2008 Solar Annual Review Meeting

Session: Wafer Silicon
Company or Organization: Solaria Corporation
Funding Opportunity: PV Incubator

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SOLARIA

Budget and Solar America Initiative Alignment

Project Beginning Date	FY07 Budget	FY08 Budget	Total Budget
Dec. 2007	$0	$1.865 million	$2.778 million

- This project supports the Solar America Initiative by:
  - Effort that contributes to goal of grid parity by 2015
    - Reduced materials cost, particularly Si
    - Improved manufacturing processes and higher throughput
    - Improved reliability
  - Usage of widely available materials not traditionally in PV
  - Pursuing innovation in interconnects and packaging to low the cost of solar PV energy generation
  - Targeting $1.5/Wp cost by 2010

Project Overview

Development of a Wafer-Si Solar Cell Based Low Concentration Photovoltaic Module

- Key concepts:
  - Use significantly less Si to improve the $/kW-Hrs delivered
  - High Efficiency combined with low concentration
  - Reduce module process steps and materials
  - Increase manufacturing throughput

Project Alignment with Technology Roadmap

Roadmap: Challenge	**Solaria's approach**
Reduced materials cost, esp. Si	Significant reduction of Si per Wp Thinner wafers
Improved mfg. processes	Innovative moduling process Reduced wafer breakage
Develop low-conc. Optics and associated changes to module design	Main focus of this project
Increased Conversion Efficiency	Higher packing factor Cost effective high performance PV cells

Project Update

Program start	12/07
Prototype fabrication design; preliminary BOM	3/08
Prototype demonstration	3/08
Mfg. equipment design & Production facility layout	6/08
Outdoor performance demonstration	6/08
Internal Reliability study & Prototype reports	9/08

Past

Future

Obstacle Discussion

- Barriers encountered or anticipated that may inhibit success of programs
  - Materials availability (solar glass, Si, backsheet material)
  - Supplier focus (growth focused)
  - Unknown materials compatibility issues
  - Changes in solar policy (feed-in tariffs, time-of-day pricing per kWh) that might make PV solar less attractive in the energy market and thus unable to scale to cost target