offered by end of 2010.
Priority tree
Operational efficiency

- Cost reduction
  - headcount reduction
  - overhead trimmed
  - simplified organizational structure
  - short-time work and holiday reductions extended

- Delay non-priority programs

- Manufacturing, production and assembly activity will be scaled back temporarily

- Strict cash management
  - Manage supplier’s obligations
# Project update

<table>
<thead>
<tr>
<th>Customer</th>
<th>Technology</th>
<th>Type</th>
<th>Contract Signed</th>
<th>Move-In On-Time</th>
<th>SOP On-Time</th>
<th>MW</th>
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<td>Bosch/Ersol</td>
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<td>Equipment</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>40</td>
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</table>

Total more than 600 MW
Highlights in 2009
What has been achieved so far

- Sun Well 40 MW production level reached one month ahead schedule
- Joint forces with TEL for sales and customer support in parts of Asia, Oceania and Japan
- Oerlikon Solar Receives Micromorph® Master Certificate
- New record Micromorph® module with 151 Watt performance and over 11% efficiency (initial)
- Oerlikon Solar KAI 1200 PECECVD system wins the Cell Award 2009 in the category “Best technical product for thin-film module manufacturing” shortlisted against AMAT’s Sunfab!
Focus on cents per kWh
Panel price is not the whole story
Module cost of ownership calculation

Material Cost
Gas, glass, lamination, foil, consumables, etc.

Investment Cost
Equipment, line automation, back-end, etc.

Labor Cost
Operators, technicians, management, etc.

Calculation

\[
\frac{\text{Money}}{\text{Wp}} = \frac{1}{\text{Power} \times \text{Yield}} \times \left( \frac{\text{Material Cost}}{\text{Throughput} \times \text{Uptime}} + \frac{\text{Investment Cost}}{\text{Yield}} + \frac{\text{Labor Cost}}{\text{Uptime}} \right)
\]
Price development along PV value chain
Oerlikon Solar Micromorph® Panel

Current cost structures – 9% efficiency

Roadmap to end of 2010 – 10% efficiency

Assumptions:
- 10 MW project in California
- ITC & Accelerated Depreciation
- 58% Equity@12%, 42% Debt@7%

Grid Parity approx: $0.12/kWh

Grid Parity approx: $0.13/kWh

Ownership Cost (NPV) = Cost of Electricity $0.16/kWh

Ownership Cost (NPV) = Cost of Electricity $0.09/kWh
Cost of ownership development to grid parity
Oerlikon Solar Thin-Film, Micromorph® Roadmap

% Cost

2008 | Material cost | Capex and others | Efficiency | Labor | Maintenance | 2010

$ 1.50/Wp | $ 0.70/Wp
Path to grid parity
Oerlikon Solar leading technology
Proven Thin-Film Manufacturing Solutions
Thin-Film solar cell basics

Thin-Film Solar Modules

Cell Structure

Manufacturing

- Glass
- Front Contact
- PV Layers
- Back Contact
- White Reflector
- Lamination
- Glass

Amorph

Micromorph® Tandem

Thin-Film
Micromorph® process technology

Cell Cross Sections

<table>
<thead>
<tr>
<th>Amorph Single Junction</th>
<th>Micromorph® Tandem Junction</th>
</tr>
</thead>
<tbody>
<tr>
<td>a-Si</td>
<td>μc-Si</td>
</tr>
</tbody>
</table>

Spectral Cell Sensitivity

- a-Si Top Cell
- μc-Si Bottom Cell
- Micromorph® Tandem Junction

Micromorph® technology delivers up to 50% more power.
Oerlikon provides end-to-end (E2E) production solutions...

Front-End
- Clean
- TCO FC
- Laser
- Clean
- PECVD
- Laser
- TCO BC
- Laser
- Voc

Line Automation

Back-End
- Contacted Tested Device
  - Contact
  - White Reflector
  - Edge Isolation
  - Flasher

- Encapsulation-Lamination
  - Cross Contact
  - Lamination
  - Junction Box
  - Flasher
...and all critical components for module production...

- Laser Scribers (LSS)
  Define Cells
  - Used for patterning
  - Subdivide the continuous thin-film layer into individual cells and create serial connections between them

- PECVD (KAI)
  Deposit PV Material
  - Applies the photovoltaic thin-films which convert light into electrical energy
  - Capacity to produce both amorphous solar modules and micromorph solar modules

- LPCVD (TCO)
  Deposit contacts
  - Allows applying transparent conducting front and back contacts
  - Base electrode (cathode) is deposited followed by the application of the anode
...with demonstrated rapid ramp-up

Ramp-up phase

Module power distribution ramps

First 25,000 panels

Second 25,000 panels

Third 25,000 panels

200% improvement of production levels at week 21

Ramp-up yield

• Target yields achieved after four weeks
• Yield much stable compared to earlier project
Short term challenges, long term opportunities
Solutions for a solar powered world

Thin-film is the fastest growing PV segment, creating a USD 45 billion total solar market opportunity by 2012

Oerlikon Solar on track to offer grid parity solutions by the end of 2010

Proven manufacturing solutions
More than 900,000 panels already produced
Calendar and contact details

August 27, 2009
- Media and analyst conference on semi-annual results 2009, SIX Zurich

October 22, 2009
- Key figures for the third quarter 2009

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