

WINTERGREEN RESEARCH, INC.

**Flexible Glass Market Shares, Strategies, and Forecasts,
Nanotechnology, Worldwide, 2010 to 2016**

**Flexible Glass Makes Great Substrate for Solar Panels, Thin Film Batteries,
and HDD**



Picture by Susie Eustis

MOUNTAINS OF OPPORTUNITY

**WinterGreen Research, Inc.
Lexington, Massachusetts**

www.wintergreenresearch.com

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CHECK OUT THESE KEY TOPICS

Flexible Glass Substrates

Flexible Glass Forecasts

Flexible Glass Market Shares

Flexible Glass

Flexible Glass

Flexible Glass Renewable Energy

Flexible Glass Solar

Flexible Glass Advances In Technology

Flexible Glass Saves Shipping Costs

Flexible Glass Saves Space

Flexible Glass Innovation

Substrate Deposition

Atomic Layer Deposition

CHEMICAL VAPOR DEPOSITION

Low k Dielectric Films

Lithography-Enabling Solutions

Gap Fill Films

Deposition of Silicon Oxides

Nano-manufacturing Technology

OPPORTUNITY ABOUNDS

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Flexible Glass Market Shares, Strategies, Forecasts, Nanotechnology, Worldwide, 2010-2016

LEXINGTON, Massachusetts (April 26, 2010) – WinterGreen Research announces that it has a new study on: Flexible Glass Market Shares and Forecasts, Worldwide, 2010-2016. Flexible glass is useful as a substrate for deposition of nanotechnology materials used to create solar panels, thin film batteries, and HDD drives. Substrates are needed for nanotechnology implementations of different devices including materials used in the aircraft and building industries. The study has 232 pages and 70 tables and figures.

Nanotechnology frequently involves sputtering some active material onto a substrate at high temperature and in a vacuum. Flexible glass is a valuable substrate because of its handling characteristics chemical characteristics, and the overall maturity of the glass industry.

Analysis of flexible glass markets depends on looking at the need for substrates for nanotechnology including the thin film solar and battery markets which in turn depend on the number of autos sold and number of solar panels. In addition there are a lot of metrics to look at, including number of concentrating solar installations up coming, number of LCD TVs, number of thin film batteries, number of semiconductors, and number of HDD components.

Electric power from renewable sources, particularly solar energy promises a new generation of utility companies that replace large fossil fuel generating plants with substations that gather electricity from commercial rooftops near the demand for electricity. Electric vehicles will be recharged from stationary batteries located near suburban homes.

Flexible glass has a higher threshold for heat management than polymer. Polymers will melt at temperatures where glass substrate remains stable. Glass markets overall continue to be strong. Corning expects worldwide glass demand to reach 2.7-2.8 billion square feet in 2010, up from 2.4 billion square feet in 2009. Glass shipments can be analyzed at a rate of 37% residential, 21% commercial, 28% automotive, and 17% specialty glass.

Following is a forecast for flexible glass substrate markets that represent but a fraction of the overall solar panel markets. Starting from zero in 2010, the market reaches \$1 billion by 2016 representing just a fraction of overall spending on solar panels. After that, the markets are anticipated to grow significantly capturing a large part of the solar panel and other nanotechnology manufacturing production.

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Market growth is a result of demand for nanotechnology that benefits from controlling matter on an atomic and molecular scale. New properties of matter are evolving rapidly.

<http://www.wintergreenresearch.com/reports/FlexibleGlass.htm>

Flexible Glass Companies Profiled

Flexible Glass Market Leaders

Corning
Applied Materials
Asahi Glass Co Ltd
Corning
Du Pont
Nippon Sheet Glass Co Ltd

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Flexible Glass Market Participants

Battelle
China Glass Network
Directed Vapor Technology
EMD
Hangzhou Needindex Info-Tech Co.
Merck Chemicals
New York University
Nippon / Pilkington North America
Pacific Northwest National Laboratory
Photonics / Hoya Candeo Optronics
Schott
Solyndra
Vacuum Coating Technologies
Vitex Systems
Handai tech Co.,Ltd
Shenzhen Luobo Yurun Investment Development Co.,Ltd.
Qingdao Hengda Glass Technology Co.,Ltd.
Anhui Yinrui Glass Machinery Co., Ltd.
Fu Yang DEMAN Machine Co., Ltd.
Jinan Zhaoyang Machine Co., Ltd.
ZongHeng Trading Co.,Ltd.
Qingdao Blue Crystal Glass Co., Ltd.
Zhengzhou Yuke Glass Technology Co.,Ltd.
Tianjin JingYang Glass Co., Ltd.
Jiangsu huiyu glass Co., Ltd
Pattern Glass Factory
Jinan Senfeng Technology Co., Ltd

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Flexible Glass Market Strategies, Shares, And Forecasts, Nanotechnology, Worldwide, 2010 to 2016

Report Methodology

This is the 441st report in a series of primary market research reports that provide forecasts in solar energy, robots, communications, telecommunications, the Internet, computer, software, telephone equipment, health equipment, and batteries to store energy. Automated process and significant growth potential are a priorities in topic selection. The project leaders take direct responsibility for writing and preparing each report. They have significant experience preparing industry studies. Forecasts are based on primary research and proprietary data bases.

The primary research is conducted by talking to customers, distributors and companies. The survey data is not enough to make accurate assessment of market size, so WinterGreen Research looks at the value of shipments and the average price to achieve market assessments. Our track record in achieving accuracy is unsurpassed in the industry. We are known for being able to develop accurate market shares and projections. This is our specialty.

The analyst process is concentrated on getting good market numbers. This process involves looking at the markets from several different perspectives, including vendor shipments. The interview process is an essential aspect as well. We do have a lot of granular analysis of the different shipments by vendor in the study and addenda prepared after the study was published if that is appropriate.

Forecasts reflect analysis of the market trends in the segment and related segments. Unit and dollar shipments are analyzed through consideration of dollar volume of each market participant in the segment. Installed base analysis and unit analysis is based on interviews and an information search. Market share analysis includes conversations with key customers of products, industry segment leaders, marketing directors, distributors, leading market participants, opinion leaders, and companies seeking to develop measurable market share.

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Over 200 in depth interviews are conducted for each report with a broad range of key participants and industry leaders in the market segment. We establish accurate market forecasts based on economic and market conditions as a base. Use input/output ratios, flow charts, and other economic methods to quantify data. Use in-house analysts who meet stringent quality standards. Interviewing key industry participants, experts and end-users is a central part of the study. Our research includes access to large proprietary databases. Literature search includes analysis of trade publications, government reports, and corporate literature.

Findings and conclusions of this report are based on information gathered from industry sources, including manufacturers, distributors, partners, opinion leaders, and users. Interview data was combined with information gathered through an extensive review of internet and printed sources such as trade publications, trade associations, company literature, and online databases. The projections contained in this report are checked from top down and bottom up analysis to be sure there is congruence from that perspective.

The base year for analysis and projection is 2009. With 2009 and several years prior to that as a baseline, market projections were developed for 2010 through 2016. These projections are based on a combination of a consensus among the opinion leader contacts interviewed combined with understanding of the key market drivers and their impact from a historical and analytical perspective. The analytical methodologies used to generate the market estimates are based on penetration analyses, similar market analyses, and delta calculations to supplement independent and dependent variable analysis. All analyses are displaying selected descriptions of products and services.

This research includes referencde to an ROI model that is part of a series that provides IT systems financial planners access to information that supports analysis of all the numbers that impact management of a product launch or large and complex data center. The methodology used in the models relates to having a sophisticated analytical technique for understanding the impact of workload on processor consumption and cost.

WinterGreen Research has looked at the metrics and independent research to develop assumptions that reflect the actual anticipated usage and cost of systems. Comparative analyses reflect the input of these values into models.

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The variables and assumptions provided in the market research study and the ROI models are based on extensive experience in providing research to large enterprise organizations and data centers. The ROI models have lists of servers from different manufacturers, Systems z models from IBM, and labor costs by category around the world. This information has been developed from WinterGreen research proprietary data bases constructed as a result of preparing market research studies that address the software, energy, healthcare, telecommunications, and hardware businesses.

YOU MUST HAVE THIS STUDY

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Flexible Glass Market Shares Strategies, and Forecasts, Worldwide, 2010-2016

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ABOUT THE COMPANY

WINTERGREEN RESEARCH, RESEARCH STRATEGY IDENTIFIES MARKET TRENDS THROUGH READING MARKET MATERIALS AND INTERVIEWING OPINION LEADERS. WINTERGREEN RESEARCH TEAM WORKS TO GATHER PRIMARY INFORMATION FROM COMPANY INTERVIEWS, INDUSTRY MATERIALS, AND COMPANY DOCUMENTS TO WRITE MARKET RESEARCH STUDIES FROM AN INDEPENDENT PERSPECTIVE. THE ABILITY, TO THINK ABOUT MARKET TRENDS IS ENHANCED BY DOING IT OVER AND OVER FOR MANY DIFFERENT MARKETS. THAT IS WHAT WINTERGREEN RESEARCH IS ALL ABOUT: READING AND THINKING IS AN ESSENTIAL ASPECT OF COMPETITIVE ANALYSIS. TALKING TO OPINION LEADERS IS AN ESSENTIAL ASPECT OF PRODUCING GOOD, RELIABLE, INDEPENDENT DATA.

BY READING THE ELECTRONIC EQUIVALENT OF 40 FEET OF PAPER FOR EACH STUDY, WINTERGREEN RESEARCH SENIOR ANALYSTS CAN LEARN A LOT MORE ABOUT MARKETS. IDENTIFICATION OF MARKET TRENDS IS A HIGH PRIORITY AT WINTERGREEN RESEARCH. AS WITH THE VALUE PROPOSITION FOR COMPETITIVE ANALYSIS COMING FROM GETTING PRIMARY INPUT FROM A RANGE OF INDUSTRY PARTICIPANTS AND OBSERVERS.

WINTERGREEN RESEARCH, FOUNDED IN 1985, PROVIDES STRATEGIC MARKET ASSESSMENTS IN TELECOMMUNICATIONS, COMMUNICATIONS EQUIPMENT, HEALTH CARE, INTERNET AND ADVANCED COMPUTER TECHNOLOGY. INDUSTRY REPORTS FOCUS ON OPPORTUNITIES THAT EXPAND EXISTING MARKETS OR DEVELOP MAJOR NEW MARKETS. THE REPORTS ASSESS NEW PRODUCT AND SERVICE POSITIONING STRATEGIES, NEW AND EVOLVING TECHNOLOGIES, AND TECHNOLOGICAL IMPACT ON PRODUCTS, SERVICES, AND MARKETS. MARKET SHARES ARE PROVIDED. LEADING MARKET PARTICIPANTS ARE PROFILED, AND THEIR MARKETING STRATEGIES, ACQUISITIONS, AND STRATEGIC ALLIANCES ARE DISCUSSED. THE PRINCIPALS OF WINTERGREEN RESEARCH HAVE BEEN INVOLVED IN ANALYSIS AND FORECASTING OF INTERNATIONAL BUSINESS OPPORTUNITIES IN TELECOMMUNICATIONS AND ADVANCED COMPUTER TECHNOLOGY MARKETS FOR OVER 30 YEARS.

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ABOUT THE PRINCIPAL AUTHORS

ELLEN T. CURTISS, TECHNICAL DIRECTOR, CO-FOUNDER OF WINTERGREEN RESEARCH, CONDUCTS STRATEGIC AND MARKET ASSESSMENTS IN TECHNOLOGY-BASED INDUSTRIES. PREVIOUSLY SHE WAS A MEMBER OF THE STAFF OF ARTHUR D. LITTLE, INC., FOR 23 YEARS, MOST RECENTLY AS VICE PRESIDENT OF ARTHUR D. LITTLE DECISION RESOURCES, SPECIALIZING IN STRATEGIC PLANNING AND MARKET DEVELOPMENT SERVICES. SHE IS A GRADUATE OF BOSTON UNIVERSITY AND THE PROGRAM FOR MANAGEMENT DEVELOPMENT AT HARVARD GRADUATE SCHOOL OF BUSINESS ADMINISTRATION. SHE IS THE AUTHOR OF RECENT STUDIES ON WORLDWIDE TELECOMMUNICATIONS MARKETS, THE TOP TEN INTERNET EQUIPMENT COMPANIES, THE TOP TEN CONTRACT MANUFACTURING COMPANIES, AND THE TOP TEN TELECOMMUNICATIONS MARKET ANALYSIS AND FORECASTS.

SUSAN EUSTIS, PRESIDENT, CO-FOUNDER OF WINTERGREEN RESEARCH, HAS DONE RESEARCH IN COMMUNICATIONS AND COMPUTER MARKETS AND APPLICATIONS. SHE HOLDS SEVERAL PATENTS IN MICROCOMPUTING AND PARALLEL PROCESSING. SHE HAS THE ORIGINAL PATENTS IN ELECTRONIC VOTING MACHINES. SHE HAS NEW PATENT APPLICATIONS IN FORMAT VARYING, MULTIPROCESSING, AND ELECTRONIC VOTING. SHE IS THE AUTHOR OF RECENT STUDIES OF THE SERVICES ORIENTED ARCHITECTURE, CONTENT MANAGEMENT, MID SIZE BUSINESS MIDDLEWARE, WORLDWIDE ENERGY MARKETS, SOLAR UTILITY MARKETS, SOLAR TECHNOLOGY MARKETS, THIN FILM BATTERY MARKETS, WEBCAM MARKETS, REGIONAL BELL OPERATING COMPANIES' MARKETING STRATEGIES, INTERNET EQUIPMENT, BIOMETRICS, A STUDY OF INTERNET EQUIPMENT, WORLDWIDE TELECOMMUNICATIONS EQUIPMENT, TOP TEN TELECOMMUNICATIONS, DIGITAL LOOP CARRIER, WEB HOSTING, WEB SERVICES, NANOTECHNOLOGY, AND APPLICATION INTEGRATION MARKETS. MS. EUSTIS IS A GRADUATE OF BARNARD COLLEGE.

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