MoreSun™: Moth-Eye Nanostructure

- 4x Improvement in Reflectivity = High Performance vs. State-of-the-Art ARC
- Low cost Spray-and-Bake Process
Status & Accomplishments

MoreSun™ design win with Tier 1 glass manufacturer for solar cell module glass

- Will have two float glass plants in production by 1Q13

$240,000 received in Federal and State grants, including NSF Phase 1 (Phase 2 pending)

Expanding into architectural glass with three Tier 1s

- Signing licensing agreements during 4Q12
“Micromixers to Match Your Process”

Broad flow rate, multi-input micromixers for multi-industry Research to Volume Manufacturing

- Pharmaceuticals
- Nanoparticle Synthesis
- Continuous Flow Manufacturing

Patented multi-stage design using ultra-thin fluidic layers to increase mixing efficiency and homogeneity of product

- Uniquely enables rapid turn to custom specifications
Comparison of M11-5 to IMM SIMM-V2

Low Pressure Drop for Broad Range of Input Flow Rates

http://microflowcvo.com/
Technology & Product

Technology:
• Redox Flow Battery
• Currently using Vanadium and Iron Based Electrolytes
• Real-time monitoring of system health and performance

Product:
• 25 - 150kW systems
• <8 hours of capacity for Energy Management
• 12hr+ capacity for Backup Power
• Demand Response

• Power & Capacity decoupled
• No electrode/Electrolyte Interaction

Cell count and size determine power
 Electrolyte volume determines capacity

[Diagram showing cell counts, electrolyte volume, and power/capacity relationship]
## Competitive Solutions

<table>
<thead>
<tr>
<th></th>
<th>Lithium Ion</th>
<th>Zinc-Br</th>
<th>NAS</th>
<th>Lead Acid</th>
<th>VRB</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cost per kWh</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Capital</td>
<td>$170.00</td>
<td>&gt;$1000.00</td>
<td>$400.00</td>
<td>$600.00</td>
<td>$238.00</td>
</tr>
<tr>
<td>Replacements</td>
<td>$0.00</td>
<td>4 @ $1000.00</td>
<td>4 @ 200.00</td>
<td>3 @ 300.00</td>
<td>4 @ 238.00</td>
</tr>
<tr>
<td>Maintenance</td>
<td>$100.00</td>
<td>$5.00</td>
<td>$60.00</td>
<td>$0.03</td>
<td>$5.00</td>
</tr>
<tr>
<td><strong>Fully amortized cost</strong></td>
<td>$270.00</td>
<td>$4005.00</td>
<td>$1,260.00</td>
<td>$1,500.00</td>
<td>$1,195.00</td>
</tr>
</tbody>
</table>

### Top competitors
- Saft
- A123 Systems
- Deeya Energy
- NGK
- Solar Star
- Prudent Energy VRB Systems
- Ashlawn Energy
- Redflow

## Accomplishments

Recipient of $1.8M ARPA-E grant (Aug 2012)
- One of 19 recipients for “transformative new projects” in energy storage technologies