



DOE Solar Program Review

Fully Integrated Building Science Solutions for Residential & Commercial PV Energy Generation

Dow Building Solutions (DBS)
The Dow Chemical Company



Dow Chemical – Building Solutions Business

Goal: A full line of cost effective PV Containing Building Products

SAI Team Members:

Dow Building Solutions

Fronius

IBIS Associates

Lennar Corporation

Miasolé

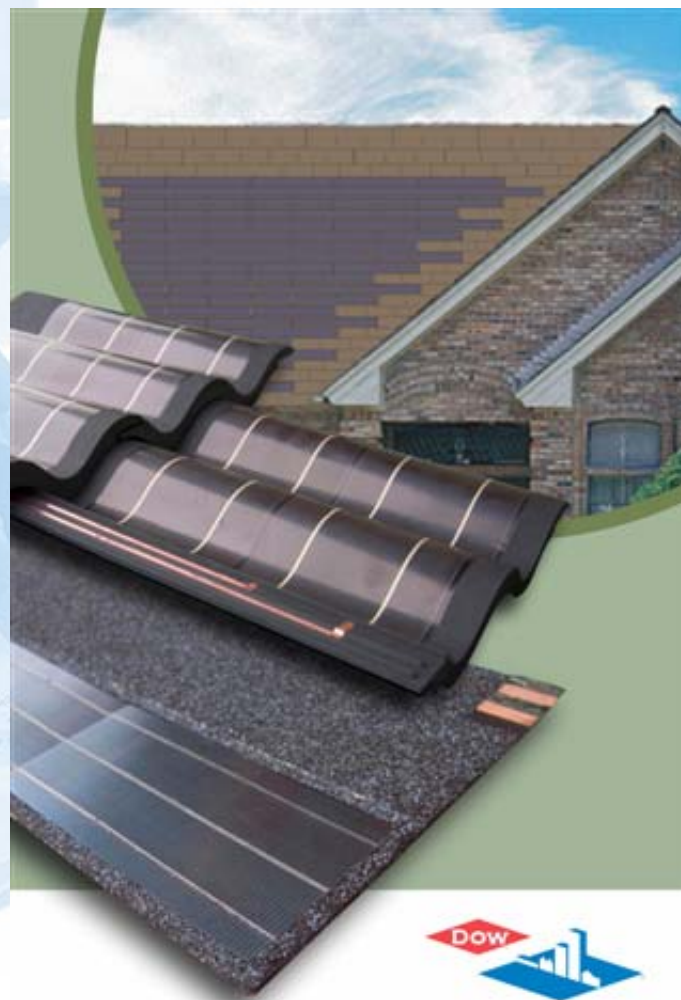
Prost Builders, Inc

Pulte Homes, Inc.

University of Delaware - IEC

Sol-Focus

Southern California Edison





DBS SAI Team

The Dow Chemical Company

Dow is a leading science and technology company that provides innovative chemical, plastic and agricultural products and services to many essential consumer markets. Dow is a \$46 billion company and employs approximately 42,000 people. Dow serves customers in more than 175 countries in a wide range of markets that are vital to human progress, including food, transportation, health and medicine, personal and home care, and building and construction. The company has 156 manufacturing sites in 37 countries and supplies more than 3,200 products. The proposal is being sponsored by Dow Building Solutions which is part of Dow's Performance Plastics & Chemicals Business.



DOW SAI Team

Miasolé

Miasolé is undertaking a broad based development program to improve the efficiency of its solar cells and to lower costs.

In 2004 Miasolé focused its efforts in converting a very large scale in-line sputtering system (over fifty feet long) into a system capable of continuously coating all layers of a CIGS solar cell in a single pass. The process is literally stainless steel in, fully coated cell material out, thus greatly simplifying the film growth process.



DOW SAI Team

SolFocus, Inc

The low profile concentrator cells will be provided by SolFocus. SolFocus develops and markets products that generate electricity using solar concentrator photovoltaic technology.



DOW SAI Team

University of Delaware - Institute of Energy Conversion

The Institute of Energy Conversion (IEC), established at the University of Delaware in 1972, is a laboratory devoted to research and development of thin-film photovoltaic solar cells and other photonic devices. IEC was designated a University Center of Excellence for Photovoltaic Research and Education by the Department of Energy and the National Renewable Energy Laboratory in 1992. Fundamental materials and device research is carried out in parallel with process engineering studies and analysis of film deposition and processing.



DOW SAI Team

Fronius

Fronius is focused on sustainable business practices, and has been in business for 60 years. Fronius is a profitable company that has seen stable growth and is very healthy financially. Fronius is a technology leader in all areas where Fronius is active (Solar electronics, welding, battery charging) with over 60 years of successful history in power Electronics.



DOW SAI Team

IBIS Associates

IBIS Associates is a management consulting firm that consults to technology-focused organizations on the manufacturing economics and competitive position of materials, processes, and products. IBIS was founded in 1987 as an “S” corporation partnership spin-off from the MIT Materials Systems Lab. IBIS specialty is to provide business development and operations solutions through the application of a set of quantitative tools, methodologies and focused techno-economic skills.



DOW SAI Team

Lennar Corporation

Lennar Corporation is the nation's 3rd largest home builder, and a provider of financial services. Our homebuilding operations include the sale and construction of single-family attached and detached homes, as well as the purchase, development and sale of residential land. Our financial services operations provide mortgage financing, title insurance, closing services and insurance agency services for both buyers of our homes and others. Through our own efforts and unconsolidated entities in which we have investments, we are involved in all phases of planning and building in our residential communities including land acquisition, site planning, preparation and improvement of land and design, construction and marketing of homes.



DOW SAI Team

Pulte Homes, Inc.

Pulte Homes, Inc, based in Bloomfield Hills, Michigan, is a FORTUNE 150 company with operations in 53 markets and 27 states. In 2005, the company delivered 45,630 homes in the U.S. and generated consolidated revenues of \$14.7 billion. During its 56-year history, the company has constructed more than 450,000 homes. In 2005, Pulte Homes received the most awards in the J.D. Power and Associates New Home-Builder Customer Satisfaction Study, marking the sixth-straight year Pulte achieved this distinction among America's largest homebuilding companies.



DOW SAI Team

Prost Builders, Inc

Prost Builders architectural, engineering and construction professionals offer complete design and construction services. Our project delivery systems include: design-build and design-build-lease, general contracting and construction management. Prost Builders have extensive experience in the commercial & multi-family housing, industrial, institutional, ecclesiastical and renovation & historic renovation markets.



DOW SAI Team

Southern California Edison (SCE)

SCE is one of the largest investor-owned electric utilities in the U.S, serving more than 13 million people in a 50,000 square-mile area of central, coastal, and southern California. As part of their commitment to environmental protection, the electric power they provide for their customers includes more alternate and renewable energy (17.7%), from a greater variety of resources, than nearly any other utility in the world.

On an average day SCE provides power to: 13 million people, 430 cities and communities in 50,000 square miles of service area, encompassing 11 counties in central, coastal and Southern California, Commercial industrial and nonprofit customers, including: 5,000 large businesses and 280,000 small businesses.

Conventional "BIPV"



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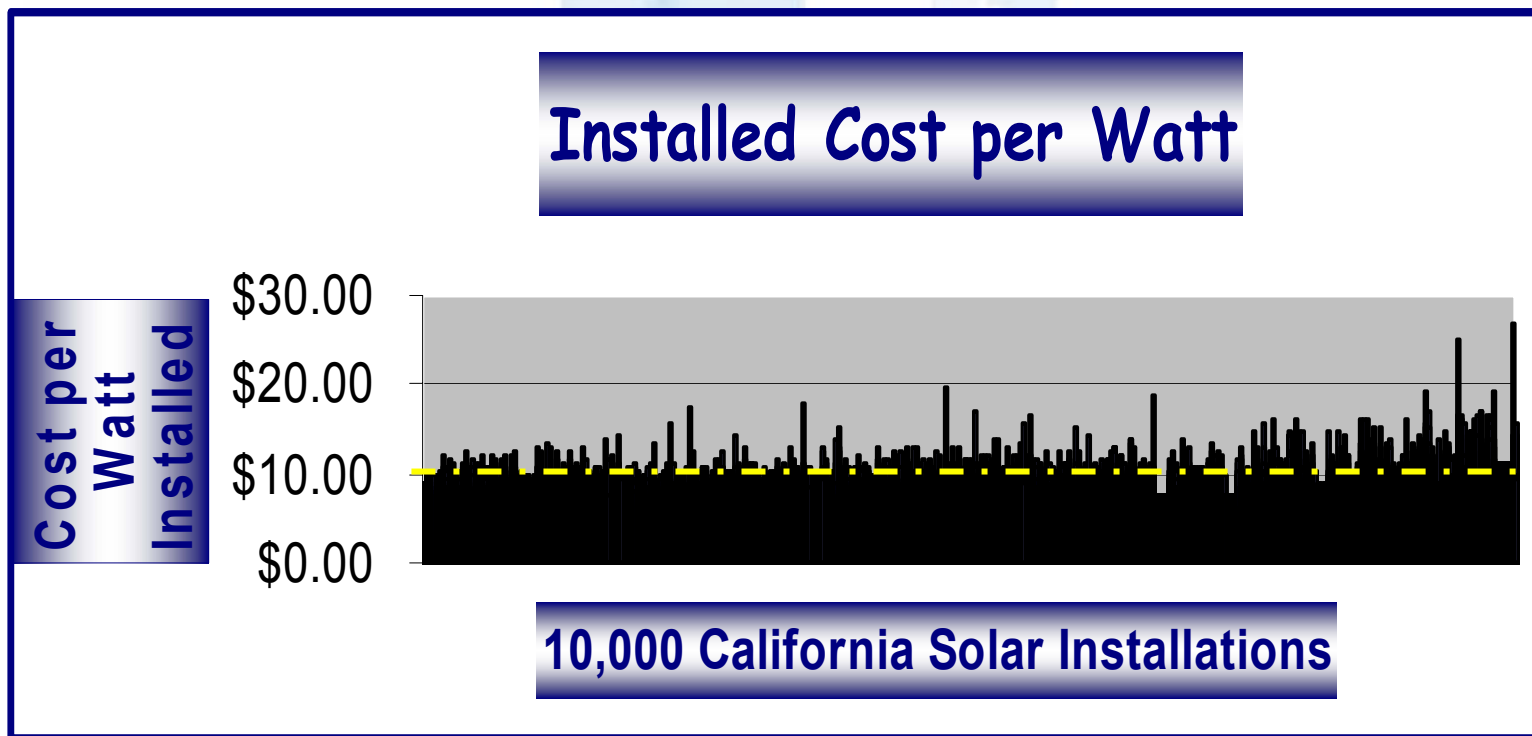


Conventional "BIPV"



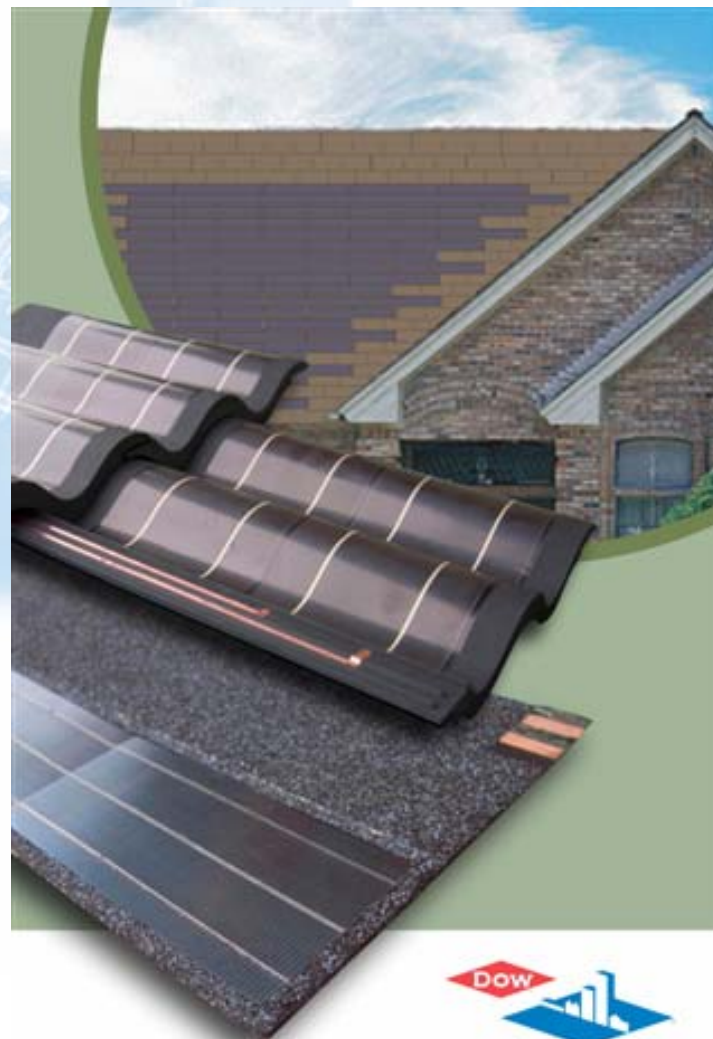


California Solar PV Installations - History





Dow BIPV Product Line

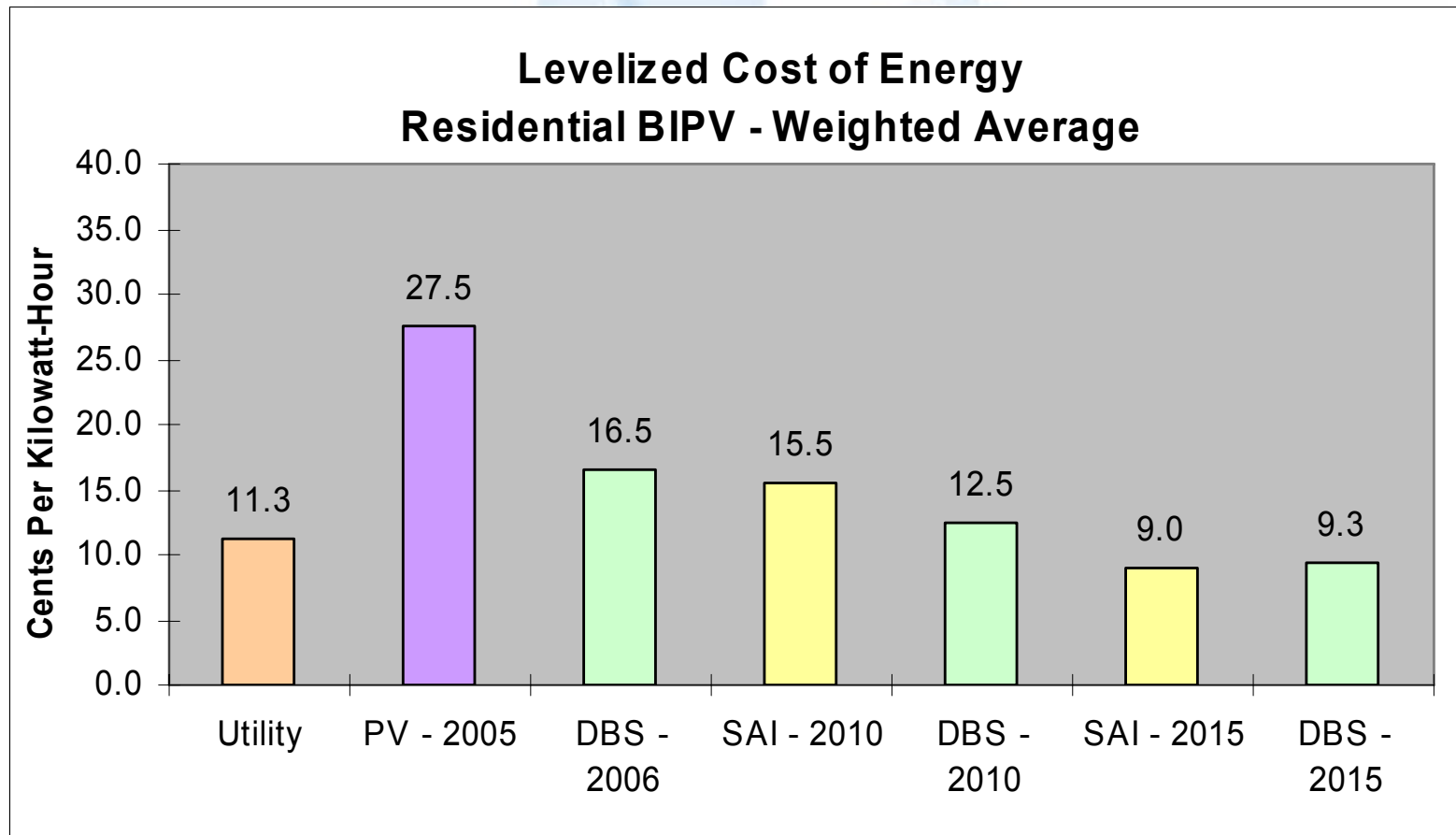








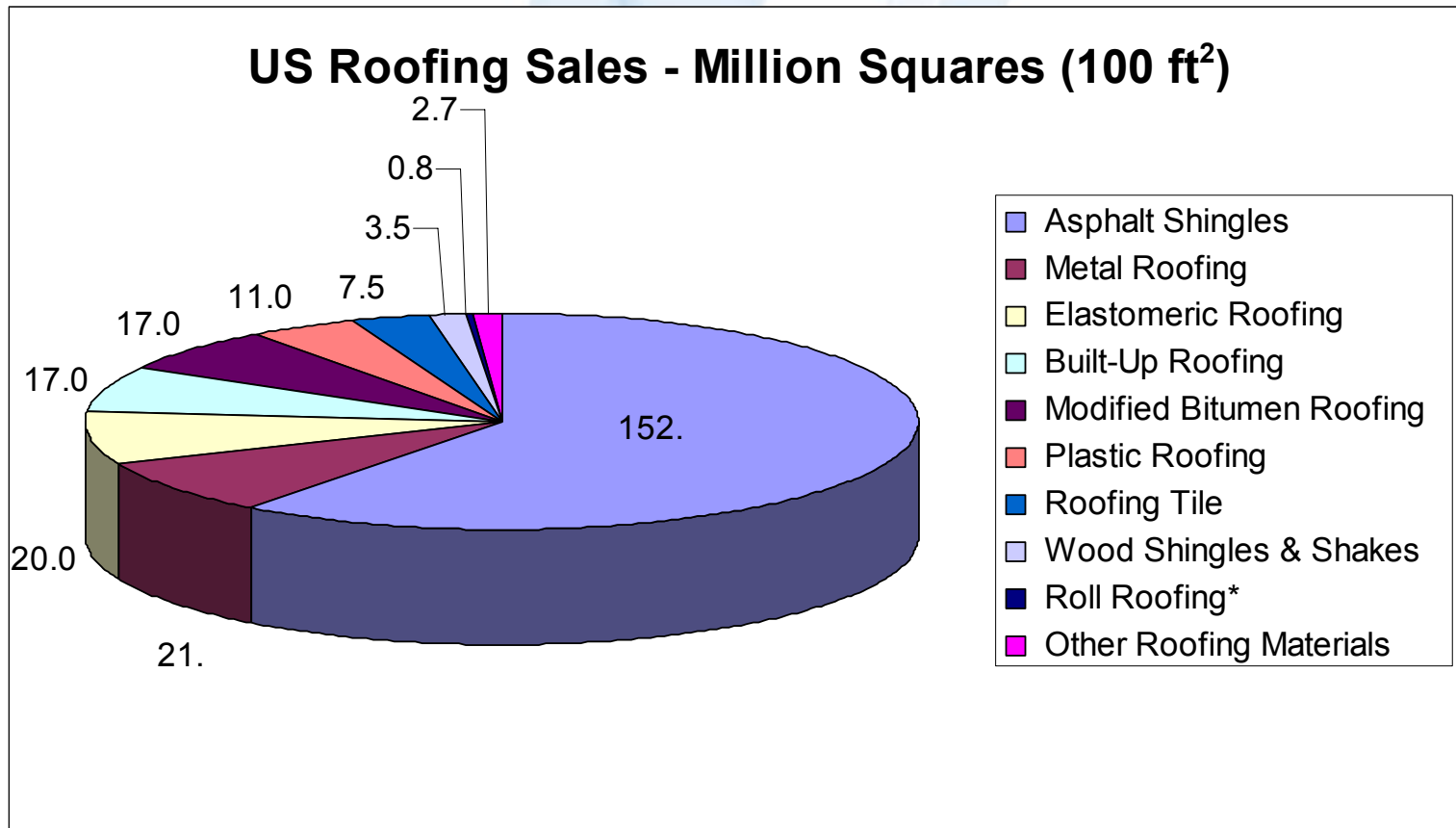
DBS BIPV Product Design Economic Impact





United States Roofing Market

1 Million Squares Represents 1 G-Watt Annual Installation Opportunity





Building Integrated Photovoltaics

Why won't it be successful?

1. It simply doesn't work
2. Costs too much/Subsidies go away
3. Lack of government mandates on Net Metering/Utility Resistance
4. Lack of Builder/Installation Support
5. Code Approval/NEC/Safety
6. Supply/Distribution
7. Failure of new product in an existing market



Thank You