

MAGNOLIA SOLAR CORPORATION

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OTC:MGLT

Creating New Technology For A Greener Planet

Corporate Presentation
June 2011



Forward-Looking Statements



Forward-Looking Statement: This presentation contains forward-looking statements, including, without limitation, statements concerning our business and possible or assumed future results of operations. Our actual results could differ materially from those anticipated in the forward-looking statements for many reasons including: our ability to continue as a going concern, adverse economic changes affecting markets we serve; competition in our markets and industry segments; our timing and the profitability of entering new markets; greater than expected costs, customer acceptance of our products or difficulties related to our integration of the businesses we may acquire; and other risks and uncertainties as may be detailed from time to time in our public announcements and SEC filings.

Although we believe the expectations reflected in the forward-looking statements are reasonable, they relate only to events as of the date on which the statements are made, and our future results, levels of activity, performance or achievements may not meet these expectations. We do not intend to update any of the forward-looking statements after the date of this document to conform these statements to actual results or to changes in our expectations, except as required by law.

Magnolia Solar Vision: Electric Power for Everyone



- At present approximately 2 billion people worldwide have no access to electricity (Source: World Economic Outlook, 2009)
 - Leads to poor quality of life
 - Limits economic choices
 - Reduces life expectancy
 - Medical supplies limited due to lack of refrigeration
- Use renewable energy for national defense
- Our vision: everyone on the planet should have access to reliable electric power
- We implement our vision by developing
High-Efficiency, Low-Cost, Thin-Film Solar Energy

Magnolia Solar Vision: Implementation



- Develop and commercialize revolutionary new thin-film solar cells employing nanostructures
 - Thin-film design minimizes semiconductor material costs
 - Magnolia innovations can dramatically improve efficiency
 - Nanostructure-based anti-reflection coating
 - Unique semiconductor device design with nanostructure insertion
 - Enhanced solar spectrum absorption and optical path in cell
- Target: Cost at substantially less than \$0.50/watt
 - Achieved by increasing power output to enable ultra-high efficiency without concomitant cost increase

High-Efficiency, Low-Cost, Thin-Film Solar Energy

Company Profile



- **Commercializing proprietary technologies for solar photovoltaic applications**
 - Magnolia Solar was spun out of Magnolia Optical Technologies and benefits from over \$10 million of highly selective government R&D contracts from DARPA, NASA, DoD, NSF and NYSERDA
 - 10-year license to Magnolia Optical's advanced research in sensor technologies from the infrared (IR) to the ultraviolet (UV) for solar applications
- **Unique insights into advanced solar photovoltaic device design**
 - Multiple patents already filed, additional patents in preparation
 - Both higher current and voltage outputs can be achieved by combining Magnolia's exclusive material structures with advanced optical coatings
 - One of the industry's most aggressive efficiency and cost per watt targets
- **Accelerate product development using CNSE Albany Nanotech facilities**
 - Currently headquarters in Woburn, MA; R&D Center in Albany, NY
- **Over 50 years of collective management experience in advanced technologies and solar photovoltaics (PV)**

Investment Highlights



- **Highly promising nanostructure based thin-film solar photovoltaic (PV) technology**
 - Achieves higher efficiency by using proprietary nanotechnology
 - Captures more of the solar energy spectrum per day throughout the year
 - Multiple patents have been filed to protect key intellectual property; continuing to add to the IP portfolio
- **Potential for low cost solar power technology at less than \$0.50/watt**
- **R&D benefits from over \$10 million in government contracts from DARPA, DoD, NYSERDA, NASA and NSF**
- **Commercialization cycle greatly reduced with significant cost savings by leveraging Albany Nanotech facilities and ongoing/future government funding**

Funding History



- **Received several highly competitive development contracts**
 - New York State Energy Research and Development Authority (NYSERDA) awarded two contracts
 - Product development grant to improve thin-film solar cell efficiency by expanding solar spectrum energy band absorption
 - Contract to develop nanostructure-based antireflective coatings
 - U. S. Air Force awarded two Phase I contracts
 - Contract to develop flexible, ultra-high efficiency, multi-junction solar cells for space and defense applications
 - Contract to develop third-generation, single-junction solar cells employing quantum dot structures to improve performance metrics
 - National Aeronautical and Space Administration (NASA) awarded one Phase I contract
 - Program to increase PV cell current and voltage (power output) by using quantum-structured active regions and incorporating advanced light-trapping structures
- **Company R&D operations are cash neutral due to these contracts and use of the extensive nanotechnology infrastructure in the New York Capital Region**

Competitive Advantage



- **Magnolia Solar's technological innovations include:**
 - Nanostructure-based anti-reflection coatings
 - Dramatically improve solar cell performance by minimizing reflection losses at the air/solar cell interface to less than 2%
 - Improve performance even under dusk and dawn conditions when the sun is low on the horizon
 - Nanoscale materials to broaden the range of solar spectrum captured by the solar cell
 - Capture UV/Visible/IR spectrum energy to improve cell performance and provide power under a wide range of atmospheric conditions
 - Advanced light trapping structures to improve PV cell performance and minimize semiconductor material thickness
- **Leveraging DOE's \$58 million award to CNSE Albany Nanotech and the complementary \$300 million public/private investment for Photovoltaic Manufacturing Initiative (PVMI) to minimize development costs and accelerate the commercialization cycle**
- **Technology development funded by government contracts**

Senior Management



Dr. Ashok K. Sood – President & CEO

- Over 30 years of experience with solar cells and optical devices for defense and space applications
- Managed technology, programs and product lines for Honeywell, Loral, Lockheed-Martin and BAE Systems
- Managed CdTe, CdS, and HgCdTe products, night vision system product line, ZnO and nanostructure programs from Defense Advanced Research Projects Agency (DARPA)
- Ribbon silicon solar cell development for Mobil-Tyco Solar Energy Corp (now Schott Solar); CdS, CdTe and GaN solar cell technologies
- B.S. and M.S from University of Delhi, India, and M.S. and Ph.D. from University of Pennsylvania

Dr. Yash R. Puri - Executive VP and CFO

- Over a decade of experience in managing growing technology companies
- Previously Vice President, Finance, GT Equipment Technologies, Inc., now a public company (GT Solar, Inc. Nasdaq: SOLR) after \$500M IPO in July 2008
- Professor of Finance, University of Massachusetts, Lowell
- Developed financial models for solar photovoltaic applications
- B.S, M.S. and M.B.A from University of Delhi, India, and M.B.A and D.B.A in International Finance from Indiana University

Management/Technical Team



Dr. Roger E. Welser – Chief Technical Officer

- Expertise in materials, devices, and high-efficiency solar cells
- Funded by NASA, NSF, and DoD for solar cell development
- Previously, Director of Advanced Technology at Kopin Corporation
- Ph.D. from Yale University and B.S. from Swarthmore College

Mr. E. James Egerton – Vice President of Product Development

- Expertise in product development and technology management
- Previously managed and led product development at Lockheed-Martin, Honeywell, IBM and several small companies
- B.S. from Evergreen College, Graduate courses at Stanford, Masters from Harvard University

Dr. Gopal Pethuraja – Senior Scientist

- Senior scientist with several years experience in energy nano-materials research
- Previously at Technion in Haifa, Israel and RPI, New York
- Ph.D. from Indian Institute of Technology (IIT), India

Advisory Board Members



Dr. Tom Surek: Dr. Surek's career in photovoltaics, the direct conversion of sunlight to electricity, dates back more than 37 years to the formative stages of US terrestrial PV programs. Dr. Surek began his pioneering work on the growth of shaped silicon crystals at Harvard University in 1973, followed by research at Mobil Tyco Solar Energy Corporation from 1975 to 1978. His innovative work on shaped crystal growth of silicon has culminated in the first of the new PV technologies to be commercialized on a large scale, the edge-defined film-fed growth, or EFG, process.

Dr. Surek joined the National Renewable Energy Laboratory, or NREL, in 1978 and served in a program management capacity during his entire SERI/NREL career of nearly 29 years. For his last 20 years at NREL, Dr. Surek led R&D activities in thin film photovoltaics as manager of the NREL PV Program for the US Department of Energy, or DOE. Under his leadership, world-record efficiencies were achieved in crystalline silicon, thin-film, and concentrator solar cells, and many of these technologies are now being commercialized worldwide.

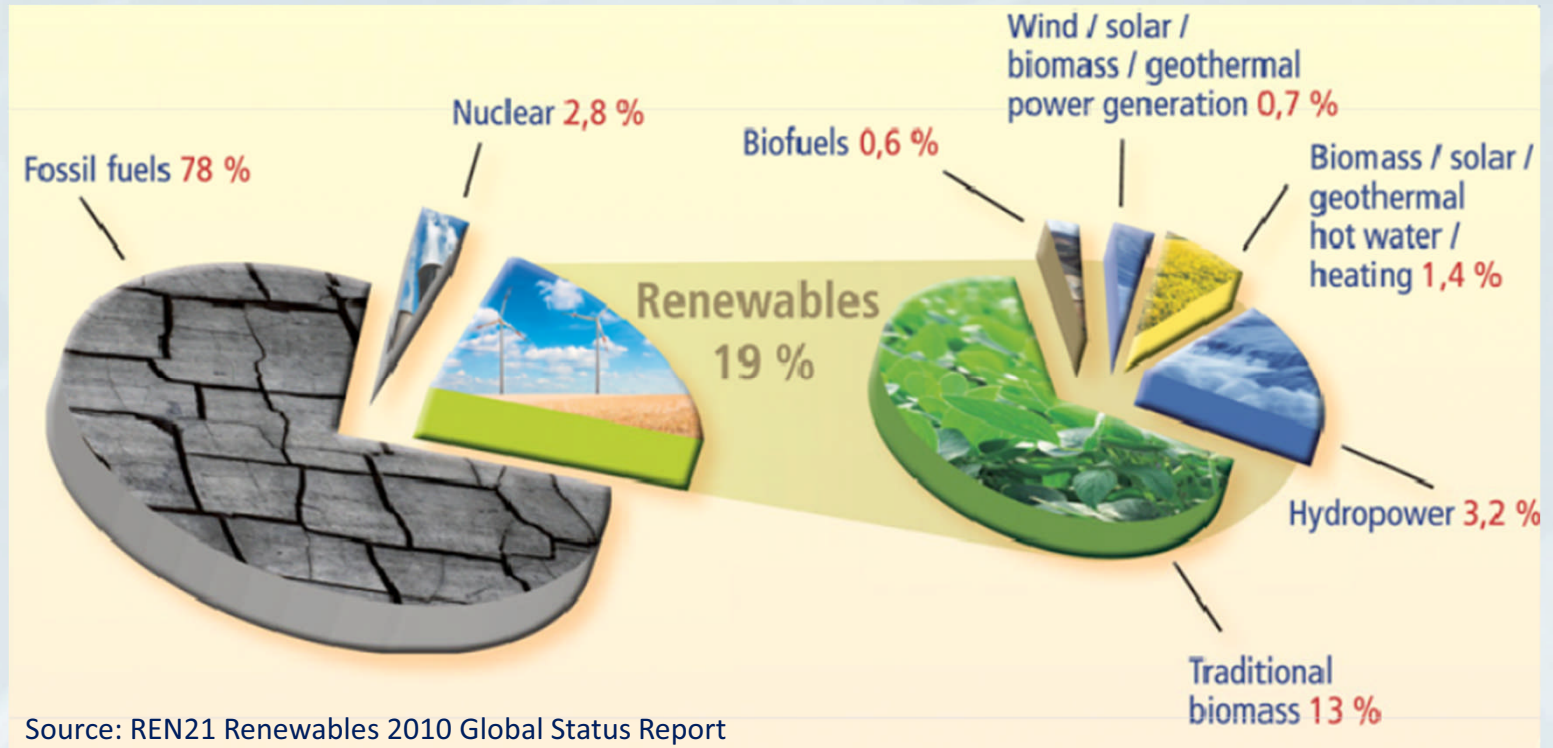
Advisory Board Members (contd.)



Professor E. Fred Schubert: Professor Schubert is a world-renowned expert in optoelectronic devices and nanostructure-based antireflection coating technology and a Wellfleet Senior Constellation Professor of physics at the Rensselaer Polytechnic Institute (RPI) in Troy, NY. Professor Schubert is named as the inventor or co-inventor on twenty eight U.S. patents and has authored or co-authored more than 250 publications. He is a Fellow of the American Physical Society, IEEE, Optical Society of America, and SPIE.

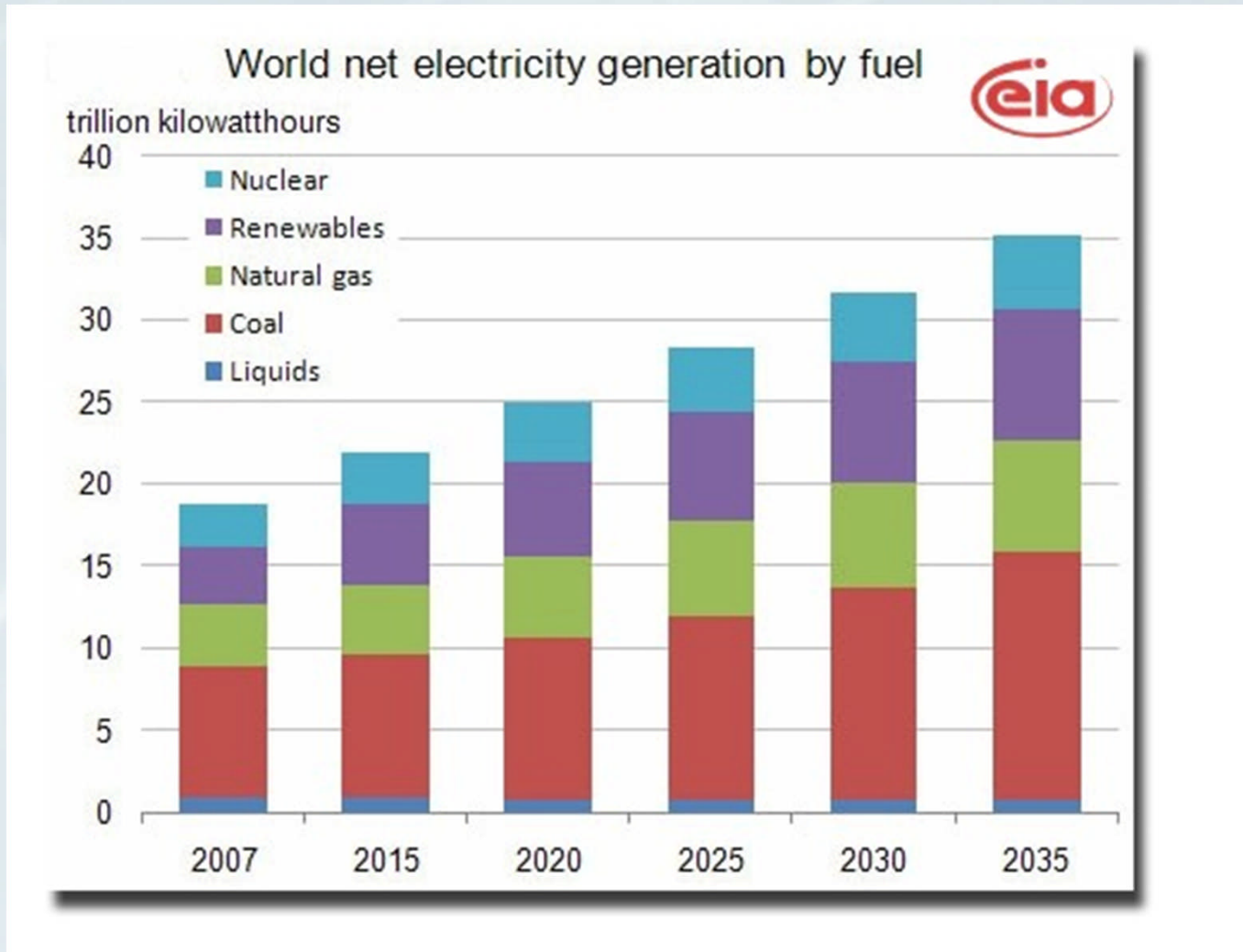
Professor Zhong L. Wang: Professor Wang is a world-renowned expert in nanostructure growth and characterization of semiconductor materials and devices for energy harvesting technology and a distinguished professor and director, at the Center for Nanostructure Characterization at Georgia Tech University. His pioneering work in nanogenerators for energy harvesting has been recognized worldwide as one of the ten most impacting technology for the next ten to thirty years. He is an inventor or co-inventor of many U.S. patents and has authored or co-authored more than 650 publications. Professor Wang is a fellow of the American Physical Society (APS) and American Association of Advancement of Science (AAAS).

Energy and Solar PV Market

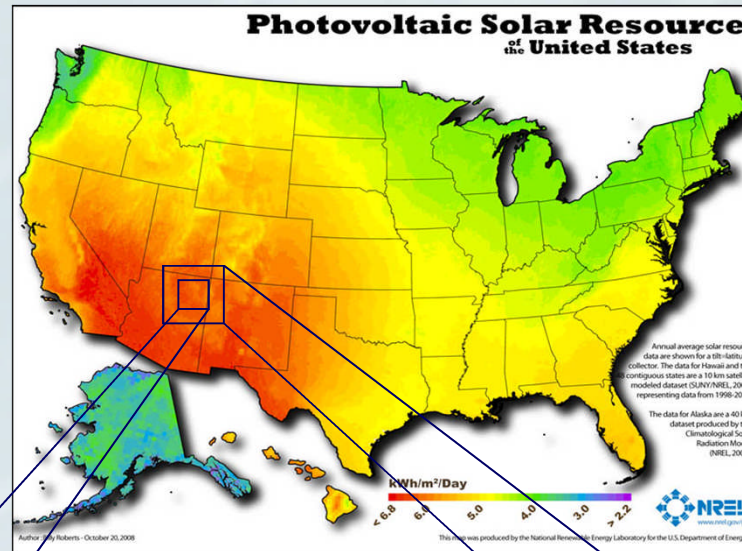


- Solar PV is less than 1% of global energy consumption in 2010
- Worldwide solar PV installations reached 18.2 Gigawatts in 2010, an increase of 139% over 2009, and generated \$82 billion in revenue in 2010 (Source: Solarbuzz)

Electric Energy Generation by Fuel



US Solar PV Land Requirement



All US Electricity

The solar energy resource in a 100 square mile area could supply the United States with all its electricity (approx. 800 GW) using modestly efficient (10%) commercial PV modules. **If PV module efficiency is tripled, one-third of the area is required.**

All US Primary Energy

4.1 TW w/ 10% modules

Solar PV is the only renewable energy source capable of supplying ALL of our electricity needs!

Patent Portfolio Development Approach



Improve PV efficiency by simultaneously increasing the current and voltage (power) output of thin film solar cells:

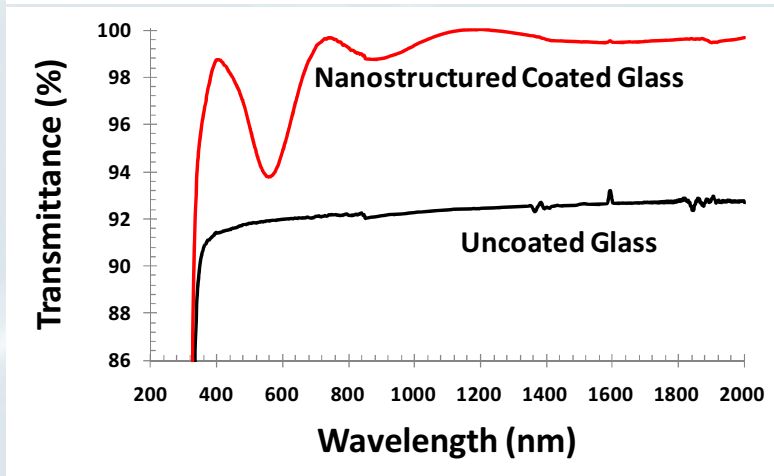
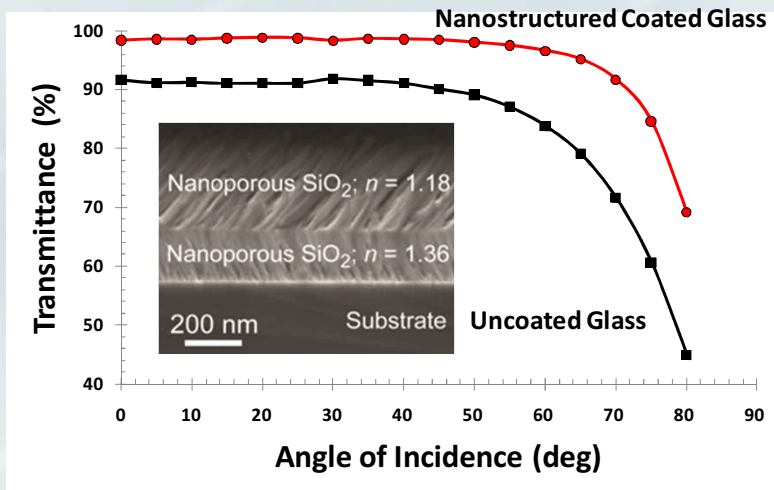
- Leverages breakthrough discoveries in quantum dot and quantum well solar cell design
- Employs tunable nanostructure-based optical coatings to minimize reflection losses
- Captures a larger part of the solar spectrum while maintaining high voltage output
- Incorporates advanced light trapping structures to minimize semiconductor material thickness
- Applies to a wide range of thin film materials

Patent Pending Technology

Nanostructure based Anti-Reflection Coatings on Glass



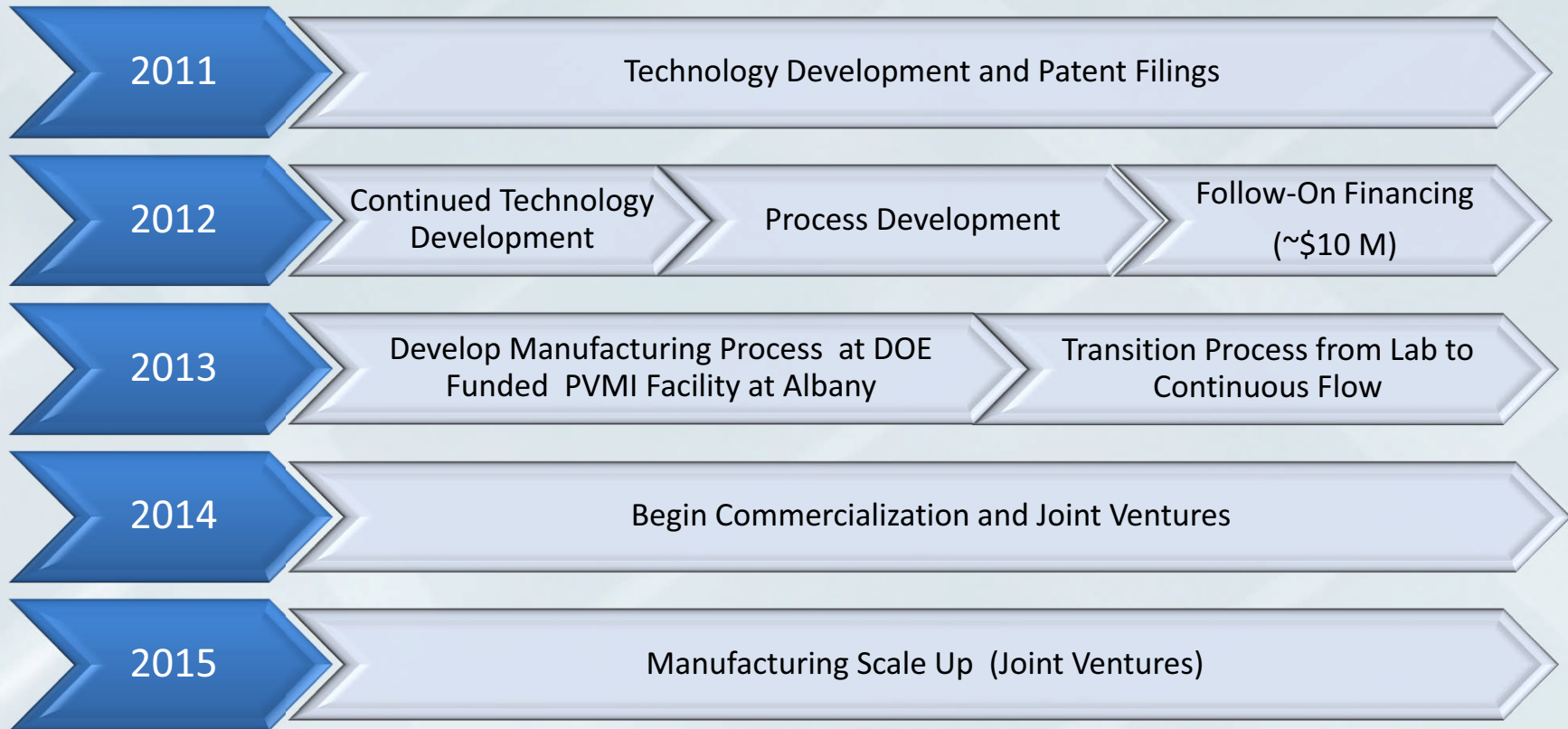
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- High performance AR coatings employ multiple layers of nanostructured material with tunable refractive index
- Peak transmittance approaches 100%!
- Ultra-high transmittance over the entire solar spectrum and a wide range of angles
- Reduces reflection losses throughout the day, even when the sun is low in the sky in the early morning and late afternoon
- Results in higher current output throughout the day, and thus higher overall power conversion efficiency

(Presented at 2011 SPIE Defense Symposium, April 2011, Orlando FL)

Product Development Timeline



Product Development Activities



Development work started at CNSE Albany Nanotech

- **Magnolia Solar is part of PVMI team and the benefits include:**
 - DoE, New York State, and private investment of over \$300 million in state-of-the-art thin-film facilities for PV product development
 - Significantly shorter commercialization cycle at a substantial cost savings
 - Access to considerable technical expertise, including SEMITECH resources
 - Substantial state incentives to locate in the New York Capital Region



College of Nanoscale Science and Engineering Nanotech Center

Target Markets



- Target markets for PV power
- Distributed power (defense and commercial)
 - Portable power applications
 - Remote applications
 - Residential backup power
- Grid-connected power
 - Utility co-generation for peak-demand
 - Residential/commercial with net metering
- Distribution channels
 - Designers and installers
 - Direct utility companies



Highlights and Summary



- Won two competitive Phase I SBIR/STTR contracts from the Air Force and one from NASA to develop quantum structured thin film solar cells
- Approved by NYSERDA to start work on the second phase of a \$1M award after successfully completing initial milestones
- Awarded a new product development program from NYSERDA to explore innovative light trapping techniques
- Filed multiple patent applications to protect intellectual property and start development of a patent portfolio
- Established a Technical Advisory Board and appointed three world-renowned experts in nanotechnology and photovoltaic solar power to the advisory board
- Leveraging \$300+ million DoE and public/private investment to accelerate product/process development
- Opened an office at the Albany Nanotech Center in Albany, NY
- MGLT stock began trading on the OTC market on Feb. 8, 2010
- R&D contract revenue of \$686,568 for the fiscal year 2010

Progress Towards Magnolia Vision



- **Innovative technologies under development with government funding for high-performance solar cells** – multiple patents filed
- **Highly experienced management team** – significant product development and technology commercialization experience
- **Access to the state-of-the-art resources** – leveraging PVMI investment for product development
- **Solar PV market growing annually at over 100%** – UN forecasts that world energy needs can be met by all renewables
- **Plans for low cost scalable manufacturing** – both in the US and overseas with joint ventures
- **National defense applications** – applications for ultra-high efficiency, flexible solar cell
- **Goal of \$0.50/watt solar cells** - pathway to deliver distributed power to the nearly 2 billion people around the world with no access to electric power

Electric Power for Everyone