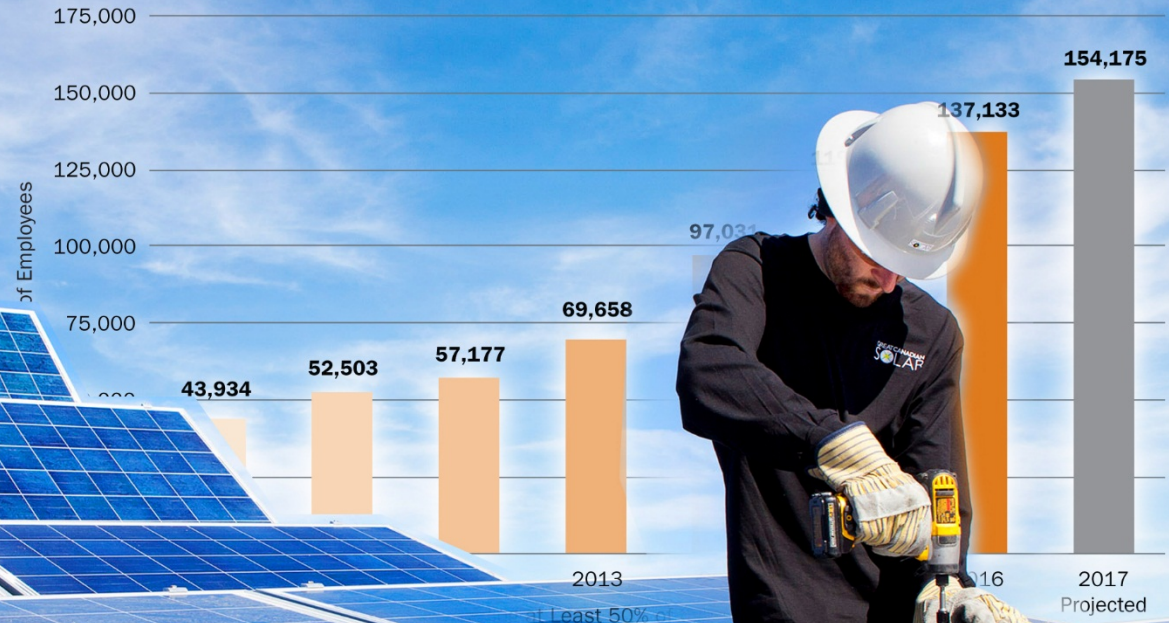


# THE SOLAR INDUSTRY

Solar Installation Employment Growth, 2010–2017



## JOB GROWTH 2017

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# A Greener World

Being environmentally friendly is the de facto mindset of most people today. Many cities provide recycling bins for their residents. Gym goers carry around reusable water bottles instead of disposable plastic ones. Businesses proudly tell their customers that their shopping bags are made from 100 % recycled material. As a whole, we've all gone GREEN...

A few things we think you should know...

- Green jobs, especially those in solar energy, are on the rise
- Solar companies will add jobs at a greater rate than the rest of the economy
- If working in an environmental field is important to you, [find out about necessary courses](#)

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# Looking for a Job in Solar Energy?

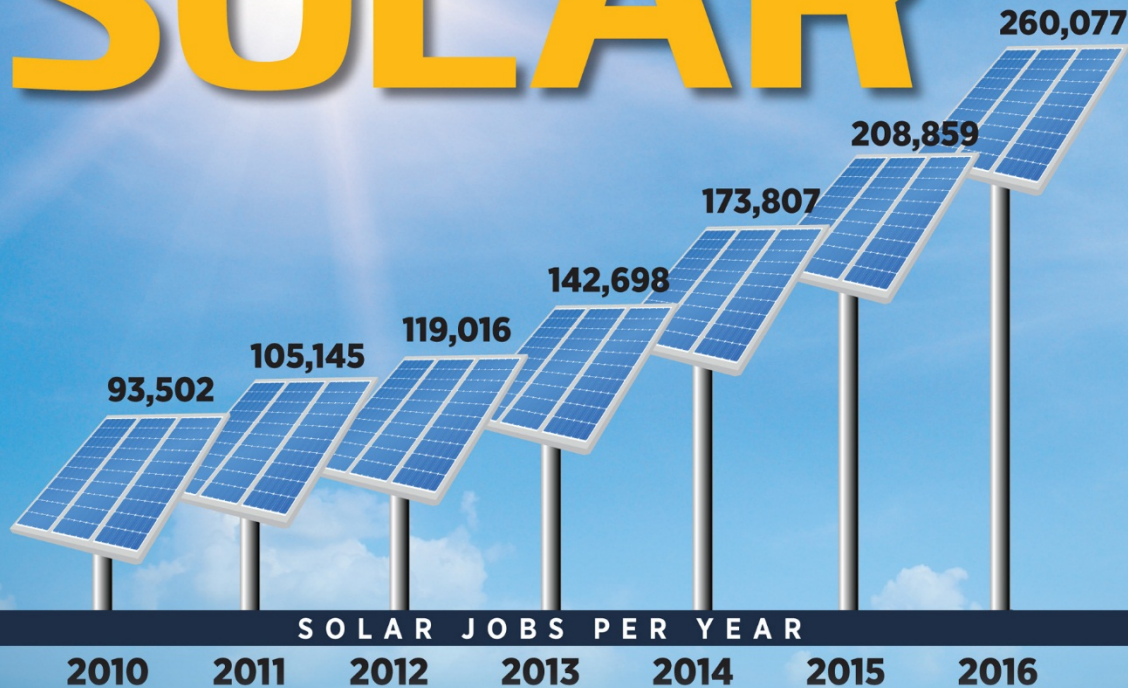


The solar industry is one of the fastest-growing industries in the nation and around the world, and offers tremendous opportunities for workers from all backgrounds.

This presentation will provide you with the most current information in regards to solar jobs. The information will prove that an education in Solar Energy is a great investment in your future.

# Powering American Jobs

# SOLAR



## In 2016 . . .

- 260,077 solar workers, a 25% increase over 2015
- Solar jobs have increased at least 20% per year for the past four years
- One in 50 new U.S. jobs were in the solar industry

Since The Solar Foundation® first started tracking solar jobs, it has found that the industry has experienced steady and impressive job growth.



# Sectors of Employment in the Solar Industry

- Installation
- Manufacturing
- Sales and Distribution
- Project Development



# Solar Employment by Sector

Solar employers are optimistic regarding their future hiring with consistent growth projected across all sectors in 2017.

## Solar Employment by Sector, 2016

Sector	2016 Employment	% Total Employment	% Growth 2015–2016	% Growth 2010–2016
Installation	137,133	52.7%	14.34%	212.13%
Manufacturing	38,121	14.7%	25.89%	53.00%
Sales & Distribution	32,147	12.4%	31.87%	173.73%
Project Development	34,400	13.2%	53.22%	330.65%
Other	18,274	7.0%	54.65%	41.57%
<b>Total</b>	<b>260,077</b>		<b>24.52%</b>	<b>178.15%</b>

# Solar Energy Sector Employment

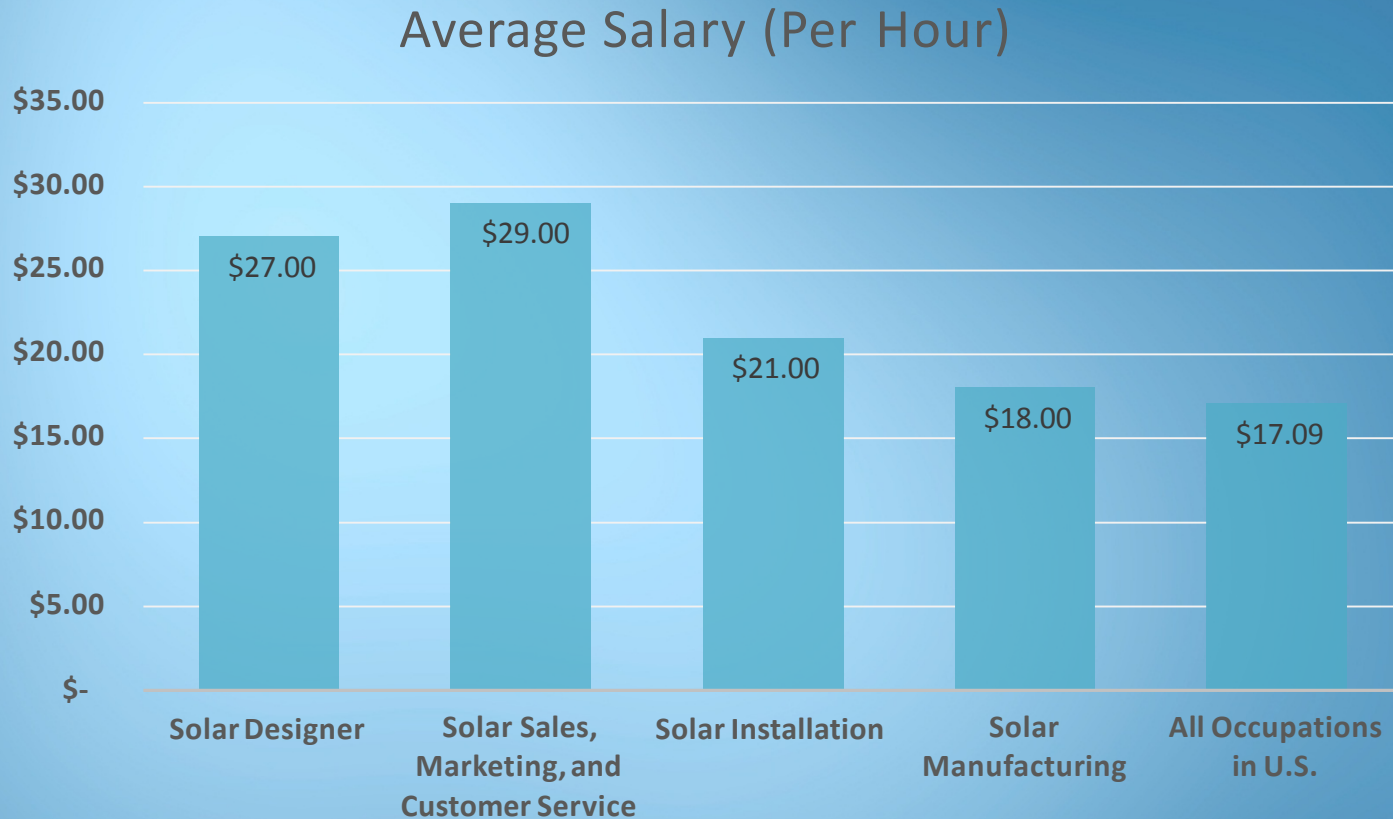
Looking at longer term trends, the installation and sales & distribution sectors have experienced dramatic growth. From 2010 to 2016, employment in installation and sales & distribution sectors nearly tripled.

**Solar Energy Sector Employment, 2010–2017** (Projected)

Sector	2010	2011	2012	2013	2014	2015	2016	2017 (Projected)
Installation	43,934	52,503	57,177	69,658	97,031	119,931	137,133	154,175
Manufacturing	24,916	24,064	29,742	29,851	32,490	30,282	38,121	40,434
Sales & Distribution	11,744	17,722	16,005	19,771	20,185	24,377	32,147	39,387
Project Development	n/a	n/a	7,988	12,169	15,112	22,452	34,400	34,227
Other	12,908	5,948	8,105	11,248	8,989	11,816	18,274	18,111
<b>Total</b>	93,502	100,237	119,017	142,697	173,807	208,859	260,077	286,335



# Average Salary in the Solar Industry



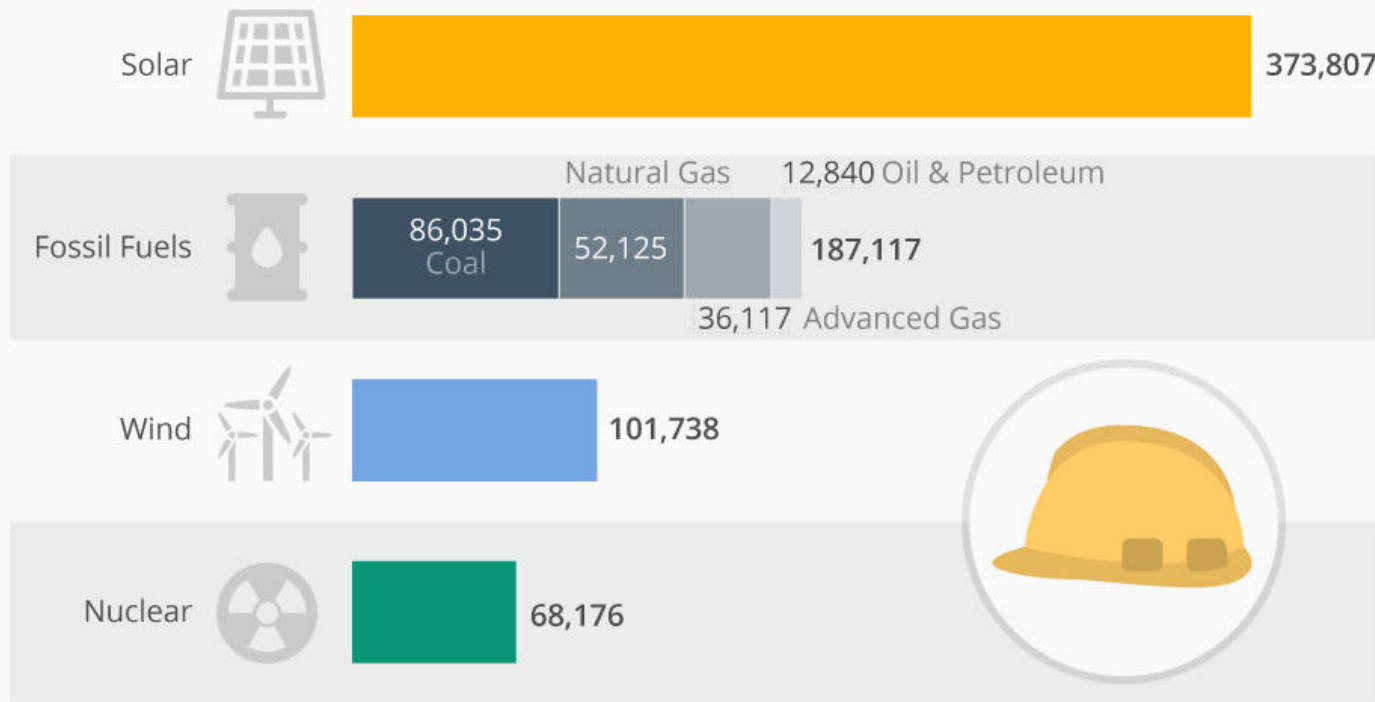
Solar jobs continue to be good paying jobs. The median wage for workers in the solar industry is \$23.75 per hour vs the median wage for all occupations in the United States which is approximately \$17.09 per hour.



# Employment in Energy Generation

## Solar Power Employs More Than Coal, Oil & Gas Combined

Employment in energy generation by source in the U.S. in 2016



@StatistaCharts

Source: U.S. Department of Energy

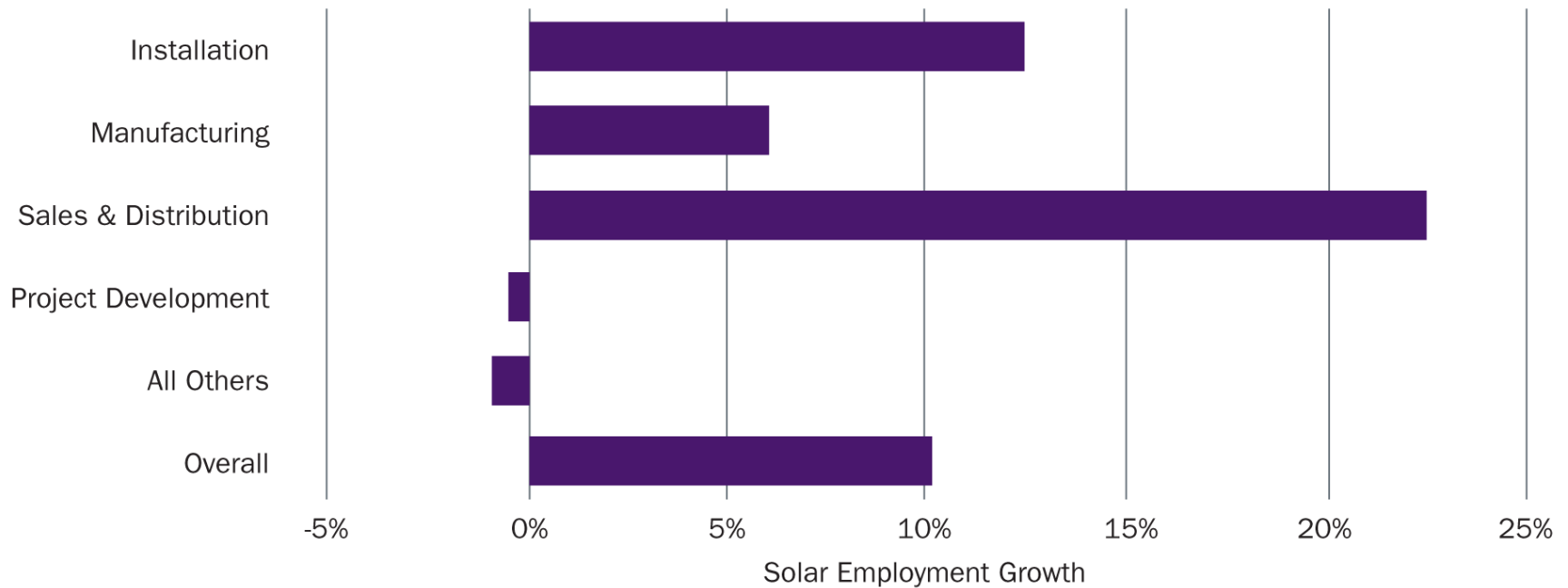
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# Expected Growth 2016 – 2017 Overall and by Sector

**Expected Solar Employment Growth from 2016–2017** (Overall and by Sector)

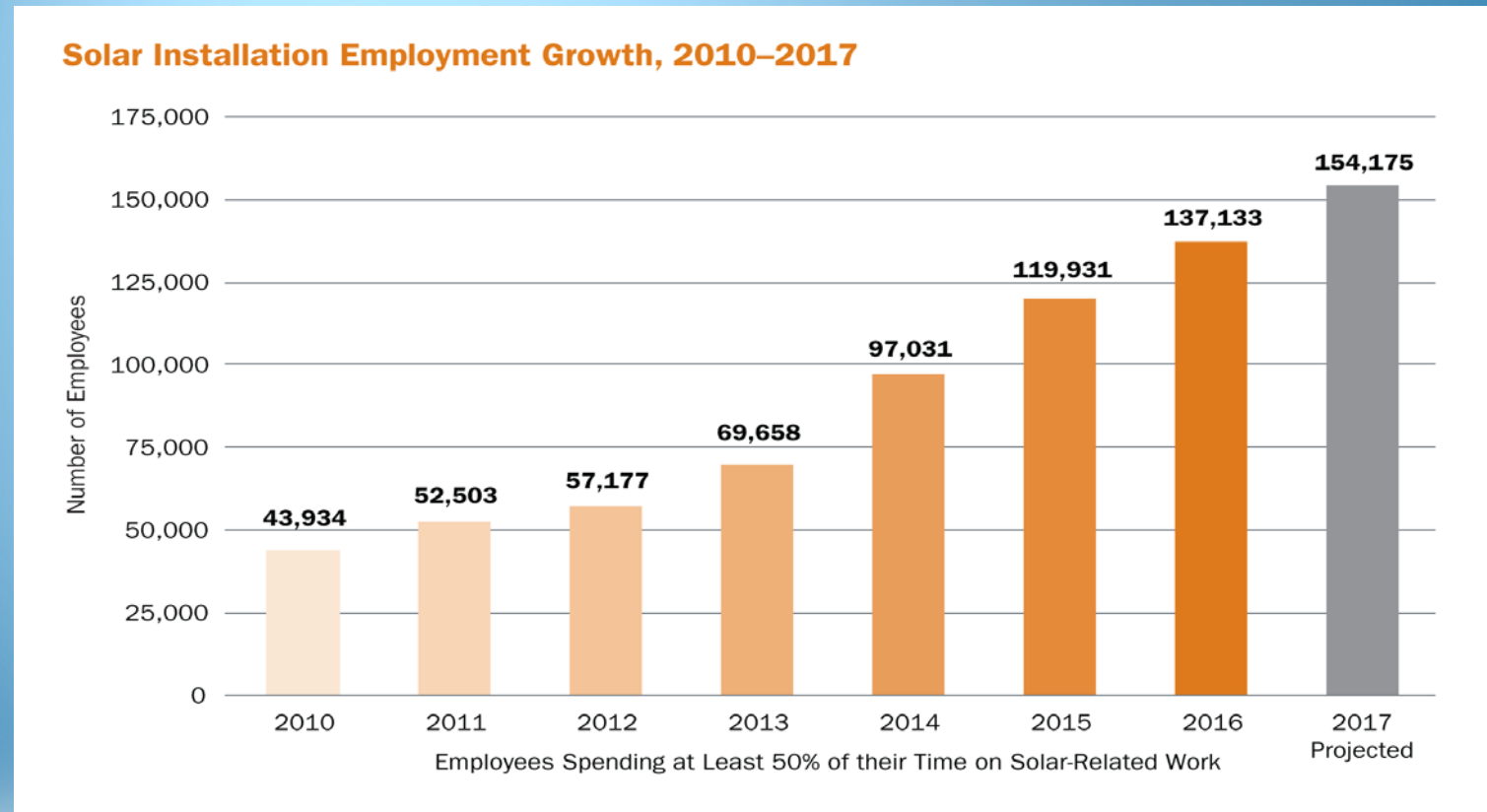




# Employment Growth 2010 – 2017

## Solar Installation

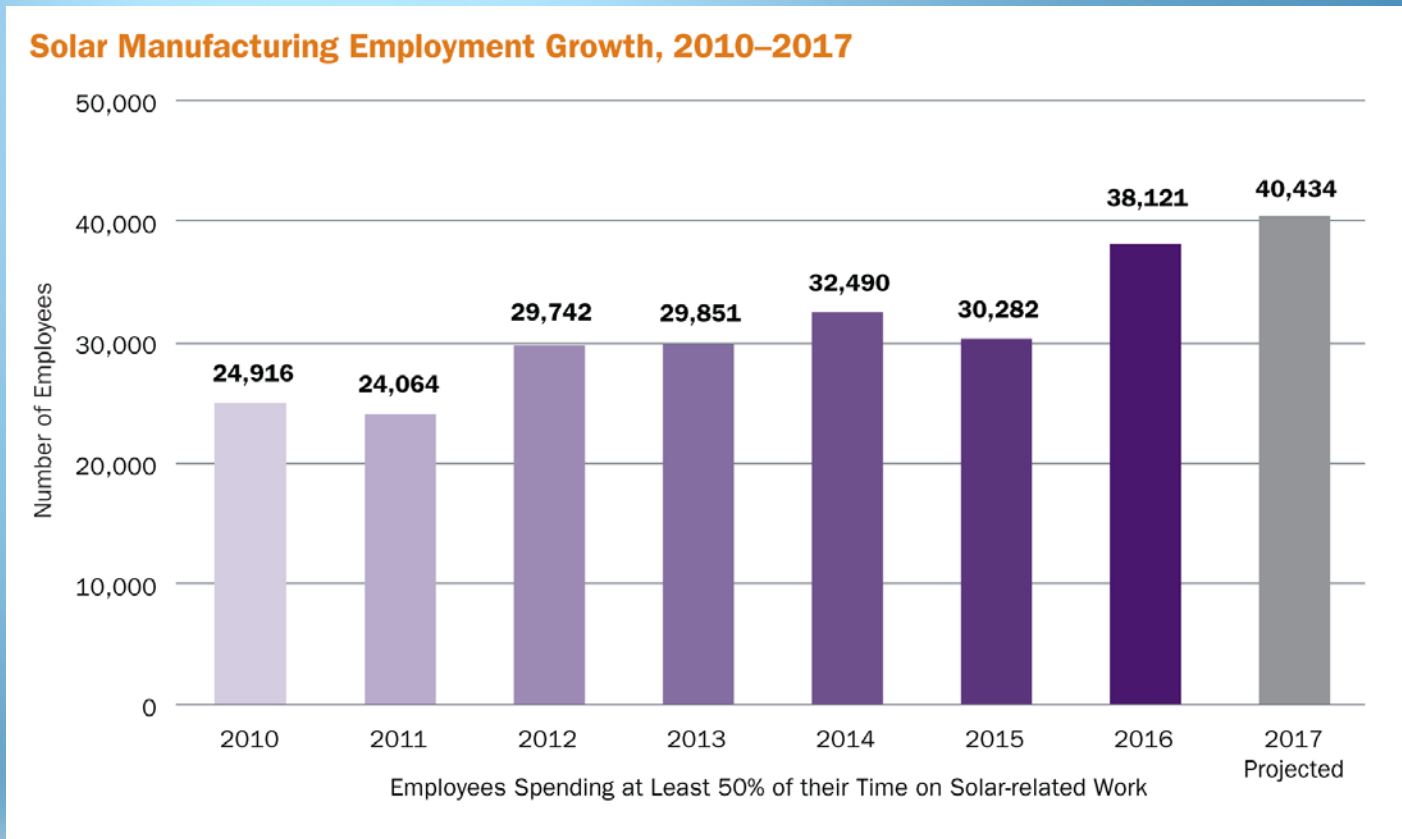
The installation sector anticipates adding the most workers in 2017 as well, reaching more than 154,000 jobs by year's end with an expected employment growth rate of 12% or 17,000 jobs.



# Employment Growth 2010 – 2017

## Solar Manufacturing

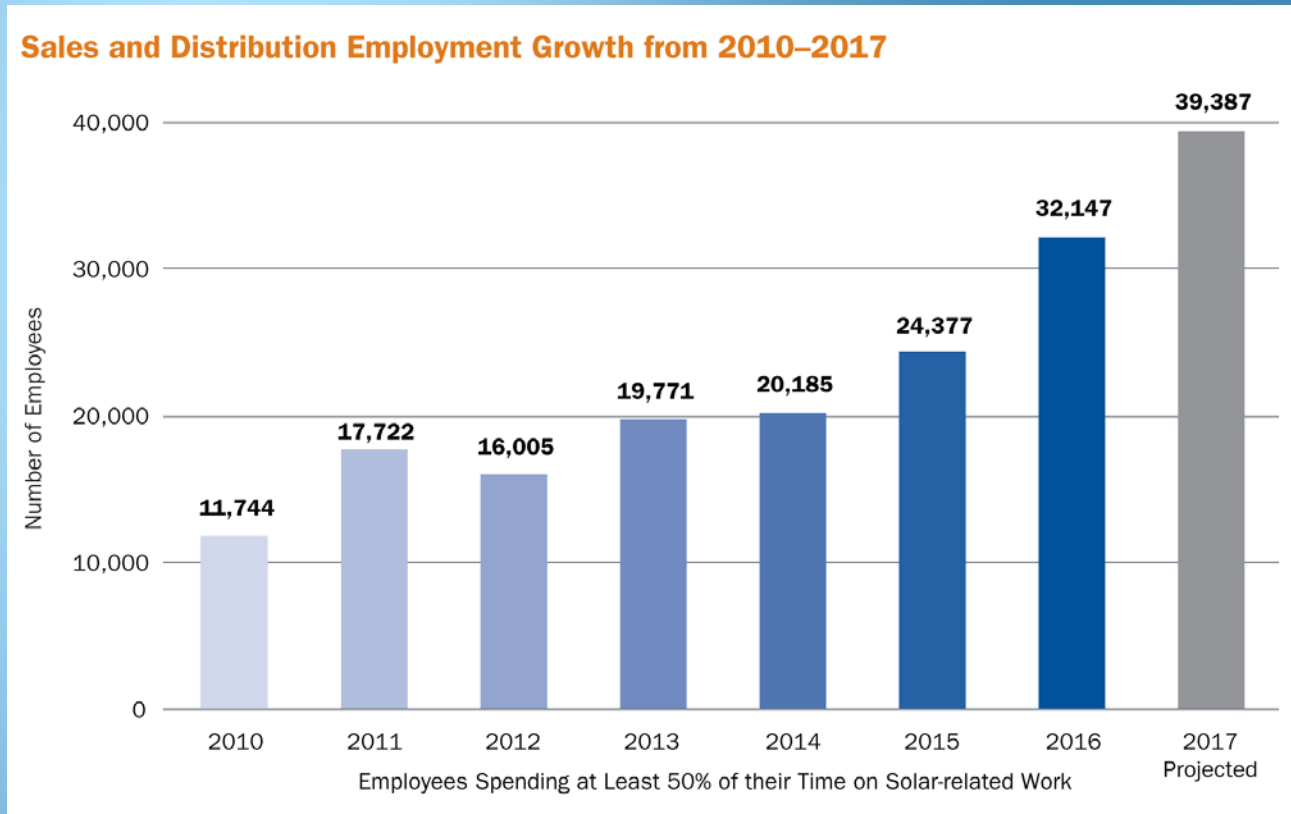
Solar manufacturers produce a variety of products and components for domestic and international markets. Asia leads the PV Module manufacturing market with the production of 87% of worldwide PV Modules.





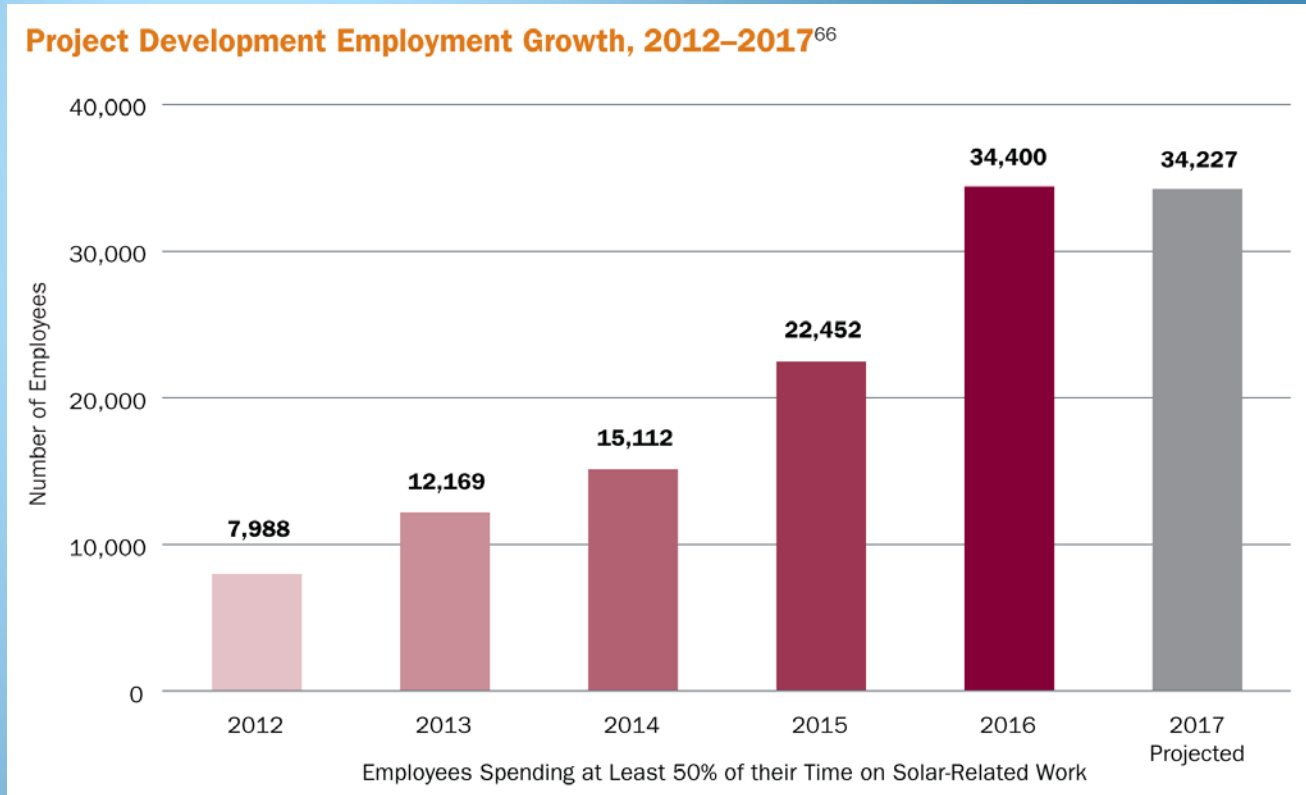
# Employment Growth 2010 – 2017

## Solar Sales and Distribution



Solar sales and distribution are engaged in selling (but not installing) solar and other ancillary services to customers and/or warehousing and distributing U.S. and foreign made solar goods to installers.

# Employment Growth 2010 – 2017 Solar Project Developer

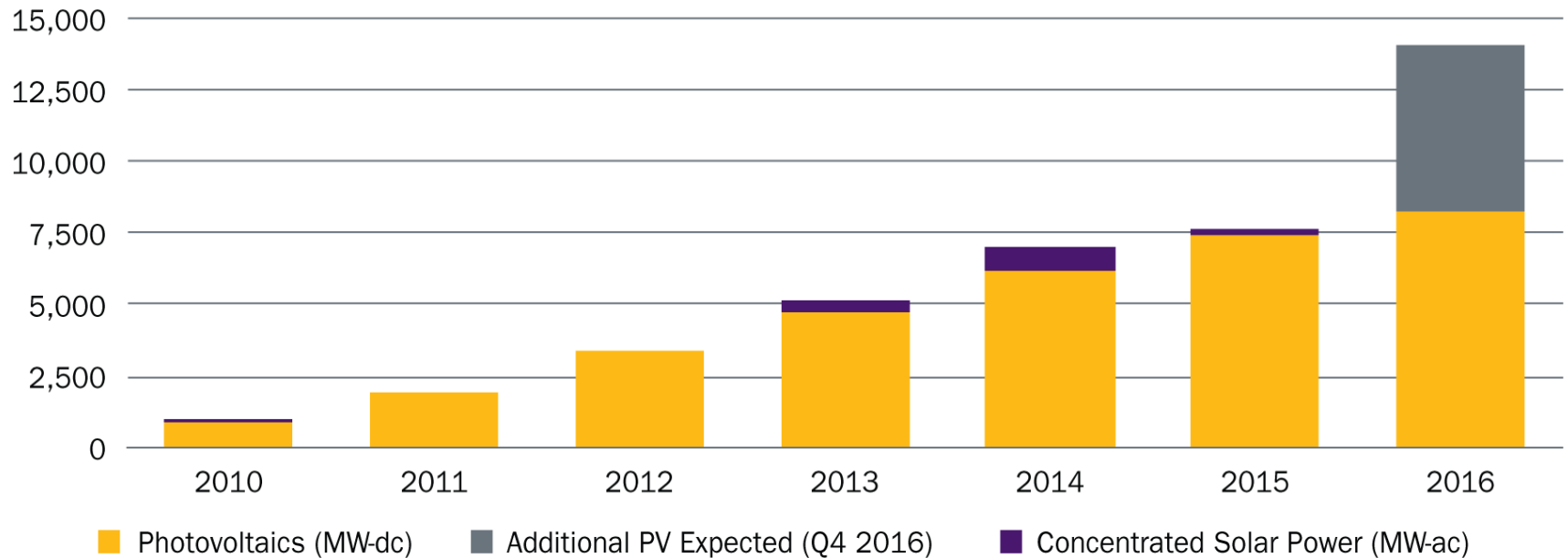


The project development sector includes utilities and companies that work on the largest, utility-scale solar projects. Predominantly using photovoltaic (PV) or concentrating solar power (CSP), these firms construct and sell bulk power to utilities or directly to consumers as a utility.



# Annual Solar Power Capacity Installations

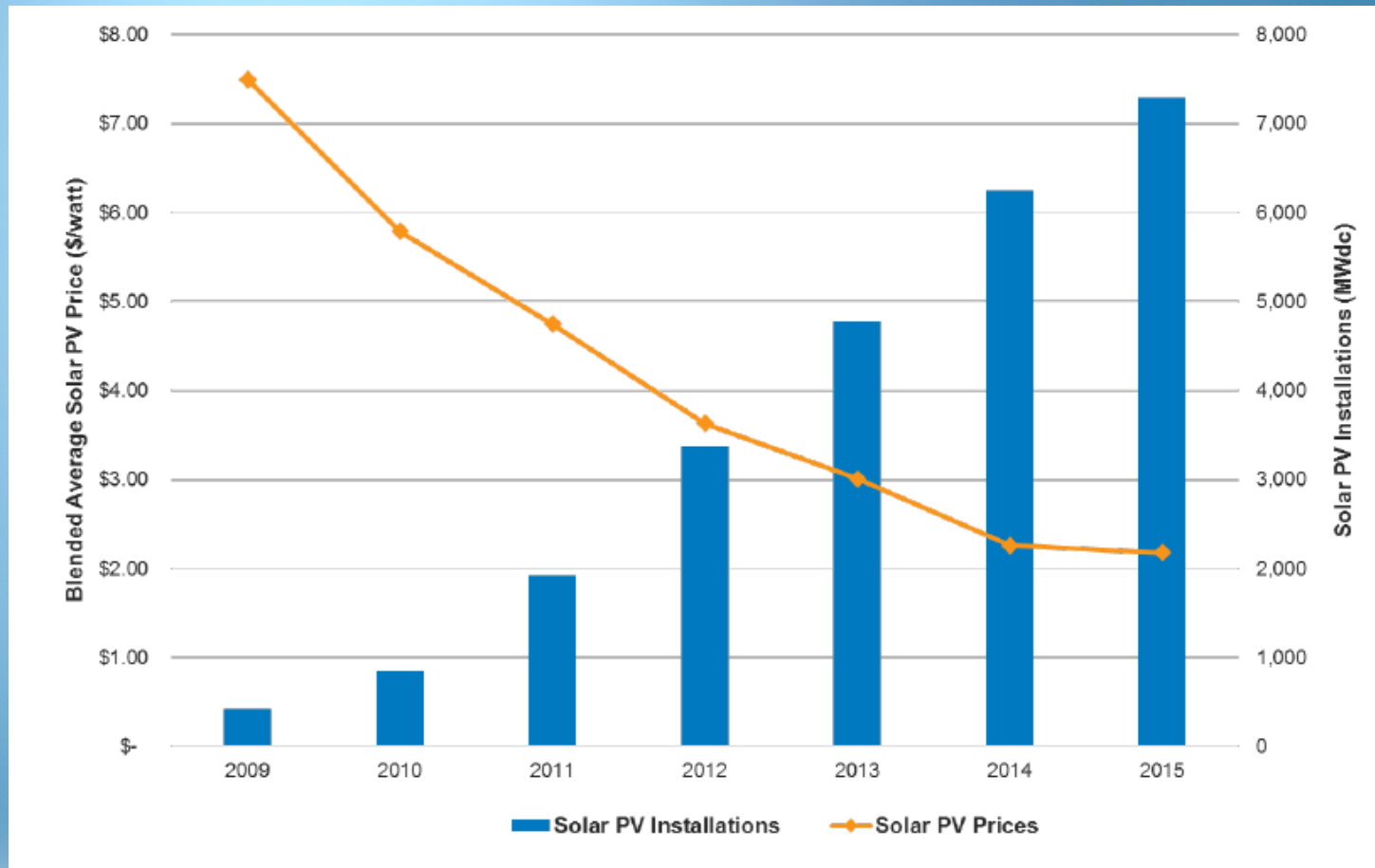
Annual Solar Power Capacity Installations, 2010–2016<sup>36</sup>



SOURCE: GTM RESEARCH, A WOOD MACKENZIE BUSINESS/SEIA U.S. SOLAR MARKET INSIGHT®

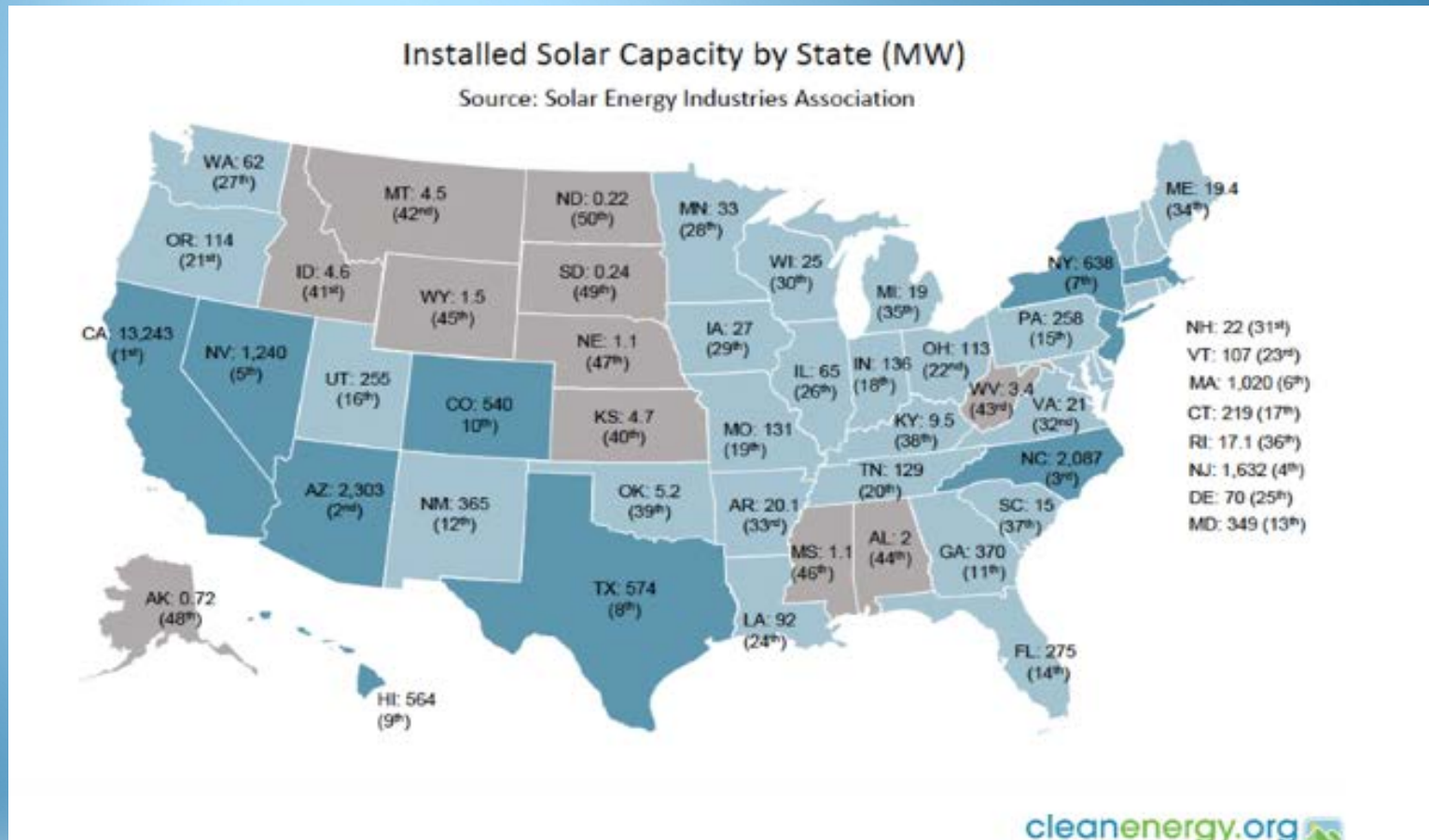
# Growth in Solar is led by Falling Prices

The cost to install solar has dropped by more than 60% over the last 10 years, leading the industry to expand into new markets and deploy thousands of systems nationwide.



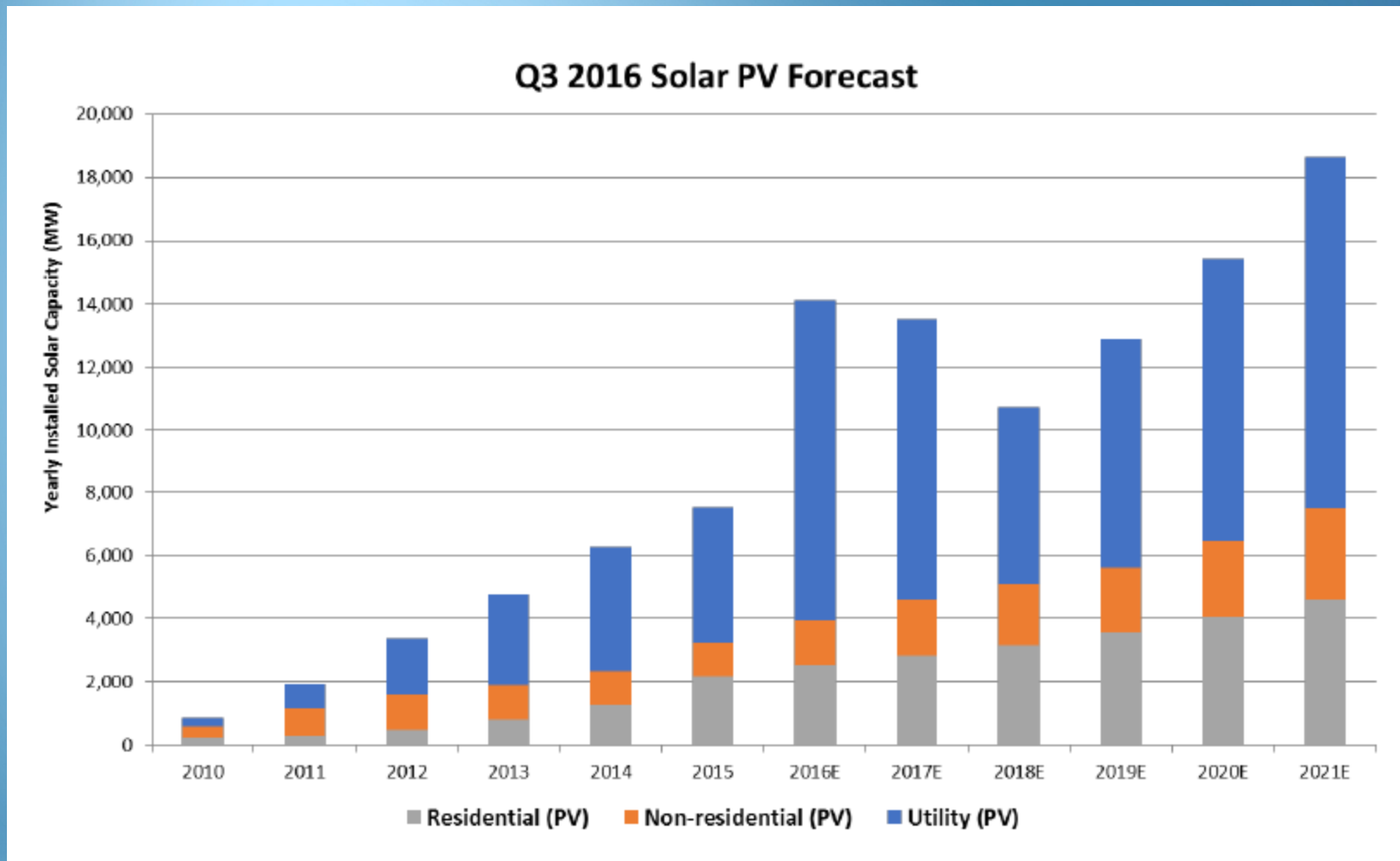
# Installed Solar Capacity by State (MW)

Florida ranks third in the nation for rooftop solar potential, but all the way down at 14th for cumulative solar capacity installed. Florida's solar policies lag behind many other states in the nation: No RPS and not allowing Power Purchase Agreements.

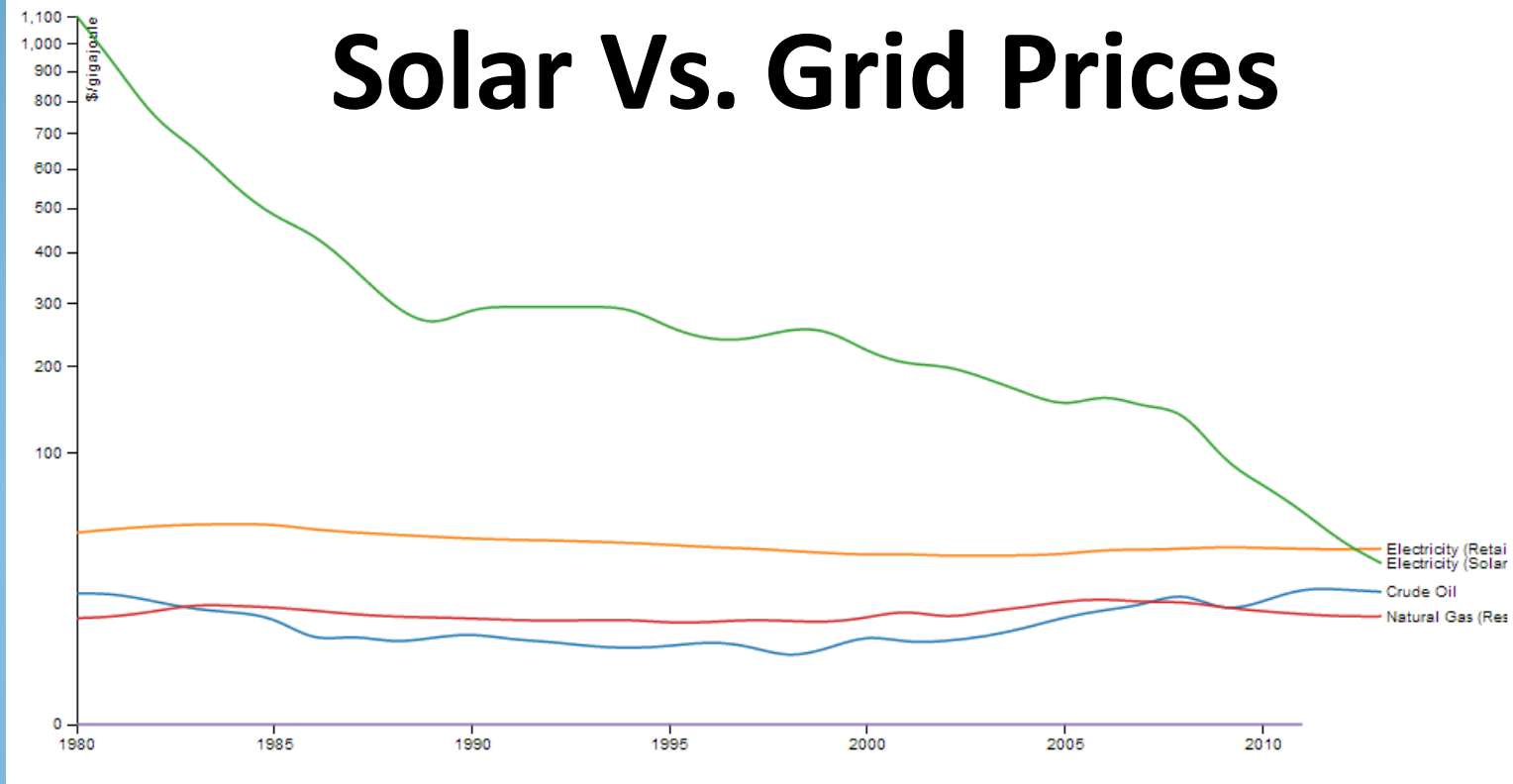




# U.S. Solar PV Growth Forecast



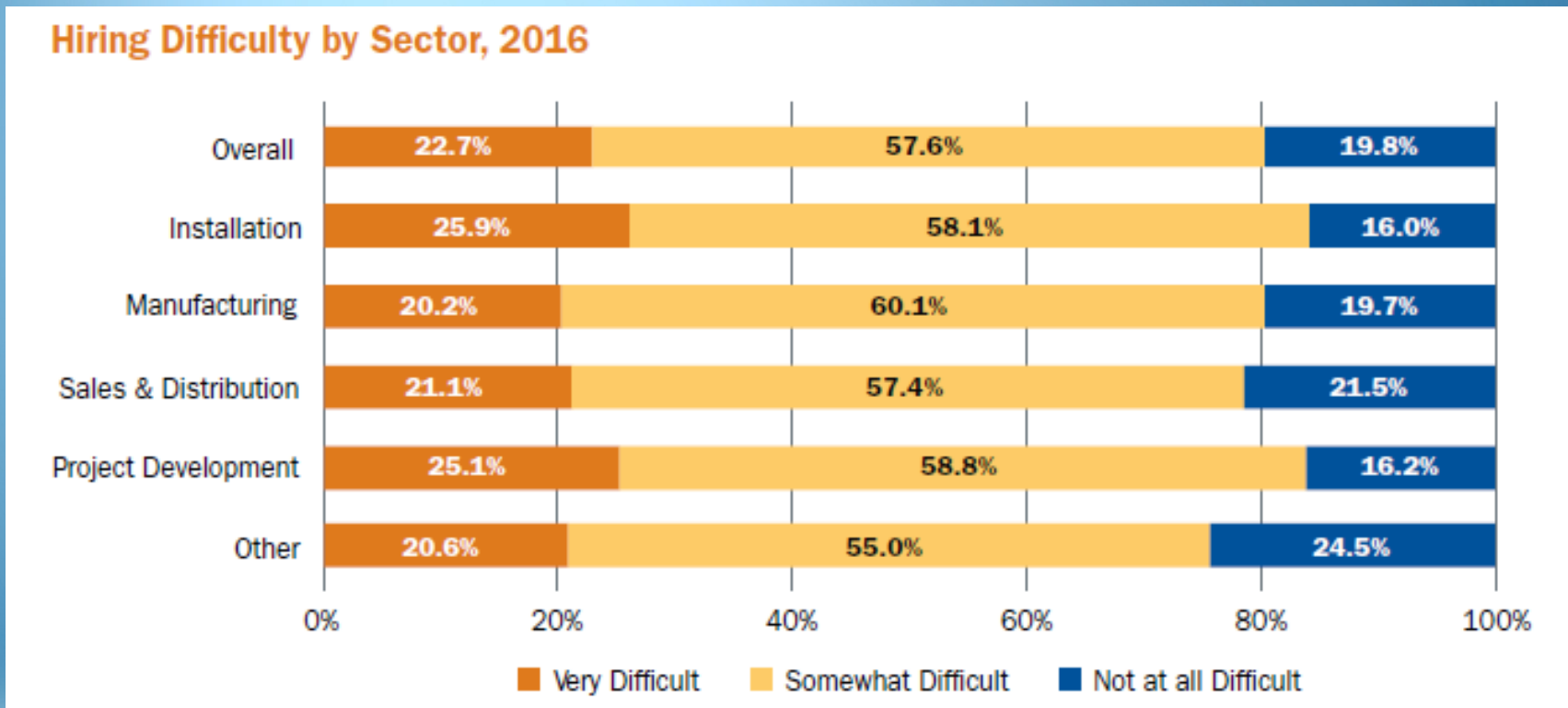
# Solar Vs. Grid Prices



The price of solar systems has been dropping significantly over the past three decades. In the near future the price of solar will ultimately be lower than the price of electricity provided by the utility company.

# National Solar Hiring Difficulty

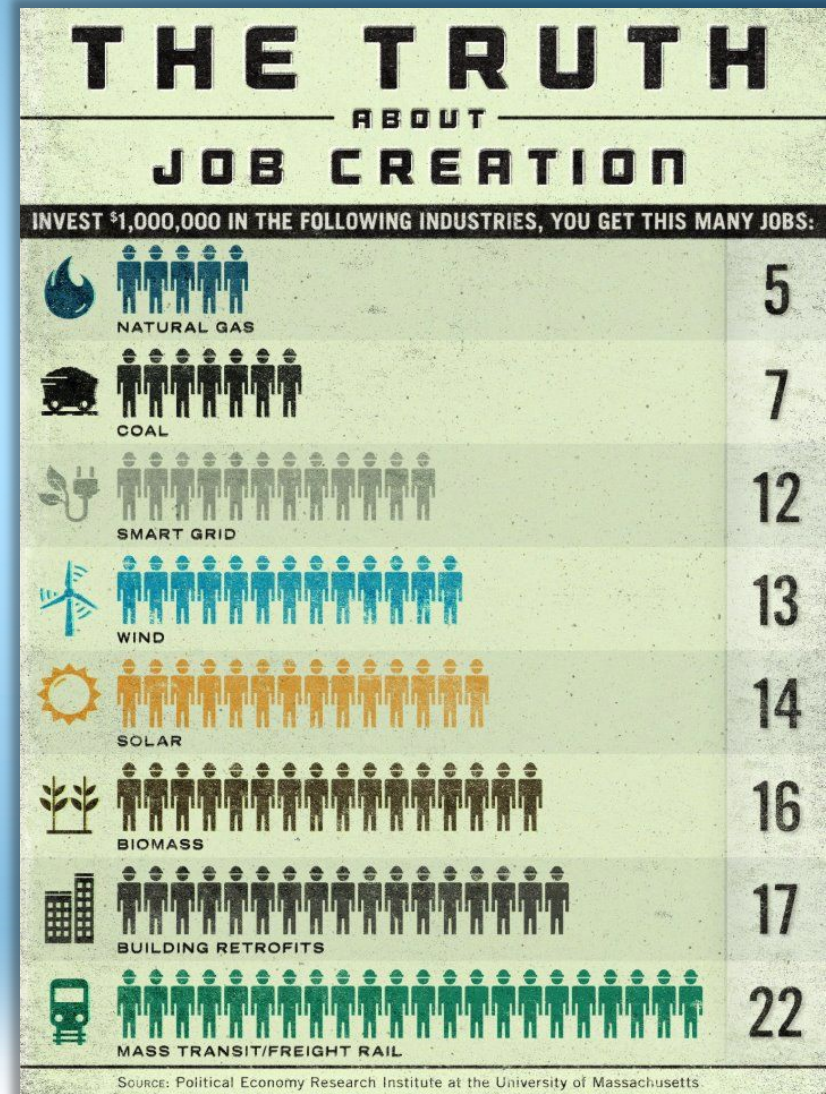
According to the solar foundation, solar employers reported increasing difficulty in finding QUALIFIED workers as compared to previous Census reports, though it is not yet to a critical level. The best way to stand out from the competition is by having the EDUCATION and hands-on training from a world renowned school.





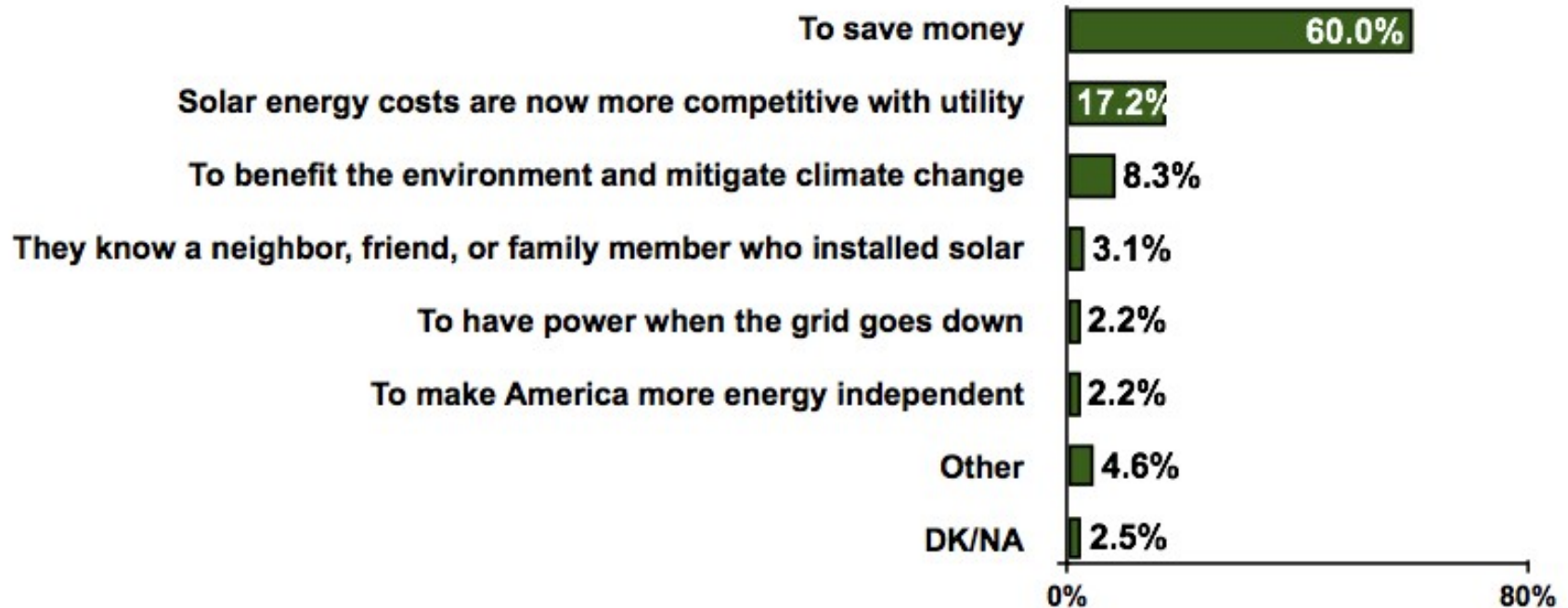
# Job Creation Return on Investment?

**GREEN JOBS** have a higher Return on Investment than other energy industry jobs.



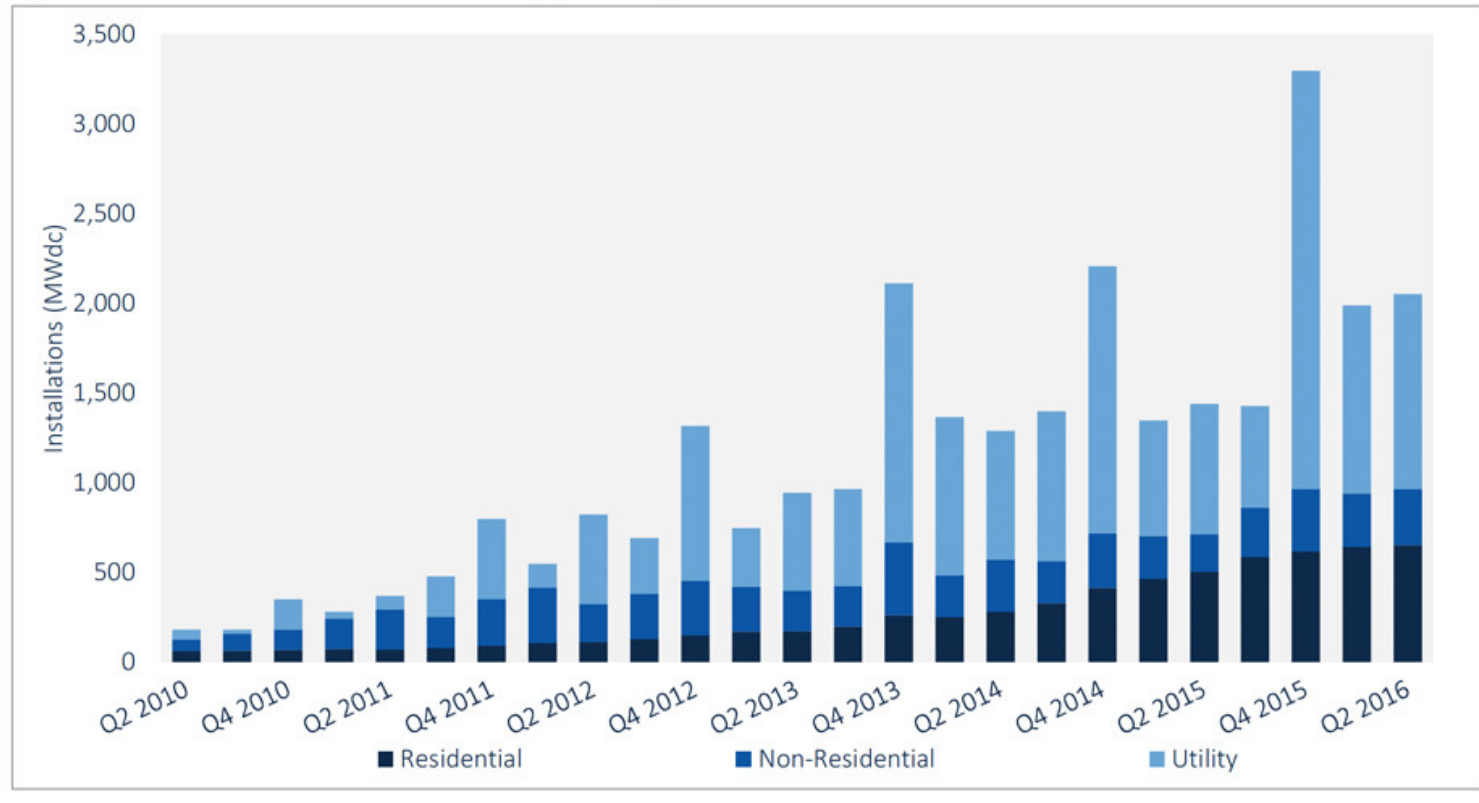
# Why Are People Going Solar?

Figure 19: Consumer Demand Drivers — Installers



# Annual U.S. Solar PV Installations

Figure 1.1 Annual U.S. Solar PV Installations, Q1 2010-Q2 2016



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gtmresearch

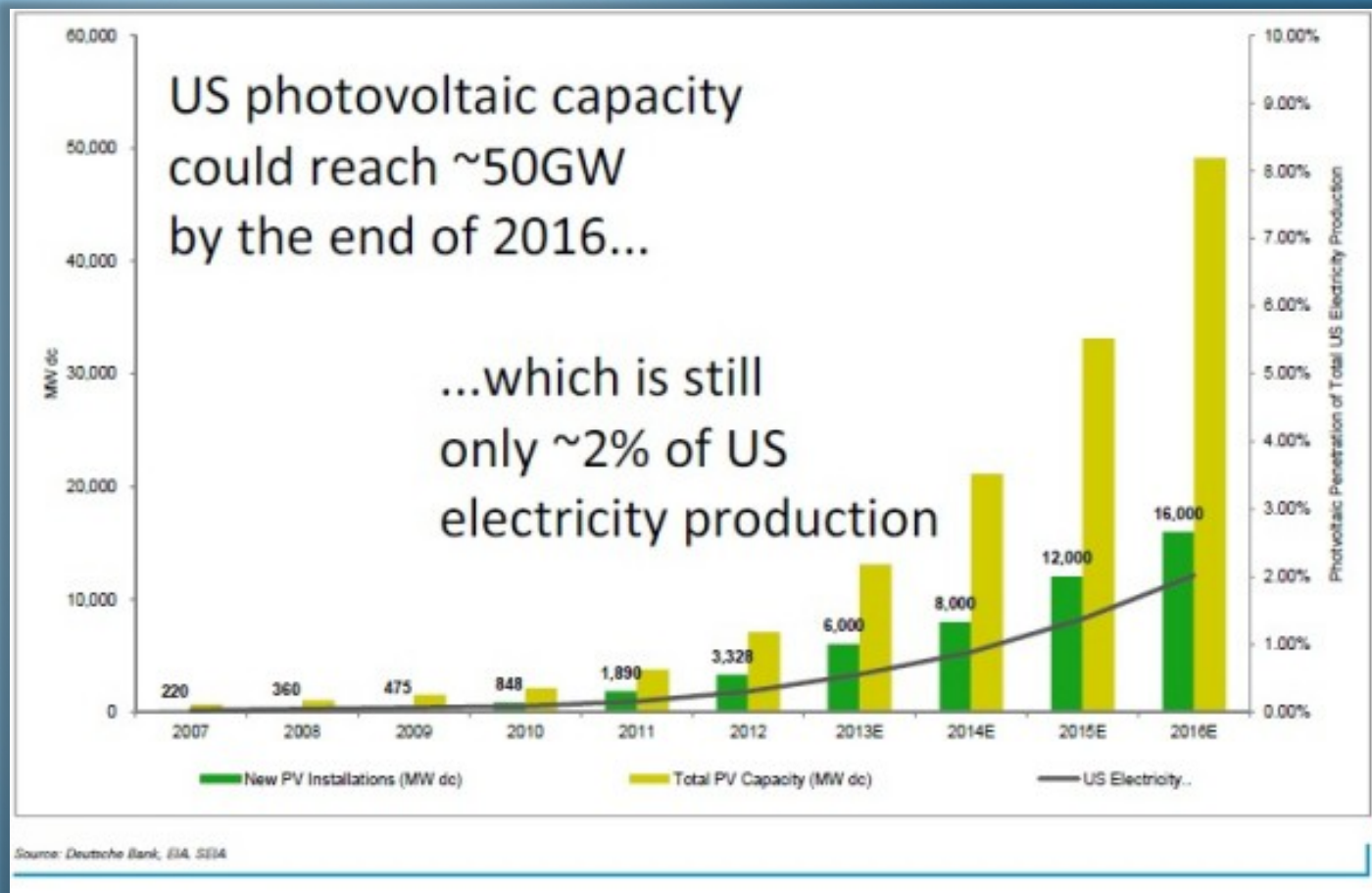
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# Amazing Growth Still only 2% of Capacity



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- SERIES AND PARALLEL CIRCUITS
- SOLAR POWER SYSTEMS AND THEIR MAIN COMPONENTS
- DIFFERENCE BETWEEN GRID TIED AND OFF GRID SYSTEMS
- UNDERSTANDING DEMAND SIDE
- ENERGY CONSUMPTION AND HOW TO PERFORM A SIMPLE ENERGY AUDIT
- MARKET FACTORS INCLUDING FRANCHISE UTILITY LAW, POWER PURCHASING AGREEMENTS (PPA), FEED IN TARIFFS (FIT) AND RENEWABLE PORTFOLIO STANDARDS (RPS)
- HISTORY OF SOLAR POWER THROUGH TIME

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