



Photovoltaics in the USA

Detailed Analysis of a Future Solar Market

Updated Short Version – Taking Account of the New Legal Situation

Agenda

- A. Background, Objectives & Method**
 - B. List of Questions from Quantitative Survey (Excerpt)**
 - C. Contents of the Study: Overview and Example Slides**
 - D. Summary: Product Description**
- Editorial**

A.1. Background

Be the first to get a comprehensive picture of the American photovoltaic market – from an expert’s point of view. The updated version published in October 2008 includes an analysis of the impacts of the new ITC passed on October 3rd, 2008.

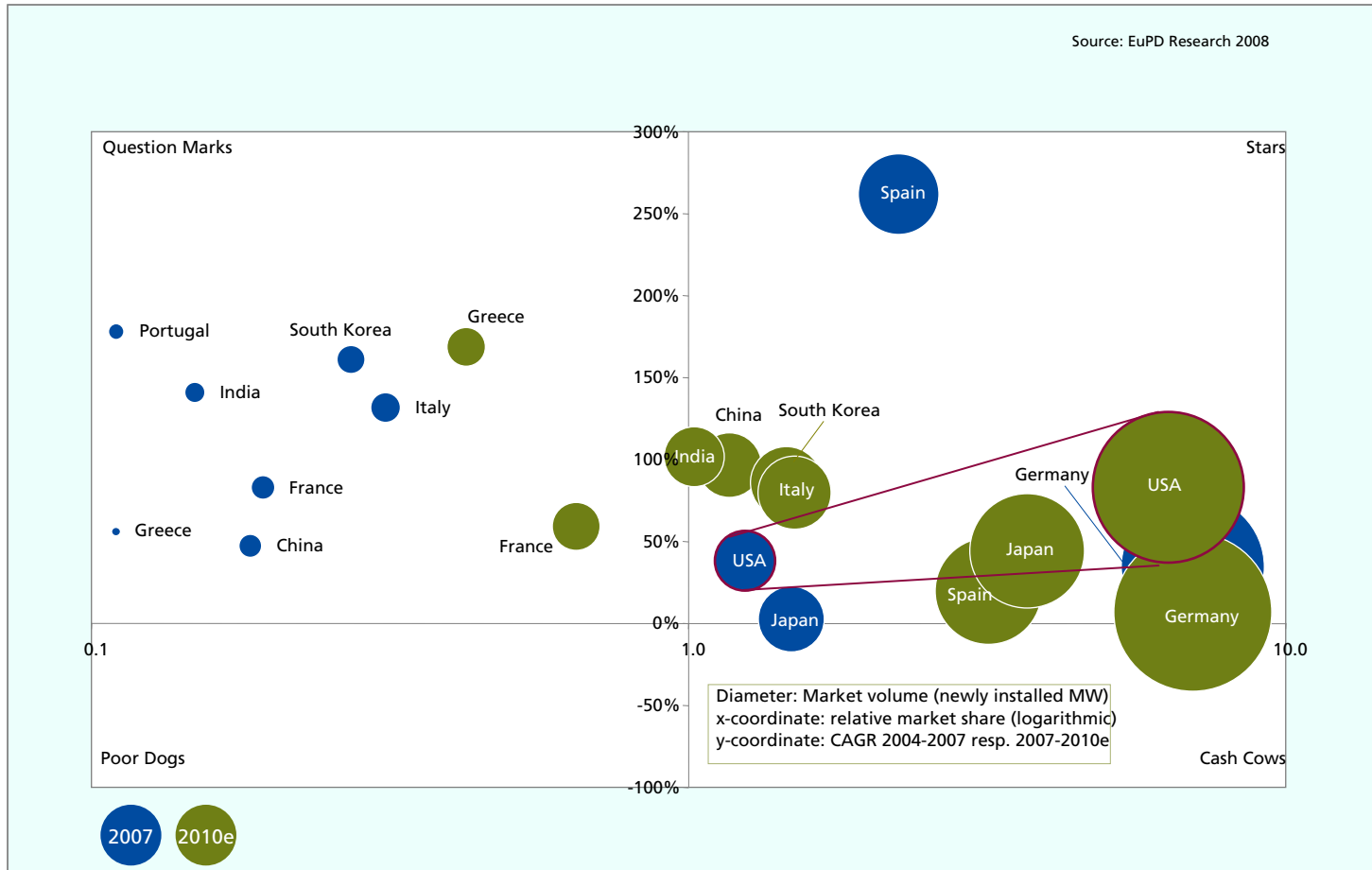
There is good evidence that the US photovoltaic market will be one of the key future markets for photovoltaics. However, up to now, the market has had to struggle with erratic political support for renewable energies, as well as highly complex promotion structures and strong fragmentation due to the 50 separate state markets.

The new study by EuPD Research, based on a quantitative inquiry of around 120 US PV companies, provides all the relevant information on the American market in a concise and comprehensive way to help you optimize your business activities despite these difficulties.

In the analysis, EuPD Research draws upon knowledge gained in more than 200 research projects in the field of photovoltaics. Our experience in the world’s biggest PV market Germany and the other relevant international markets – such as Spain, Italy, France and Japan – helps us to better understand and evaluate the developments in one of the world’s most promising solar markets. Thus, you will receive an objective, overall picture based on solid, quantitative data that is created by the most experienced market research institute in the field of photovoltaics.

A.1. Relevance of the US PV Market

The future role of the USA in the world PV market

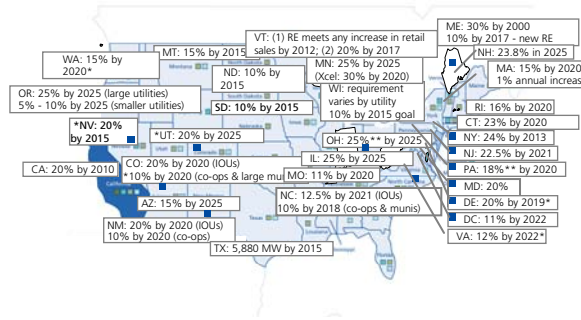


For the years 2007 to 2010, the US market is considered to be the main driver for the worldwide growth of photovoltaics, as stagnation can be observed in Europe.

A.1. Challenges in the US Market

However, companies planning to enter the US market have to face a range of difficulties...

Complex promotion conditions...



The market is characterized by a multitude of different promotion instruments on the national level and on the level of the different states.

Size....



With a surface area of about 9,826,630 km², the USA is almost thirty times bigger than Germany (357,021 km²) or Japan (377,873km²). The large distances are a big challenge for companies.

Special product requirements....



In preparatory talks, some companies stated that a module that sells well in Europe does not necessarily sell well in the USA. But what product characteristics are required?

A.2. Objectives

The study on the American PV market provides well-founded market knowledge on the basis of an exact analysis of primary and secondary information. In order to adjust the study to take into account the new situation with the extension of the main national promotion instrument – the tax credit – the study was updated with the help of a survey conducted among market participants and experts such as the Solar Electric Power Association (SEPA) in October 2008.

The short version of the presentation provides a summary of the most important results. Aspects that are only included in the full version are highlighted in gray.

The presentation contains information on the following aspects:

- PESTE analysis (Political, Economical, Social, Technological and Environmental framework conditions) (reduced edition)
- Identification of the states in the USA with the biggest current and future potential (reduced edition)
- Information on the American PV industry (reduced version)
- Distribution structures (reduced edition)
- Market segments and their potential (reduced edition)
- Product and service offers (reduced edition)
- Price level and development (reduced edition)
- Factors that promote and hinder market growth (reduced edition)
- Market forecast (reduced edition)
- Special highlighting of electric utilities' role in the market (only in full version)
- Special highlighting of most common financing model on the market (Power Purchase Agreements) (only in full version)

A.3. Research Design

Survey Method	<ul style="list-style-type: none">▪ Quantitative telephone survey (CATI) among system integrators/distributors/project developers and installers: 113 completed questionnaires▪ Length of interview ca. 45 min▪ Qualitative face-to-face interviews among electric companies, investment companies and market experts for additional information as well as validation of results
Sample	<ul style="list-style-type: none">▪ 113 interviews with PV installation companies, system integrators, wholesalers▪ Field time June-July 2008 (main survey)▪ Ca. 20 interviews with electric utilities and market experts
Secondary research	<ul style="list-style-type: none">▪ Internet and market studies▪ Long-standing EuPD Research Database▪ International conferences and presentations

B.1. List of Questions of Quantitative Survey (Excerpt)



Question Group: General Structural Data

- The company's core business
- Key data such as employees and turnover 08/09
- Circle/range of customers
- Sold capacities 07/08/12
- Segmentation of the sales market according to size categories for each company, total market and state markets



Question Group: Product Policy

- Share of specific module technologies
- Product portfolio of modules according to brands/technologies, for inverters and mounting systems
- Justification of the choice of suppliers for the purchase decision



Question Group: Pricing Policy

- Development of purchase prices for PV modules 08/09 according to technologies
- Development of (end customer) system prices for large- and small systems 08/09 according to technologies
- Margin requirements for installation and retail business



Question Group: Procurement and Distribution

- Procurement channels for modules, inverters and mounting systems
- Classification of suppliers
- Market shares of suppliers
- Cooperation



Question Group: Product and Service Offer

- Products on offer
- Required product qualities including brand qualities and design
- Services on offer
- Services in demand



Question Group: Communication

- Frequency of use of information sources



Question Group: Market Outlook

- Market barriers
- Drivers for market growth
- Expected changes in promotion instruments
- Market forecast 2008-2012 for total market and state markets

c.1. Contents of the Study – Short Version: Overview

A. Introduction

1. Objectives
2. Research Design

B. Analysis of Framework Conditions for PV (PESTE Analysis)

1. Economic Data
2. US Energy Policy
3. Promotion for Photovoltaics

C. Potential for PV in the States

D. The PV Industry in the US

E. Empirical Market Analysis

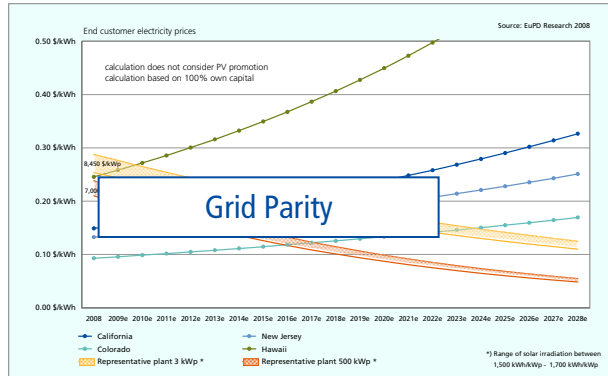
1. Sample Description
2. Market Segments
3. Distribution
4. Prices
5. Product and Service Policy
6. Communication Instruments

F. Future Market Development

1. Growth Drivers and Hindrances
2. Market Forecast

Editorial

c.1. Framework Conditions: Further Analyses



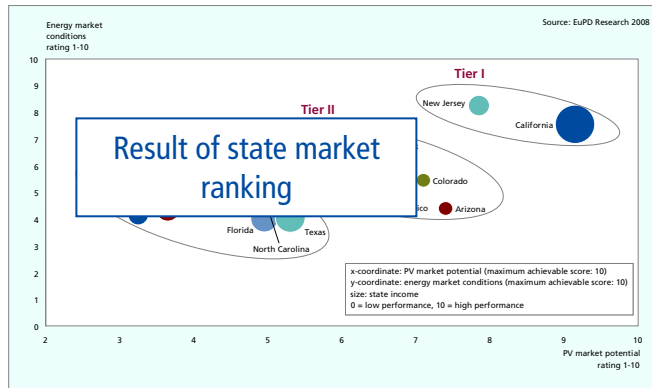
Research topics regarding framework conditions included in the short version

- Macroeconomic environment: political, economical, social, technological facts, business indicators such as inflation rate and bankruptcy filings, energy facts & figures
- Promotion for photovoltaics in the USA (not for individual states)
- Solar irradiation
- Electricity price development

Additional research topics regarding framework conditions included in the full version

- Reaching of grid parity
- Citizens' attitude towards solar
- Macroeconomic environment incl. per capita income, GDP growth rate, customer satisfaction index, unemployment rate, export statistics
- Current and future energy policy
- Electricity prices according to states

c.1. State Market Ranking: Further Analyses



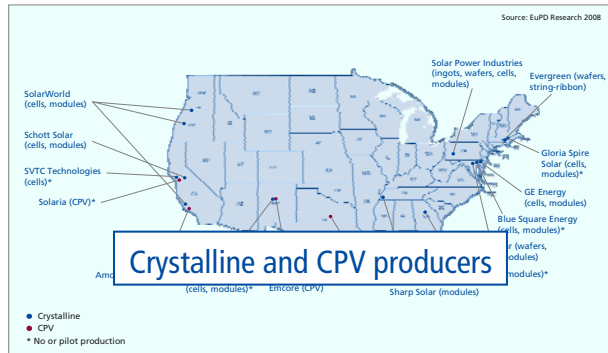
Research topics regarding state market ranking included in the short version

- Detailed analysis of all 50 US states regarding their potential for PV
- Ranking of states according to this potential

Additional research topics regarding state market ranking included in the full version

- Detailed analysis of the top ranking states including current promotion conditions, installed capacity and future outlook
- Analysis of promotion instruments in California
- Data on currently valid promotion levels of the California Solar Initiative in the different utility areas
- Analysis of promotion instruments in New Jersey
- Analysis of promotion instruments New York
- Analysis of promotion instruments Nevada
- Analysis of promotion instruments Colorado

c.1. PV Industry: Further Analyses



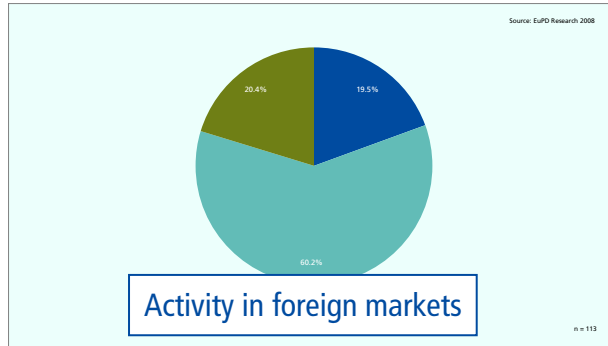
Research topics regarding PV industry included in the short version

- Overview of production facilities in the field of thin film, crystalline and CPV
- Source: EuPD PV Heaven

Additional research topics regarding PV industry included in the full version

- Development of production output 2006 to 2010e in the field of thin film
- Development of production output 2006 to 2010e in the field of crystalline and CPV cells
- Development of production output 2006 to 2010e in the field of modules

c.1. Market Players: Further Analyses



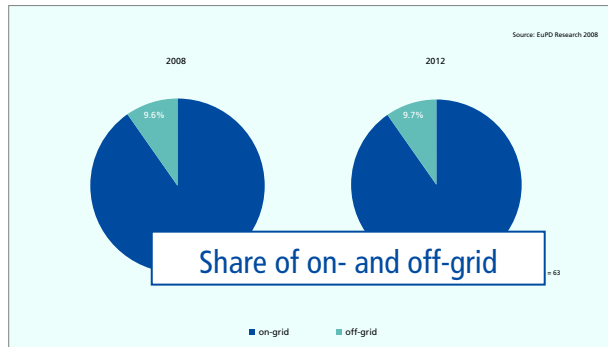
Research topics regarding market players included in the short version

- Types of companies
- Business activities
- Turnover development
- Number of employees
- Duration of activity in PV
- Range of activity

Additional research topics regarding market players additionally included in the full version

- None

c.1. Market Segments: Further Analyses



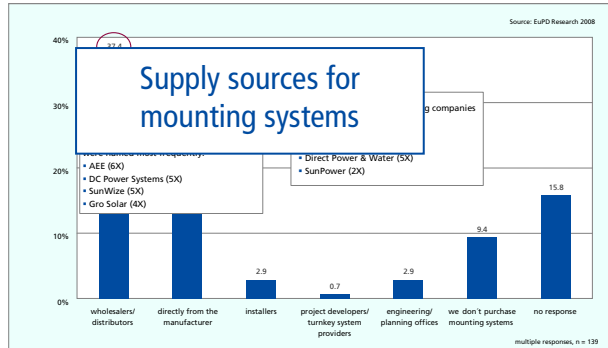
Research topics regarding market segments included in the short version

- Market shares of end customer groups, technologies, system types and system sizes in 2008 and 2012 for the entire US market
- Share of different thin film technologies
- Relevant off-grid segments
- Share of new and old buildings

Additional research topics regarding market players included in the full version

- Market shares of end customer groups, technologies, system types and system sizes in 2008 and 2012 for the most important state market California
- Market segmentation off-grid market (frequencies)
- Special analysis of utility and large-scale segment
- Relevance of Power Purchase Agreements

c.1. Distribution: Further Analyses



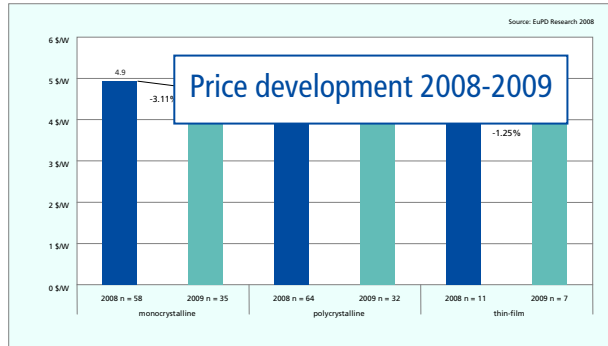
Research topics regarding distribution included in the short version

- Offered module brands
- Cooperation partners
- Supply sources for modules, inverters and mounting systems
- Delivery times
- Evaluation of availability
- Customers

Additional research regarding topics distribution included in the full version

- Distribution sales channels and sold quantities
- Most common distribution chain

c.1. Prices and Price Development: Further Analyses



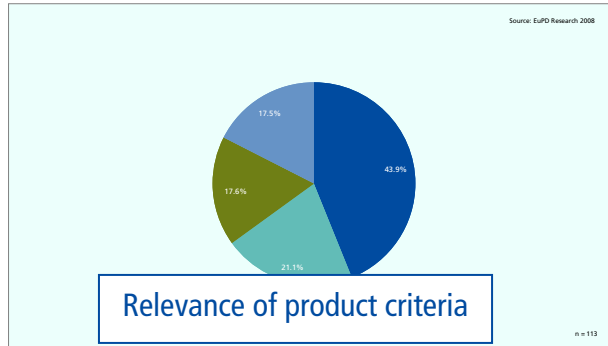
Research topics regarding prices and price development included in the short version

- Price development 2008 to 2009 for modules and system according to sizes

Additional research topics regarding prices and price development included in the full version

- Module prices for the different technologies (monocrystalline, polycrystalline, CdTe, a-Si) in the form of boxplots
- Prices for different system sizes according to technologies (monocrystalline, polycrystalline, a-Si) in the form of boxplots
- Margin requirements for installation and trading

c.1. Products and Services: Further Analyses



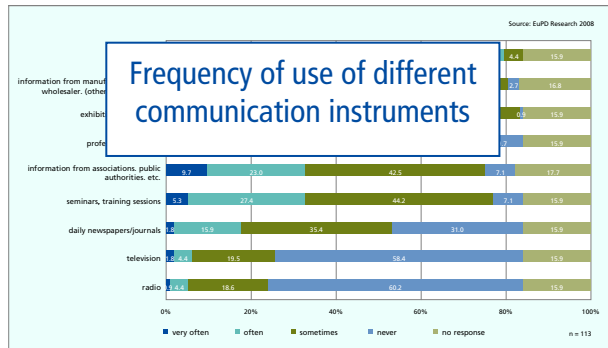
Research topics regarding products and services included in the short version

- Offered module brands
- Share of brands in total sales
- Share of complete systems in sales
- Relevance of product criteria for the choice of modules
- Services on offer

Additional research topics regarding products and services included in the full version

- Share of module brands in companies' total sales
- Importance of criteria for choice of module brands – product criteria (frequencies)
- Importance of criteria for choice of module brands – company brand qualities (frequencies)
- Importance of criteria for choice of module brands – design (frequencies)
- Services in demand
- Usage of information sources (frequencies)

c.1. Communication: Further Analyses



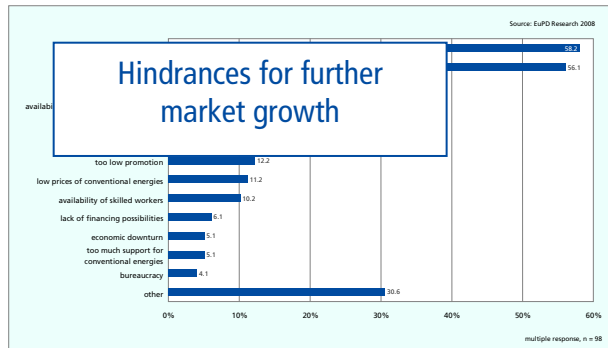
Research topics regarding communication included in the short version

- Used information sources (mean values)
- Frequency of use

Additional research topics regarding communication included in the full version

- Used information sources (frequencies)

c.1. Future Market Development: Further Analyses



Research topics regarding future market development included in the short version

- Drivers and hindrances for further market growth
- Expected changes in promotion on the national and state level
- Market forecast for the US market

Additional research topics regarding future market development included in the full version

- Most relevant state markets with respect to the grid-connected PV market according to companies
- Expected installed capacity in selected state markets in 2008 and 2012

D.1. Summary: Product Description

The EuPD Research study on the US Photovoltaic Market delivers...

- assessments on the US photovoltaic market from a company with a long-standing research background in the photovoltaic industry
- reliable evidence on the basis of a quantitative survey with 113 companies
- analysis of all aspects that are relevant for acting successfully the market

Study Highlights (Short Version)

- systematic analysis of the state markets
- quantitative data taking into account the new situation with the extension of the main national promotion instrument – the tax credit – on October 3rd, 2008

Contents of the Study Package (Short Version)

- chart report of more than 100 pages (bound)
- charts as pdf file (CD-ROM)
- workshop at your company's premises with two EuPD Research analysts if required

Editorial

EuPD Research

Adenauerallee 134

53113 Bonn

Telephone +49 (0) 228-971 43-0

Fax +49 (0) 228-971 43-11

welcome@eupd-research.com

www.eupd-research.com

Contact for Europe & Asia

Sarah Endres

Research Manager

Contact for the Americas

Patrick Rossol-Allison

Vice President USA Branch

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