Silevo Overview

June 2013
## Corporate Overview

<table>
<thead>
<tr>
<th>Established</th>
<th>2007. U.S. Corporation</th>
</tr>
</thead>
</table>
| Locations   | HQ & R&D in Fremont, CA  
Manufacturing in Hangzhou, China |
| Founders    | Former Applied Materials executives with device physics & factory automation expertise |
| Technology  | Triex® cells & modules  
>22% cells  
>18% modules  
Hybrid tunneling-junction cell architecture |
| Manufacturing | 2013: 30 MW cell production  
2014: 230 MW cell production  
Tier 1 contract manufacturers for module assembly |
Silevo Value Chain

Poly silicon production → Wafer production → PV cell R&D → PV cell production → PV module design → Sales & Marketing → EPCs → Dealers/Installers → Installation

- Leverage Tier 1 CMs for module assembly
Silevo’s innovative Tunneling Junction cell architecture is the engine that powers its signature Triex solar modules.

- Amorphous Si | Oxide | n type cSi
  - High efficiency
  - Low temperature coefficient

- Cu Metallization
  - Eliminates expensive silver paste
  - Low resistivity Reduces shading effect
  - Enables larger size solar cells

- 6 core process steps
  - High volume manufacturing
Champion Cell

22.1% Efficiency achieved on 125 x 125mm cells. Validated by Sandia National Laboratories. Production within .5% of champion.
Triex Modules

**T96-Series**
- 96 5” cells
- 290 – 305Wp
- 17.2 – 18.1%
- -0.27%/C temp. co.
- PTC Ratio: 93.5%
- 1600mm x 1056mm
- Silver frame (blk optn)
- UL 600v | IEC 1000v
- MC4 connectors

**T72-Series**
- 72 5” cells
- 220 – 235 Wp
- 17.2 – 18.4%
- -0.27%/C temp. co.
- PTC Ratio: 93.5%
- 1586mm x 806mm
- Black frame
- UL 600v | IEC 1000v
- MC4 connectors

10 year product warranty & 25 year linear warranty
No. 1 PTC Rating for c-Si based Modules

Silevo PTC ranking validates Real World Performance Advantages

PTC: PV-USA Test Conditions 20C Ambient 10m above ground level, 1000W/m², 1.5 Air Mass, 1m/s Wind Speed

List of Eligible SB1 Guidelines Compliant Photovoltaic Modules

Updated as of September 4, 2012

Updated as manufacturer’s provide laboratory-tested data per Appr Electric Incentive Programs (Senate Bill 1), Fourth Edition.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Module Manufacturer</th>
<th>Module</th>
<th>PTC/STC Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Silevo</td>
<td>Triex R &amp; U Series</td>
<td>93.49%</td>
</tr>
<tr>
<td>2</td>
<td>Sanyo (Panasonic)</td>
<td>VBHN245SA06</td>
<td>93.18%</td>
</tr>
<tr>
<td>3</td>
<td>Suntech</td>
<td>PLUTO310-Vdx</td>
<td>92.94%</td>
</tr>
<tr>
<td>4</td>
<td>Sunpower</td>
<td>SPR-415E-WHT-D</td>
<td>92.82%</td>
</tr>
<tr>
<td>5</td>
<td>American Solar Wholesaler</td>
<td>ASW-235M</td>
<td>92.62%</td>
</tr>
<tr>
<td></td>
<td>Shangpin Solar</td>
<td>SPSM-235D</td>
<td>92.62%</td>
</tr>
<tr>
<td>7</td>
<td>Yingli</td>
<td>YL270C-30b</td>
<td>92.26%</td>
</tr>
<tr>
<td>8</td>
<td>Trina</td>
<td>TSM-315PA14A</td>
<td>91.90%</td>
</tr>
<tr>
<td>9</td>
<td>Mitsubishi</td>
<td>PV-UJ224G6</td>
<td>91.83%</td>
</tr>
<tr>
<td>10</td>
<td>Canadian Solar</td>
<td>CS6P-235PX</td>
<td>91.79%</td>
</tr>
</tbody>
</table>
Case Study. Netherlands
Silevo High efficiency modules vs Standard Crystalline modules
## Module Technical data

### Standard Crystalline

- **Power:** 245Wp  
- **# Cell:** 60 x 6 inch cell  
- **Efficiency:** 15.1%  
- **Size:** 1,640m × 0,992m  
- **Area:** 1,63m²  
- **Temp coefficient:** -0.45%/°C  
- **NOCT:** 45±2°C  
- **Technology type:** Standard PN junction, crystalline

### SilevoT Series

- **Power:** 295Wp  
- **# Cell:** 96 x 5 inch cell  
- **Efficiency:** 17.6%  
- **Size:** 1,586m × 1,056m  
- **Area:** 1,67m²  
- **Temp coefficient:** -0.27%/°C  
- **NOCT:** 46±2°C  
- **Technology type:** Hybrid Tunelling junction design.
### Site location

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>De Bilt, The Netherlands</td>
</tr>
<tr>
<td>Latitude</td>
<td>52.1°N</td>
</tr>
<tr>
<td>Longitude</td>
<td>5.1°E</td>
</tr>
<tr>
<td>Roof inclination</td>
<td>30°</td>
</tr>
<tr>
<td>Azimuth</td>
<td>0°</td>
</tr>
<tr>
<td>Roof dimension</td>
<td>14.5m x 4.2m</td>
</tr>
<tr>
<td>Roof area</td>
<td>60.9m²</td>
</tr>
</tbody>
</table>

The simulations were performed using the same geographic parameters as mentioned above. No changes were made on either competitor or Silevo PAN files.
Simulation Results
## PV Syst Simulation Summary

<table>
<thead>
<tr>
<th></th>
<th>Silevo 295Wp</th>
<th>Standard Module 245Wp</th>
<th>Silevo advantage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Yearly production in MWh</strong></td>
<td>9,92</td>
<td>8,03</td>
<td>+23,54%</td>
</tr>
<tr>
<td><strong>KWp installed</strong></td>
<td>10,32</td>
<td>8,82</td>
<td>+17,01%</td>
</tr>
<tr>
<td><strong>System efficiency</strong></td>
<td>15,76%</td>
<td>12,93%</td>
<td>+21,89%</td>
</tr>
<tr>
<td><strong>KWh/KWp/Year</strong></td>
<td>960</td>
<td>911</td>
<td>+5,4%</td>
</tr>
<tr>
<td><strong>Losses from Array to Grid</strong></td>
<td>-9,4%</td>
<td>-14,2%</td>
<td>&gt;51% less</td>
</tr>
</tbody>
</table>

On each parameter the advantage is clear.
Silevo Advantage

**15,1% 245Wp Module**

**SOLAR CAPACITY:** 8,82 kW

**ANNUAL GENERATION:**
- Munich, DE: 9,65 MWh
- DeBilt, NL: 8,03 MWh
- Uccle, BE: 7,64 MWh

**BOS & LABOR COST:** 1,35 €/Wp

**17,6% 295Wp Module**

**SOLAR CAPACITY:** 10,32 kW

**ANNUAL GENERATION:**
- Munich, DE: 11,96 MWh
- DeBilt, NL: 9,92 MWh
- Uccle, BE: 9,45 MWh

**BOS & LABOR COST:** 1,08 €/Wp*

*Silevo modules provide >23% more energy in the same area, thereby decreasing €/Wp BOS & labor costs.*

*GTM research. Excludes inverter.*
Energy harvest comparison

Annually, Silevo modules generate >23% more kWh than Standard modules.
Revenue comparison

Silevo modules bring 10,000€ more savings than Standard modules
Revenue vs Turnkey installation costs

With a price differential of approx. 0,30€/Wp:
- Silevo modules breakeven at same time as standard modules.
- Silevo modules generate more revenue.
- Silevo modules improve ROI significantly
## Module Value

<table>
<thead>
<tr>
<th></th>
<th>Standard Module</th>
<th>Silevo</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wp Module</strong></td>
<td>245 Wp</td>
<td>295 Wp</td>
</tr>
<tr>
<td><strong>Number of modules</strong></td>
<td>36 modules</td>
<td>35 modules</td>
</tr>
<tr>
<td><strong>kWp installed</strong></td>
<td>8,820 kWp</td>
<td>10,325 kWp</td>
</tr>
<tr>
<td><strong>Cost of electricity</strong></td>
<td>0,21272€/kWh</td>
<td>0,21272€/kWh</td>
</tr>
<tr>
<td><strong>kWh/kWp/year (PVSYST)</strong></td>
<td>911</td>
<td>960</td>
</tr>
<tr>
<td><strong>Value of module</strong></td>
<td>0,60 €/Wp</td>
<td>1,48 €/Wp</td>
</tr>
<tr>
<td><strong>Revenue</strong></td>
<td>37,438 €</td>
<td>37,438 €</td>
</tr>
</tbody>
</table>

Silevo Modules generate more revenue/margin for the end customers. At a price of 0,60€/Wp for standard modules, to generate the same income a Silevo module would be priced at 1,48€/Wp. Any price below 1,48€/Wp is increased revenue for the customer.
Conclusion

• Silevo modules produce >23% more kWh vs Standard modules.
• ROI is significantly higher using Silevo modules.
• Although initial investment is higher, the end customer recovers their investment in Silevo modules at exactly the same time as with standard modules with a lower initial price. (9-10 years)
• After breakeven point Silevo generates far more revenue vs standard modules.
• Silevo’s module value is 1,48€/Wp to generate the same saving as 0,60 €/Wp Standard modules.