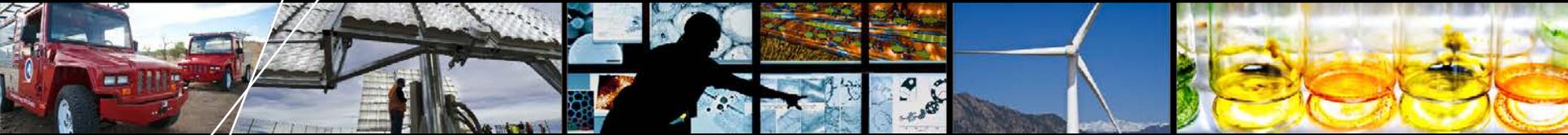


Using Solar Business Models to Expand the Distributed Wind Market



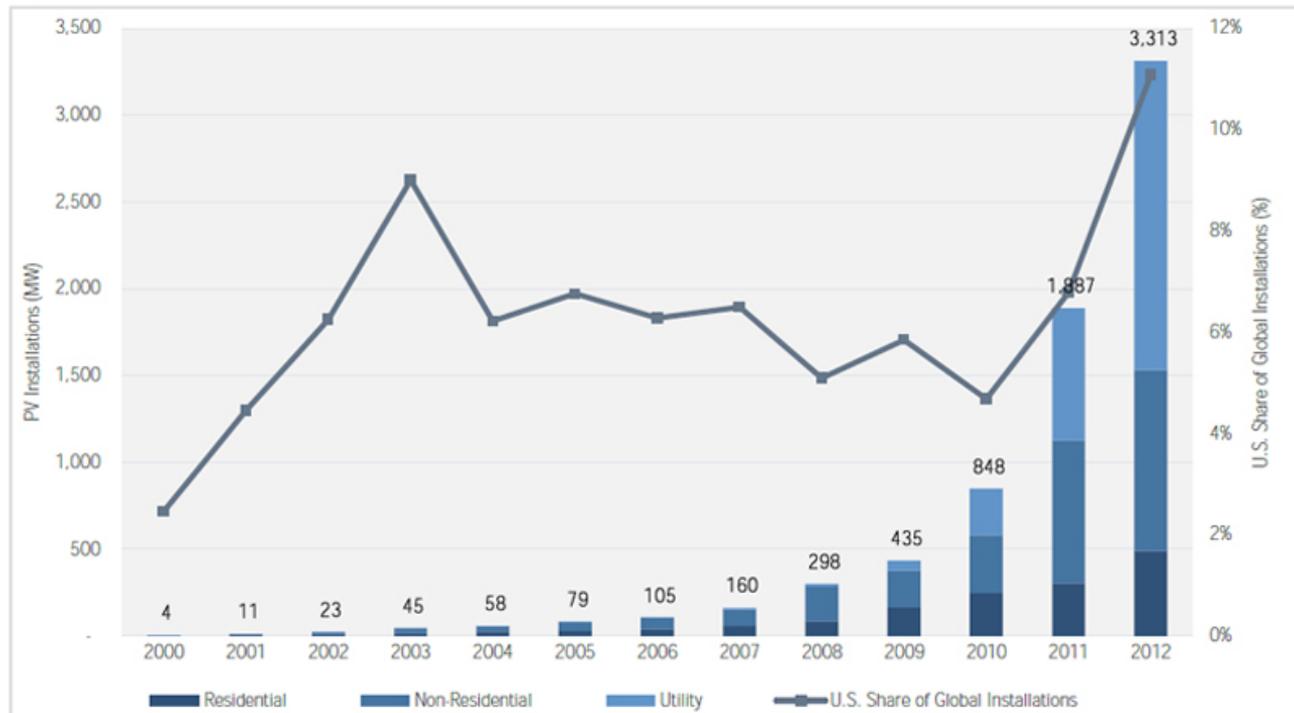
WPA All States Summit

Stephanie Savage

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Solar PV in 2012

Figure 2.1 U.S. PV Installations and Global Market Share, 2000-2012



Installations (MWdc)	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Residential	1	5	11	15	24	27	38	58	82	164	246	302	488
Non-Residential	2	3	9	27	32	51	67	93	200	213	336	826	1,043
Utility	0	3	2	3	2	1	0	9	16	58	267	760	1,781
Total Installations	4	11	23	45	58	79	105	160	298	435	848	1,887	3,313

Business Models Supporting Rapid Growth in the Solar Industry

- **Third-party power purchase agreements**
- **Residential leases**
- **Partnership flips**
- **Complex financial engineering**
 - Sale-Leaseback transactions
 - Inverted leases
- **Crowdfunding/Community Projects**

Market Characteristics - Solar v. Wind

Solar	Wind
Modules approaching commodity status	Small-scale manufacturing
Well-established testing requirements	Equipment certification relatively new
Many equipment manufacturers and suppliers	Fewer equipment manufacturers and suppliers
Resource uncertainty is low	Resource assessment & micro-siting for distributed projects can be challenging
Distributed PV is more socially accepted	Wind turbines are often controversial
Decreasing equipment costs	Increasing equipment costs?
Projects are easily replicated	Each project is relatively unique
Permitting is generally straightforward	Permitting can be challenging and variable
Low maintenance costs & requirements	Maintenance is critical to a successful project
= Less Risk	= More Risk

Recommendations

- **Implement Low-Cost Policies**
 - Expanded net metering & simplified interconnection
 - Small wind ordinances
 - Simplified environmental permitting
- **Support Consumer Education**
 - Small Wind Certification Council
 - Share owner's experiences
- **Encourage Appropriate Wind Installations**
- **Consider Feed-in Tariffs**
 - Production-based, not cost-based incentives

Stephanie Savage

Project Development & Finance, NREL

Stephanie.savage@nrel.gov

303.275.3950