



SOLAR ENERGY
TECHNOLOGIES OFFICE
U.S. Department Of Energy

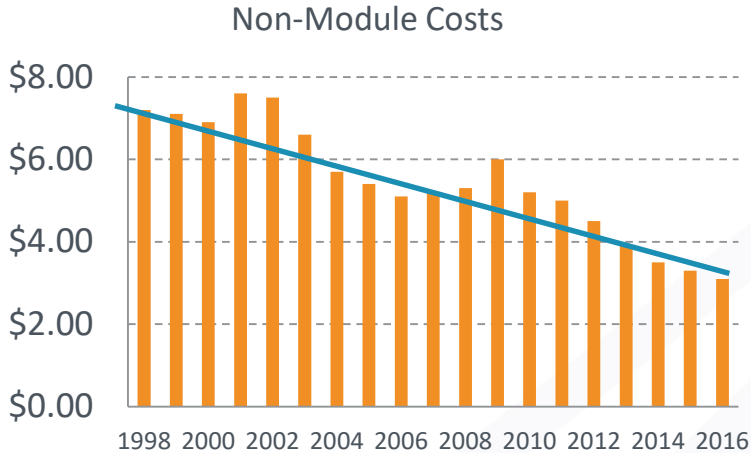
Soft Costs in Solar Today: Opportunities for Non- Federal Actors

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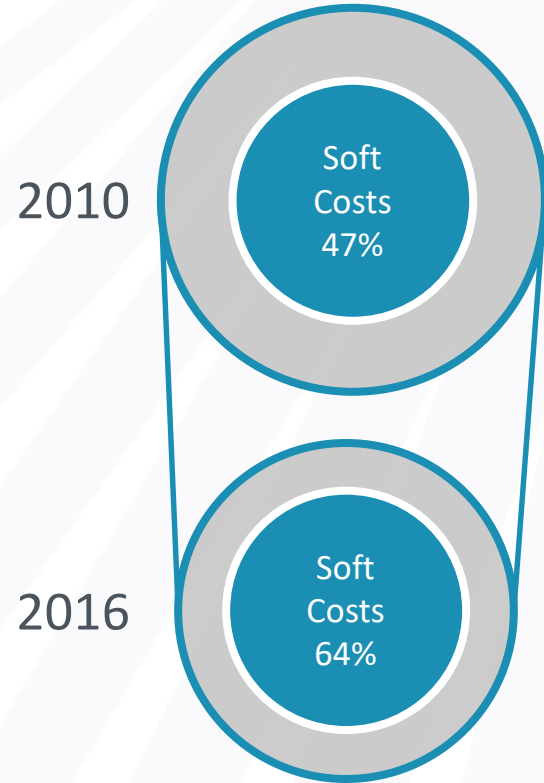
US DOE Solar Energy Technologies Office

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Soft Costs are Declining (Just not as rapidly as Module Costs)

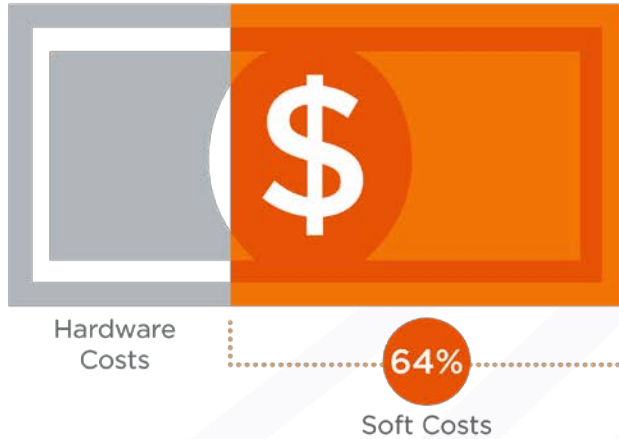



Between 2008 & 2016
40%
Decrease in Non-Module Costs



Source: NREL
Implied Non-Module Cost is used as a proxy for soft costs due to data limitations
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Soft Costs Can Be Traced to Specific Sources, but Vary Widely



4% 
Permitting, Inspection,
Interconnection (and associated fees)

9% 
Marketing/Customer Acquisition

11% 
Labor

11% 
Financing

30% 
Supply chain, overhead, margin
("Corporate Costs & Profit")

Why Address Soft Costs?

Export Focus		Domestic Focus					
Capital Equipment	Direct Materials	Module Mfg	Inverters Electronics	Sales Distribution	Financial Services	Developers Installers	Operations Services Utilities
\$250M	\$1.1B	\$900M	\$680M	\$1.4B	\$2.8B	\$17.3B	\$375M
35,000 jobs				30,000 jobs	10,000 jobs	170,000 jobs	15,000 jobs
Combined value: \$25B/year							

Red tape related to solar installations can drive up costs and limit solar adoption. In the U.S., there are



18,000 JURISDICTIONS,

3,000 UTILITIES,

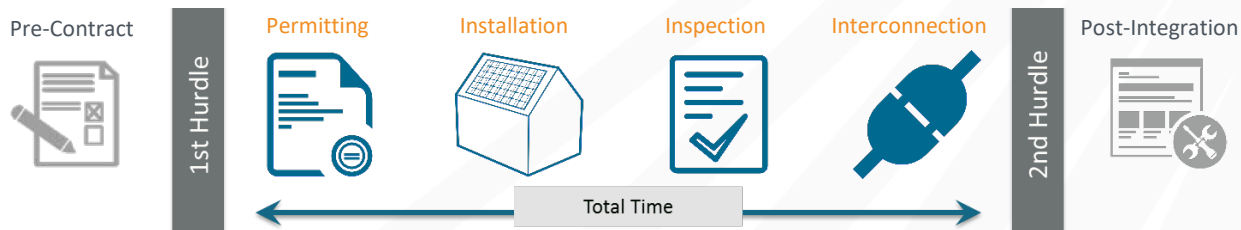
50 STATES,

with different rules and regulations.

Unlike physics, where we can fundamentally figure out the upper limit for the efficiency of solar cells, there is no such limit to bureaucracy.



“Well, let's say you can shave 10 seconds off of the boot time. Multiply that by five million users and that's 50 million seconds, every single day. Over a year, that's probably dozens of lifetimes. So if you make it boot ten seconds faster, you've saved a dozen lives. That's really worth it, don't you think?”

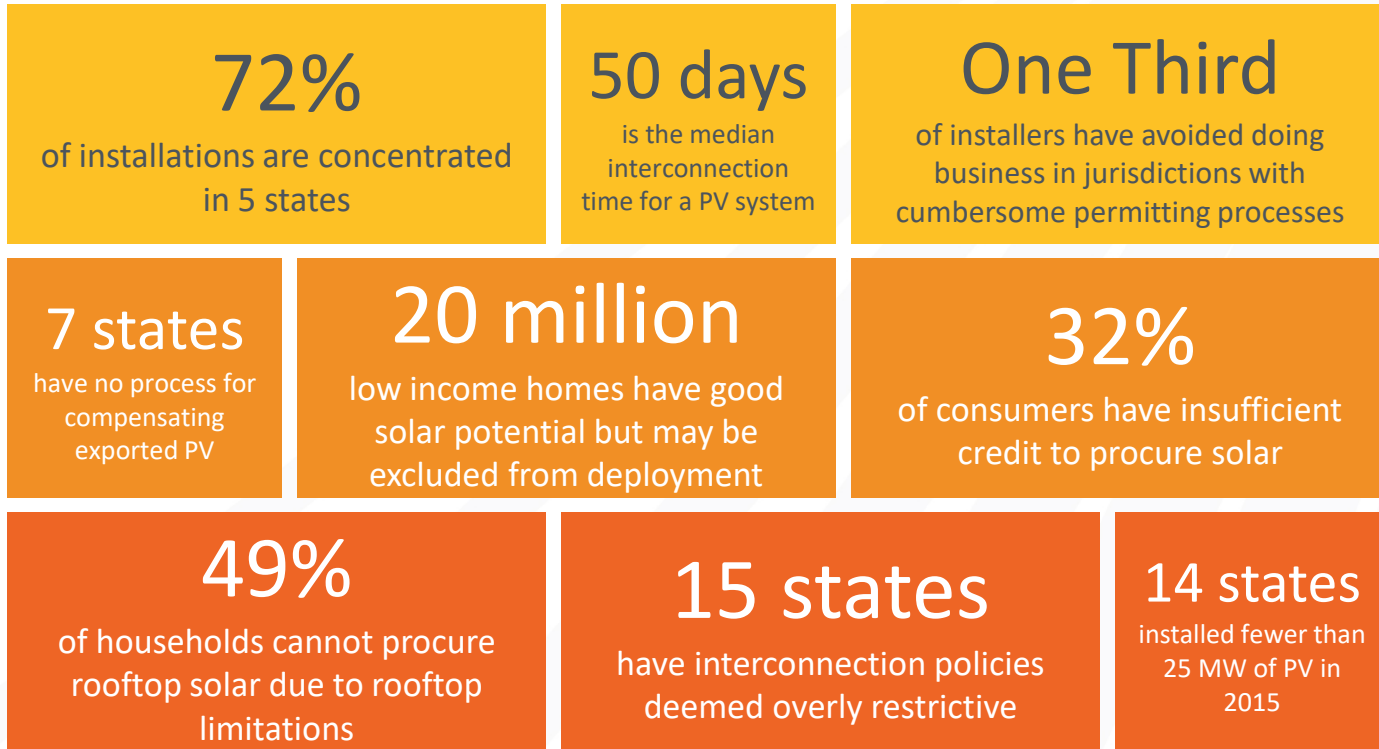


If every system installed in 2016 is delayed unnecessarily by just one day, the cost to the market will be approximately

\$5.6M/day*

*Lost revenue from electricity sales. Calculations based on estimated 16 GW deployment level for 2016, assuming historic average irradiance of electricity generation a day and at weighted average retail price of \$0.07 per kWh.

Market Barriers and Fragmentation Create Soft Costs



A Market Opportunity Ripe for Innovation

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