Unleashing the Power of the Sun
PV manufacturing in the US

Dow Corning Solar Solutions
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Today's Topics

- Dow Corning and our role in solar
- Solar Energy – the fundamental challenge
- PV Manufacturing in the US - challenges and opportunities

Dow Corning Corporation

The Leader in Si-based Chemistry

- Founded in 1943 to develop, manufacture and market Si-based material solutions
- Fully integrated from feedstock to any Si-based material
- $5.5 billion in sales in 2008
- 10,000 employees worldwide
- Approximately 4-5% of sales invested in R&D

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Becoming the 'Material House' to the Solar Industry

- Mission is to become ***the* material house** to the Solar Industry
- Will achieve this goal by bringing **cost-effective Si-based solutions** that enable accelerated penetration of solar energy in the global energy market

Continued Investments in Solar Solutions

2006 First commercially viable metallurgical feedstock produced using large-scale manufacturing processes

2007 US $1 billion investment in Hemlock Semiconductor

2008 US $3 billion investment in Hemlock Semiconductor to expand polycrystalline production

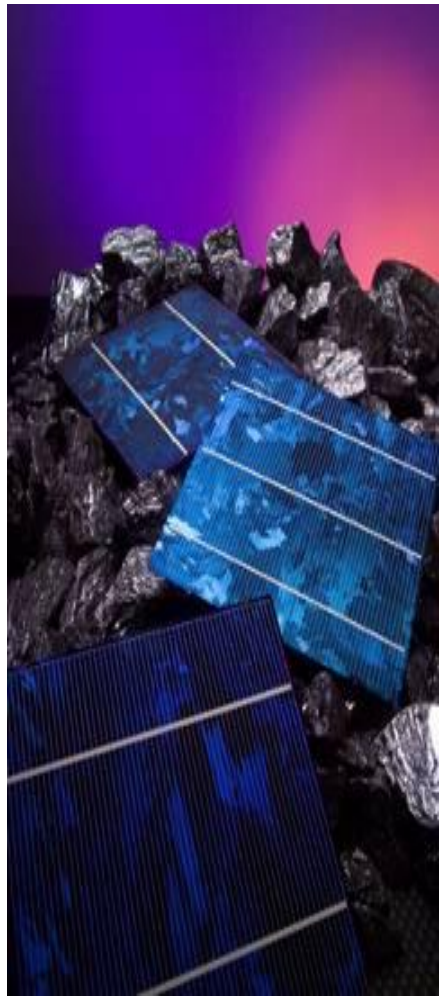
New manufacturing process lowers cost per watt of solar power

New potting agents introduced

Solar Solutions Applications Center opened in US

Investment in facility to produce monosilane gas for thin films

2009 New Korea Solar Solutions Application Center announced



Manufacturing PV in the US

- Opportunities and challenges

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The Fundamental Solar PV Challenge: Reduce cost per kWh!

- **Technology Innovation** to improve solar panel efficiency
  - mainstream c-Si PV entire value chain
  - Diversification in other types of PV technology such as Thin Film, CSP, CPV, Nano PV, Dye PV, … unlimited
- **Operational Excellence and Economy of Scale**
  - High throughput/yield through automation, process innovation.
  - Less capital investment (e.g. space & equipment) through process optimization and innovation
  - Labor efficiency – reduce labor, better management
- **Raw Material Conversion Efficiency**
  - Less raw material/Wp consumption – thinner wafer, lower kerf loss, etc.
  - Enlarge material supply to ease the high material price pressure
  - Replacement of less cost material
- **Better Durability** for solar panels towards

Critical success factors for PV manufacturing in the US

- Manufacturing needs to be backed up with world-class **innovation**
  - Applied research in academia
  - Collaboration between academia and industry
- Industry needs to collaborate to **align roadmaps**
- Investment is needed to achieve **world-class manufacturing standards** with a high degree of automation. Consistent and stringent quality standards are needed for fabrication and installation.
- **Technical talent** needs to be educated and developed to work throughout the solar industry value chain - from feedstock to installation
- **Domestic Demand** needs to be stimulated

Making America a 21st Century Solar Power

- Enact federal policies that encourage rapid growth and consumer adaptations of renewable energy.
  - Federal Tax Incentives
  - National Renewable Energy Standard
  - Federal Interconnection and Net Metering Standards
  - Feed-in tariffs
- Increase Federal Funding for Solar R&D
- Support Education, Training and Job Creation
  - Create a Green collar work force
- Establish the Federal Government as a Green Energy leader

Thank You

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