From: Allen, Meredith
Sent: Friday, March 02, 2012 11:51 AM
To: 'Kersten, Colette'
Subject: SVTC

Colette,

Attached is the presentation.

Thanks, Meredith



PGSE

The Commission Should Approve the Alternate PD

The Commission should approve the Alternate Decision which authorizes PG&E to recover net costs of \$9.9 million for a solar PV R&D project sponsored by the Silicon Valley Technology Center (California Solar PV Manufacturing Development Facility).

The net contribution by PG&E customers provides required matching funds for \$30 million in support from the US DOE, supplements \$45 million committed from other sources, including in-kind solar industry support, and does not duplicate existing R&D.

SVTC's PV MDF is a fee-for-service facility that will allow solar firms to research and test new product designs and manufacturing processes allowing for an R&D "bridge" for development of new solar PV technologies.

PG&E's customers will benefit if the costs of solar PV are reduced by the PV MDF facilitating the development of new technologies.

SVTC's Solar PV MDF has received support from various levels of government, the solar PV industry, and major research institutions.



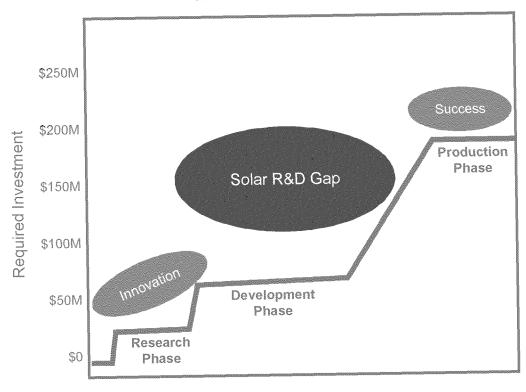




SVTC's PV MDF Will Bridge the Solar R&D Gap

- To prove viability, expensive, capital-intensive laboratory "test-bed" facilities must be available to solar start-ups
- The PV MDF will enable US solar companies to bridge the solar R&D "gap" by "derisking" technology through research and testing in an "open" laboratory





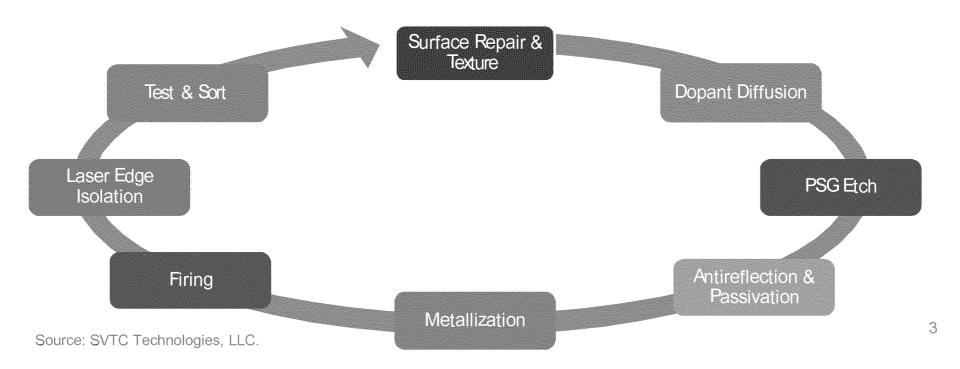
Source: SVTC Technologies, LLC.

PGSE

[®]SVTC's PV MDF Promotes Innovation

Module┐ Fabrication	Texture Alkaline Dry Etch PSG Etch	Dopant Diffusion P-&-B-doping Inkjet LDS-Emitter	ARC-&7 Passivation Direct;plasma a Sidep ALDTAl 203	Contactless in Printing Ni/Cu Plating Aerosol	Custom #1 Proprieta Tools
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Customer┐	Customer	Customer7	Customer
#1	#2	#3	
Proprietary⊺	Proprietary⊺	Proprietary⊺	Proprietary
Tools	Tools	Tools	Tools



SVTC's PV MDF Provides Valuable Service to Users

Promotes Development

- Significantly lower development costs and shorter development times
- Users own all IP they develop
- Complete starting-point process library to accelerate development
- Support for new start-ups developing first products and for established manufacturers developing next-gen products

Accessibility to Tools

- Complete analytical facilities (including failure analysis) and custom module assembly
- Cell and module test, certification and reliability
- Pilot production capacity
- Specialized engineering expertise (device design, process development, modeling, etc.)



The Broad Benefits of a Successful PV MDF

Benefits to PG&E customers

 As the solar PV industry is highly competitive, any manufacturing cost savings are likely to be passed through in retail prices

Supports California's Clean Energy Future

- Brings \$30 million in federal funding to a California clean energy project with a need for a smaller percentage of additional funding than comparable projects
- Governor Brown and the U.S. Secretary of Energy agree that the project has merit
- Potential RD&D benefits of the project align with California and the Commission's policies in support of promoting and fostering clean and renewable energy

Supports the domestic solar PV manufacturing industry

- Proposed project enjoys broad, diverse support from the RD&D and solar energy community in California and throughout the nation
- The PV MDF will provide competitive edge to domestic PV Manufacturers who focus on improving their manufacturing processes and decreasing other costs of production

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SVTC Receives Significant Support from Stakeholders

Index of Letters of Commitment/Support:

COHERENT

User Letters:

- SunPower
- Transform Solar
- Bloo Solar
- SiOnyx
- Silexos
- Equity Solar
- Sierra Solar Power
- Solar Implant Technologies
- CaliSolar
- Intermolecular
- PlasmaSi
- SAVe
- Lam Research (Silfex Division)
- Blue Sky Solar
- Varian Semiconductor Equipment
- Coherent
- MRL Industries
- MEMO
- ATMI
- Apogee Solar
- SemiCon Solar
- Crystal Solar
- PDF Solutions





Cost-Share Letters:

- Roth & Rau USA (Silicon tools)
- Roth & Rau USA (Thin-film tools)
- Kurdex
- Coherent
- Mustang Solar
- MRL Industries
- Amerimade
- ASYS Group Americas
- TRUMPF
- SVTC Technologies
- RETC
- **IMIUSA**
- DuPont
- Praxair
- ATMI
- Workforce Institute
- Work-2-Future
- **Evergreen Community College**
- City of San Jose (x2)
- Pacific Gas & Electric
- State of California





Industry-Collaborator Letters (tool makers, materials makers, and service providers):

California

Kurdex

Corporation

- Roth & Rau USA
- Kurdex
- MRL Industries
- Mustang Solar
- Coherent
- Amerimade
- ASYS Group Americas
- TRUMPF
- DuPont
- MEMC
- JSH
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- Air Products
- Lam Research (Silfex Division)
- Mallinckrodt-Baker
- **ATMI**
- RETC
- IMI USA
- CH2M Hill
- M&W Group
- Evans Analytical Group
- Crossing Automation
- SEMI PV Group





University/College/National Lab Letters:

- NREL
- Lawrence Berkeley National Labs
- University of California, Berkeley
- Stanford University
- University of California, Merced
- San Jose City College
- Workforce Institute
- San Jose City College
- **Evergreen Valley Community College**
- Work-2-Future
- Solar Training Institute

PGSE

SVTC's Successful Track-Record

SVTC provides product and manufacturing development services to 10 separate industries (semiconductor, biochips, photovoltaic, MEMs, etc.)

years in business			
200+ employees			
250+ production grade process and metr	production grade process and metrology tools		
2500+ recipes housed in a vast process library			
2			
100+			
17			
7 Residence and the second second			

*Competitive Funding Environment: Comparison of New York and California

SVTC SOLAR



· c-Si technology development center

• \$30M of DOE SunShot funding supplemented by \$9.9M from PG&E customers and \$45M from other sources¹

PVMC



SEMATECH entity focused on CIGS

• \$62.5M of DOE SunShot funding supplemented by over \$200M from the State of New York and over \$40M from other sources²

SEMATECH



· Semiconductor Research Consortium

- \$460M of incentives offered by State of New York³
- Facilities relocated from Austin, Texas to Albany, New York

GLOBALFOUNDRIES



Semiconductor Contract Manufacturer

- \$1.4B of incentives offered by State of New York⁴
- Advanced manufacturing facility being built in Malta, New York

SVTC Solar

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- 2 DOE SunShot press release, April 7, 2011 and confidential sources
- 3 Austin Statesman, May 22, 2010
- 4 Albany Times Union, November 11, 2011

DOE SunShot Awardoos Lietes Del California

(SunShot Awardees Listed Below)

FUNDING SOURCE

FUNDAMENTAL RESEARCH

APPLIED RESEARCH AND DEVELOPMENT











BA-PV Partnership Source of projects and development funds

Matching Funds From Other Sources (State and Industry)



→ Thin-film GIGS Focus



From: Allen, Meredith
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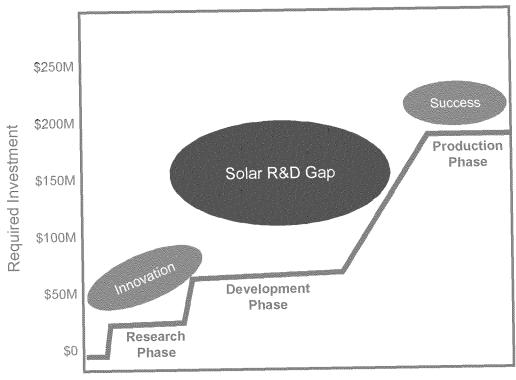




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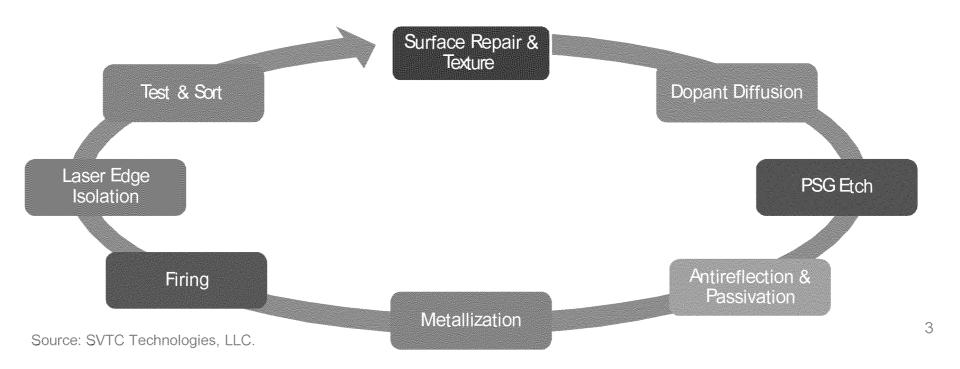




Source: SVTC Technologies, LLC.

SVTC's PV MDF Promotes Innovation

Specialized Tools Bays Secure Customer Bays ARC-81 Dopanta Texture Customer⁻ Customer⁻ Customer Customer Diffusion Passivation Module⁻ #1 #2 #3 Alkaline P&B doping **Fabrication** Dry Etch Proprietary₁ Proprietary Tools Tools PSG Etch tDS Emitter Versatility + Flexibility + SPC Controlled



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STANFORD



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ROTH



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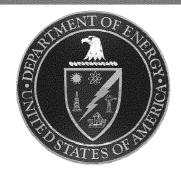
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