



**EVERGREEN  
SOLAR**

***SEBANE Annual Meeting***

*May 3, 2005*

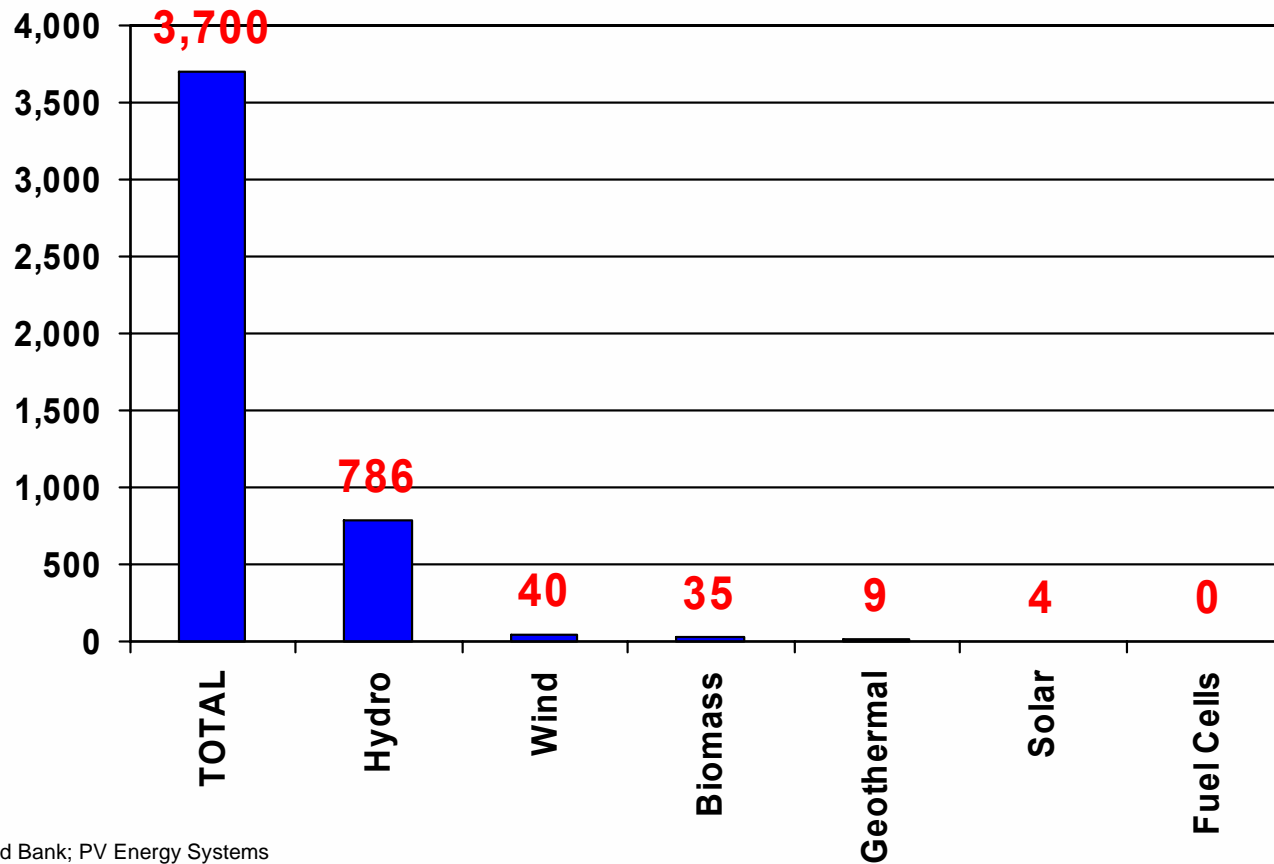
***Mark A. Farber***

*Vice President  
Strategic Planning*



## Renewable energy in perspective

Global Electricity Generating Capacity, GW, 2003  
(excluding buildings and transportation)

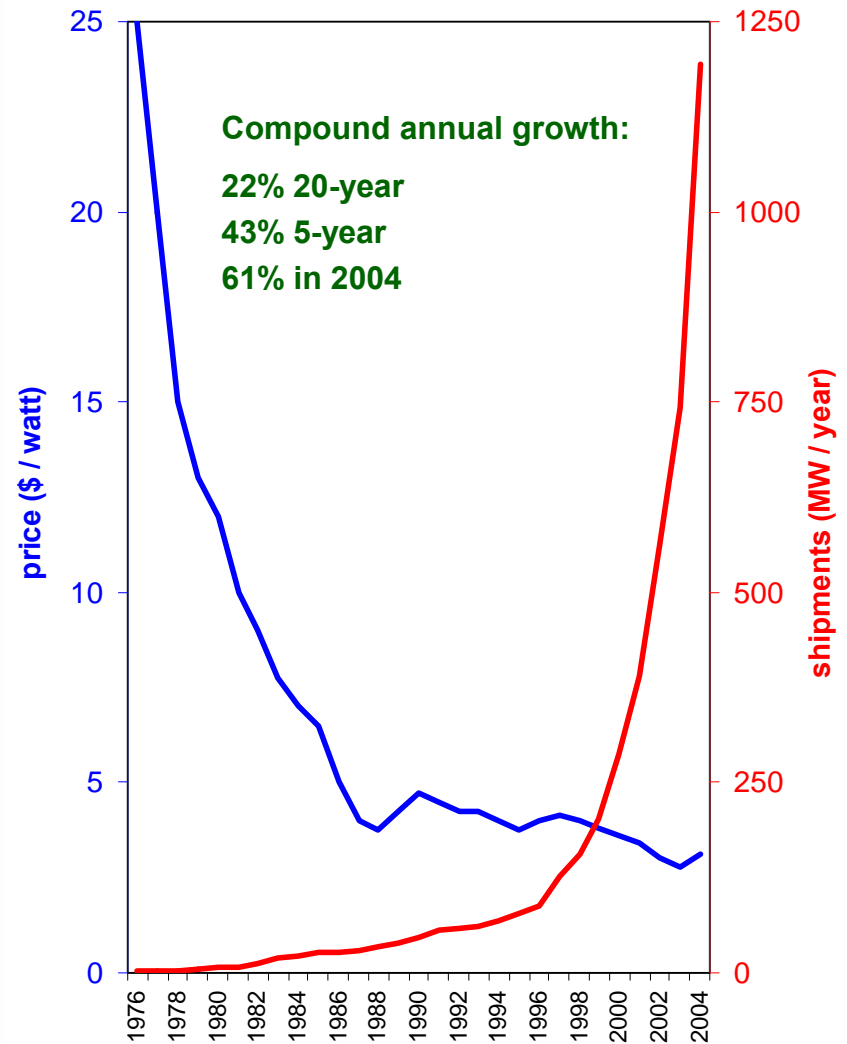


Source: Eric Martinot, World Bank; PV Energy Systems



## Photovoltaics market growth

- ◆ Growing at an increasing rate
- ◆ Fueled by subsidies in on-grid markets
- ◆ 2005 developments:
  - Spain, Italy, other Europeans
  - China
  - California, Texas, New York, Arizona, Colorado, DC, Pennsylvania



Source: PV Energy Systems



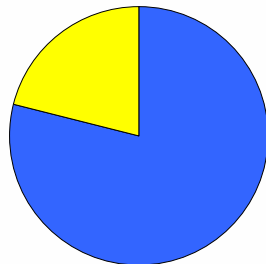
# Major market segments

Off-grid  
wireless power



Global PV Market  
(2004)

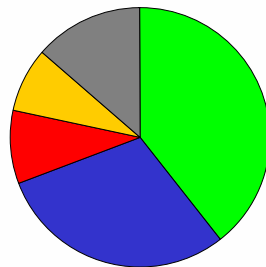
- On-grid
- Off-grid



Off-grid  
rural electrification



- Germany
- Japan
- US
- Rest of Europe
- Rest of World



On-grid



Source: Solarbuzz



## Germany fuels the 2004-2006 market



German 20-year Feed-in Rates



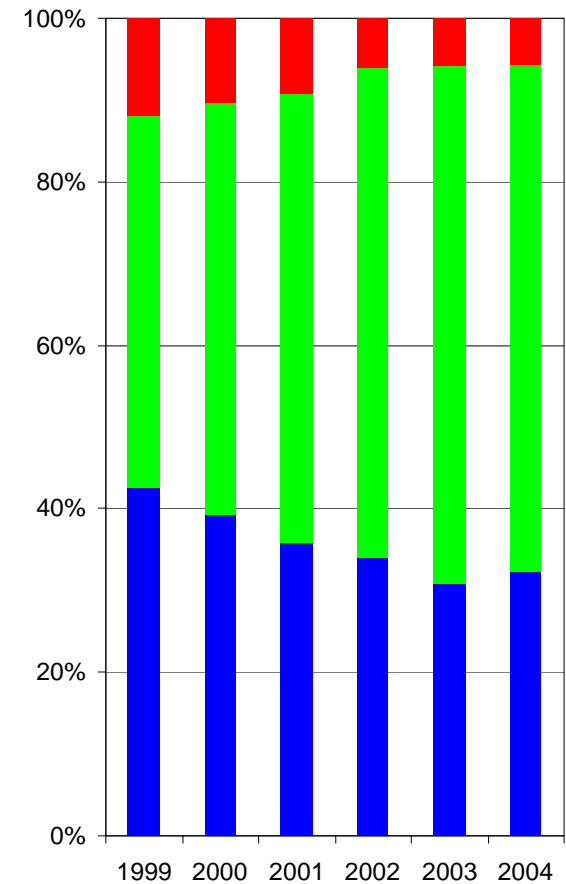


## Technology trends

- ◆ Crystalline silicon still dominates, but all are growing

### 2004 Growth by Technology

Thin film	63%
Polycrystal silicon	64%
Monocrystal silicon	77%



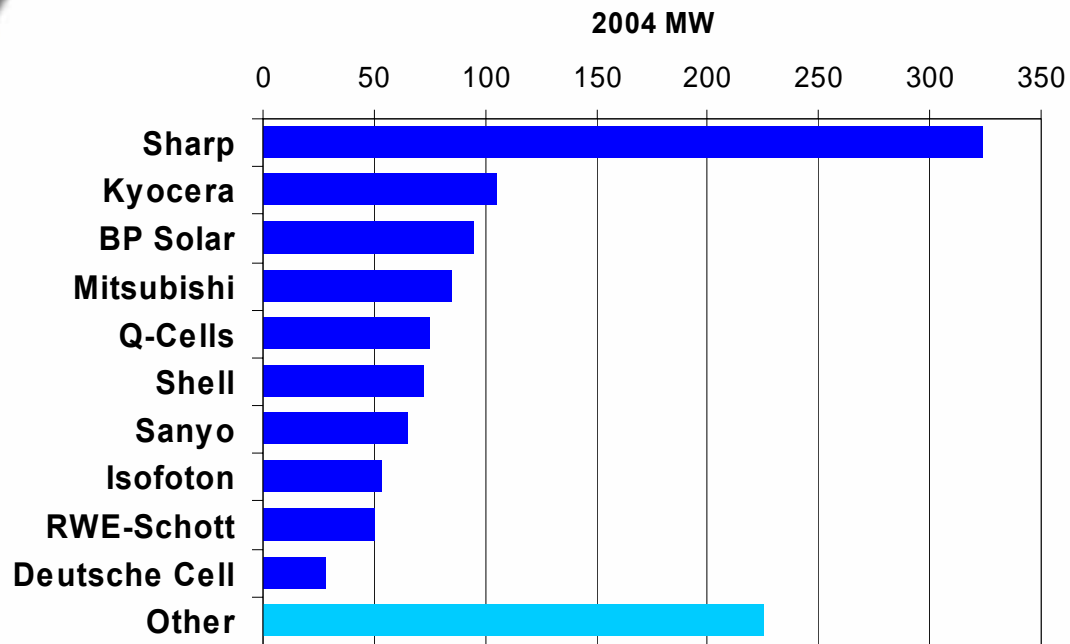
- Thin film
- Polycrystalline silicon
- Monocrystalline silicon

Source: Solarbuzz



## Global competition

- ◆ 7 of top 10 are large multinationals
- ◆ No US-owned companies in top 10



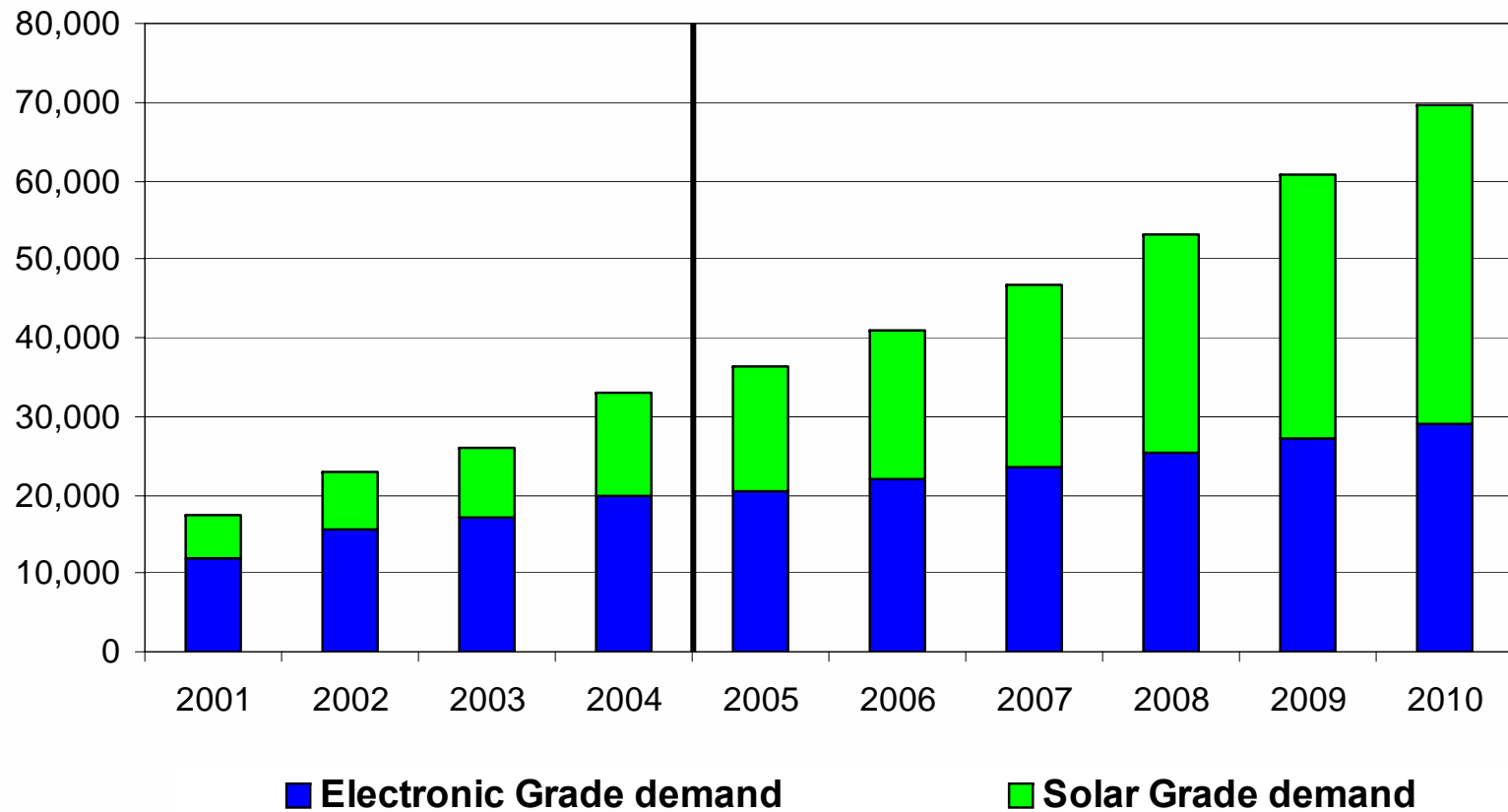
Source: PV Energy Systems





## Silicon becoming critical factor

**Silicon Market**  
(metric tons)

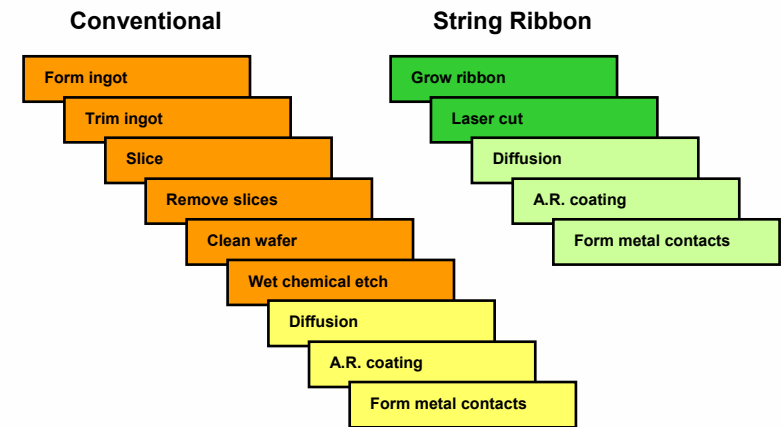




## Evergreen Solar's technological advantage

- ◆ String Ribbon wafers:
  - 1/3 less silicon – targeting 2/3 less
  - Fewer process steps
  - No sawing cost
  - No acid pre-processing
  - More energy efficient

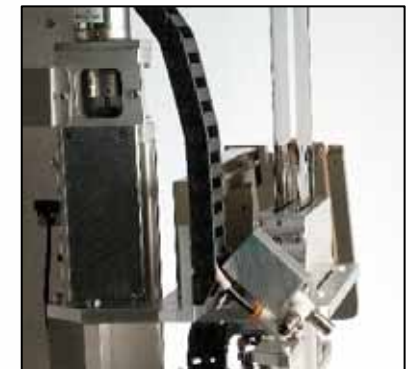
### Fewer Process Steps



### Ingot Based



### String Ribbon





## A decade of progress

1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007

▲ Mobil founders -- MIT technology

R&D on wafers, cells, modules

▲ First product shipped

Process development (**0.05 MW**)  
Generation I (2-inch single)

▲ IPO

Technical validation / Pilot (**3 MW**)  
Generation II (3-inch single)

Commercial validation (**15 MW**)  
Generation III (3-inch double)

▲ R&D demo -- Generation IV (quad, 150 micron)

Commercial scale (**~ 45 MW**)



## Manufacturing in Marlboro since May 2001

- ◆ Third generation technology
  - 2.2-inch single ribbon
  - 3.2-inch single ribbon  
33% faster pulling speed
  - 3.2-inch double ribbon  
12% faster pulling speed
- ◆ 115 furnaces operating 24/7



## Aggressive R&D

- ◆ 150 micron ribbon – fourth generation
  - Half the silicon of current Gemini
  - Built on Gemini platform
- ◆ Quad ribbon
  - Simplified growth technique (patent pending)
  - Another doubling of wafer output with 4 ribbons per furnace
- ◆ High efficiency cells
  - Currently 13%
  - Targeting 14 – 15%

150 Micron Ribbon



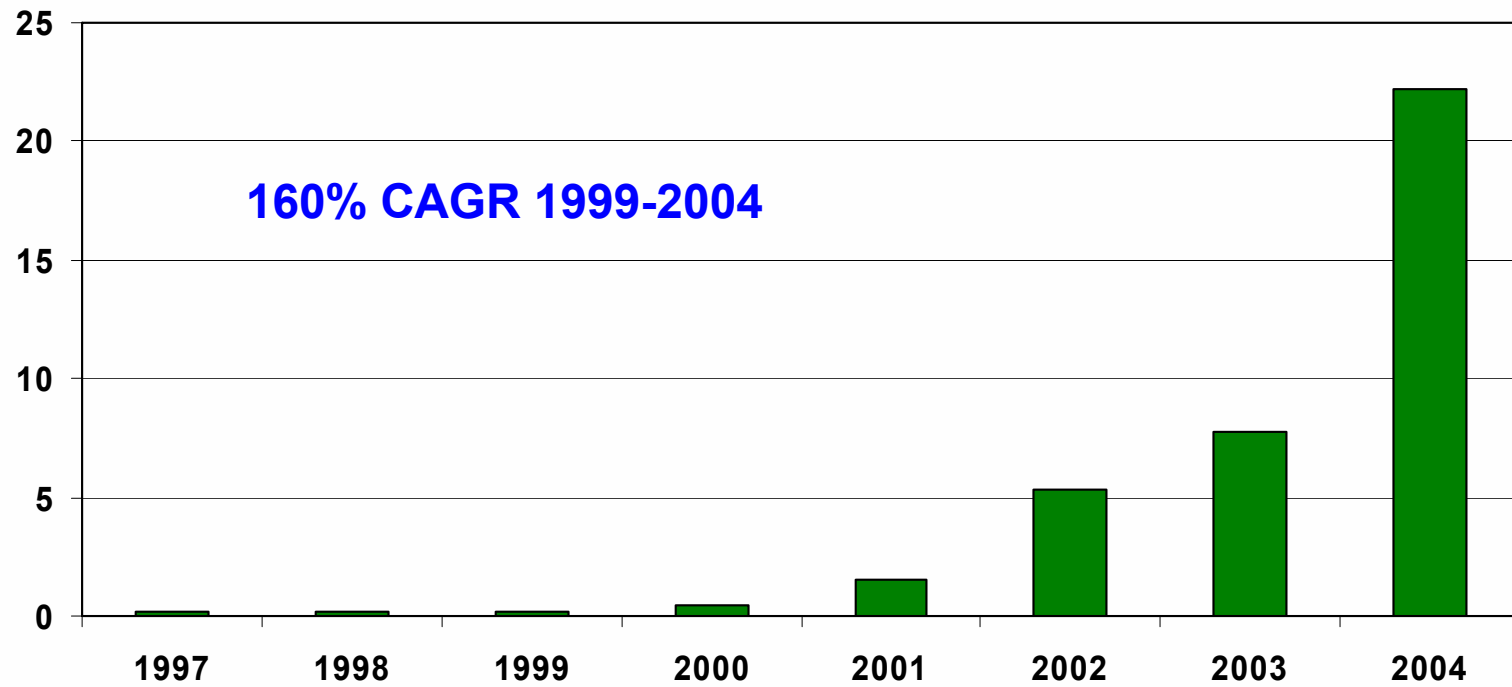
Quad Ribbon





## Ramping up sales

Evergreen Solar Product Revenue  
(\$ millions)





## Joint Venture with Q-Cells

### JV Highlights

- ◆ Announced January 2005
- ◆ Evergreen 75%, Q-Cells 25%
- ◆ Q-Cells is world's largest and most rapidly growing independent cell producer
- ◆ JV will manufacture in Germany: 30 MW mid-2006 (initially)

### Strategic Benefits

- ◆ Combining Evergreen technology with Q-Cells execution
- ◆ Accelerates and lowers risk of volume ramp and European market penetration



## Summary

- ◆ Rapid market growth continues, driven by on-grid subsidies
- ◆ Evergreen growing faster than the market