

SOLAR SECTOR UPDATE

From... MAC Global Solar Energy Index

the tracking index for

Guggenheim Solar ETF* (NYSE ARCA: TAN)

Solar Index Performance

The MAC Solar Index, which is the tracking index for the Guggenheim Solar Energy ETF (NYSE ARCA: TAN), is up by 19% so far in 2014 (through July 14), adding to the 127% rally seen in 2013.

The sharp rally in solar stocks over the past 1-1/2 years has been driven mainly by a surge in end-market demand, the stabilization of polysilicon and solar panel pricing (see charts on p. 3), and the improved profitability of solar manufacturers. The surge in demand has been driven by the sharply lower cost for solar and by the spread of solar growth across the world rather than the initial concentration in Europe. After posting a 2-3/4 year high in May, the MAC Solar index has since settled back on some profit-taking pressure, seasonal solar sales softness in Q1, and some concern about various solar trade spats.

“Solar at Scale” according to Elon Musk

Residential solar-installer SolarCity in June surprised the markets by announcing the purchase of panel-manufacturer Silevo and plans to build a massive solar panel plant with capacity of more than 1 gigawatt. Elon Musk, legendary co-founder of SolarCity, Tesla, and SpaceX, and early investor in PayPal, said that the decision to become a panel manufacturer might seem counter-intuitive with today's excess supplier capacity. However, Mr. Musk said his team is laying the groundwork for the future when there will be the need for a “massive volume of affordable, high efficiency panels” for unsubsidized solar power to out-compete fossil-fuel grid power.

EPA's emission plan for power plants will have a major long-term impact

The EPA on June 2 released its long-awaited draft rule called the “Clean Power Plan” for U.S. power plants to cut their U.S. greenhouse gas (GHG) emissions by 17% by 2030. The plan actually requires a 30% reduction from

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The MAC Global Solar Energy Index (SUNIDX) is licensed as the tracking index for the Guggenheim Solar ETF* (NYSE ARCA: TAN).

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Note: Index performance does not reflect transaction costs, fees or expenses of TAN.

MAC Global Solar Energy Index (SUNIDX)



2005 base levels, but the U.S. has already reduced emissions by 13% since 2005. Power plants account for more than one-third of U.S. GHG emissions.

The plan's emission-cut goals are less dramatic than some environmentalists wanted to see, but will nevertheless result in an enormous reduction of GHG emissions by the equivalent of two-thirds of U.S. passenger cars or more than half of U.S. homes. The plan has a very favorable cost-benefit ratio with the EPA estimating the annual benefits at \$55-93 billion per year by 2030 versus annual costs of \$7.3-8.8 billion.

The plan requires different GHG emission cuts from each state, taking into account how much the particular state has already cut emissions and how much potential it has for further reductions. A big feature of the plan is that

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exactly how to meet the emission reduction is up to each particular state, giving states the flexibility to meet the standard by relying on more carbon-friendly power sources or even by relying more on energy efficiency. Yet there is no doubt that coal plants will take the brunt of the hit from the emission reductions since they account for about 75% of all U.S. power plant emissions.

The plan will take years to take effect since a final draft of the rule is not due for a year and states have two years to draft their emission reduction plans. Nevertheless, the EPA's proposal should provide a long-term boost for solar, which is one of the very few electricity-generation sources that has zero GHG emissions.

Meanwhile, the coal industry is not only seeing regulatory threats from tighter U.S. emission standards, but is also seeing protests from some institutional investors. Stanford University in May said that it will divest from publicly-traded coal mining companies as a means to encourage "broadly viable sustainable energy solutions for the future."

Solar's threat to the utility industry gains recognition

Barclays in late May downgraded the entire U.S. electric utility high-grade bond sector to "underweight" due to the challenge to electric utilities from solar energy. Barclay's credit strategy teams said that over the next few years, "we believe that a confluence of declining cost trends in distributed solar PV power generation and residential-scale power storage is likely to disrupt the status quo. Based on our analysis, the cost of "solar+storage" for residential consumers of electricity is already competitive with the price of utility grid power in Hawaii. Of the other major markets, California could follow in 2017, New York and Arizona in 2018, and many other states soon after."

Commenting on the threat to the utility model, Barclays added, "In the 100+ year history of the electric utility industry, there has never before been a truly cost-competitive substitute available for grid power. We believe that solar+storage could reconfigure the organization and regulation of the electric power business over the coming decade."

U.S. closes loophole on Chinese duties but then WTO rules against U.S. solar duties

The U.S. Department of Commerce on June 3 announced a preliminary decision that Chinese solar panels with components sourced in third-party countries will be subject to an anti-subsidy duty of 18-35%. A final ruling is due by about August 18, 2014. A separate anti-dumping duty

decision is expected by late July. The U.S. tariff decision attempts to plug a loophole whereby Chinese solar companies were able to avoid the original tariff by sourcing solar cells in Taiwan.

However, all the U.S. duties on Chinese panels may end up being eliminated or modified after the World Trade Organization on July 14 ruled that the U.S. violated international trade rules with its duties on Chinese solar panels, among other products. The WTO said that the U.S. must bring its duties into compliance with WTO trade rules. Chinese solar stocks rallied fairly sharply after the WTO ruling.

Elsewhere on the solar trade front, India's Ministry of Commerce & Industry on May 13 said that its 1-1/2 year investigation resulted in a determination that various solar companies dumped solar panels in India. The Indian government announced a preliminary decision to impose duties of 11-81 U.S. cents per watt on solar panels imported from the U.S., China, Taiwan, and Malaysia. The Indian Solar Manufacturers' Association said that the decision will likely boost the price of solar in India by 6-8%.

China may have difficulty reaching 14 GW target

Solar stocks showed some weakness in early June after OTR Global reported that the Chinese government is thinking about cutting its 2014 solar installation target of 14 gigawatts (8 GW distributed, 6 GW utility) due to the lack of sufficient credit availability. Q1 installations in China were weak and some Wall Street firms reduced their overall Chinese 2014 installation forecast. On the other hand, Chinese government support for solar remains strong as the South China Morning Post reported that a plan is in the works for the Chinese government to boost its subsidy by up to 55% for rooftop solar developers selling power to state-owned power companies.

Climate change is a big risk for U.S. business

A new report called "Risky Business" (www.riskybusiness.org) details the threat to business from climate change. The bipartisan group, led by former N.Y. Mayor Michael Bloomberg, Republican former Treasury Secretary Hank Paulson, and hedge-fund billionaire Tom Steyer, seeks to depoliticize climate change and encourage businesses to recognize the business risks from climate change. As one negative impact, the report forecasts that \$238-\$507 billion worth of existing U.S. coastal property will be under sea level by 2100. Mr. Paulson believes that the SEC should start requiring companies to disclose the risks they face from climate change.

Solar Pricing

Prices for solar cells and modules have moved largely sideways since posting record lows in late 2012. Specifically, the price of multicrystalline solar cells posted a record low of 36 cents per watt in late 2012 and early 2013, recovered to a 1-1/2 year high of 45 cents in June 2013, and have since eased to the current price of 39 cents, according to data from Bloomberg New Energy Finance.

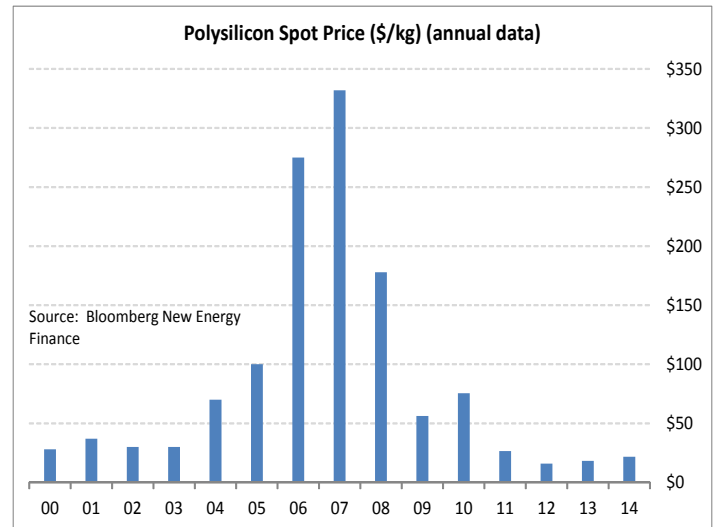
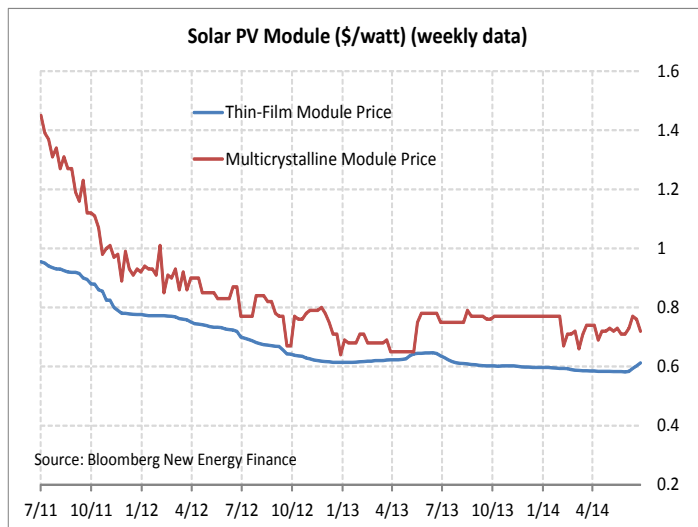
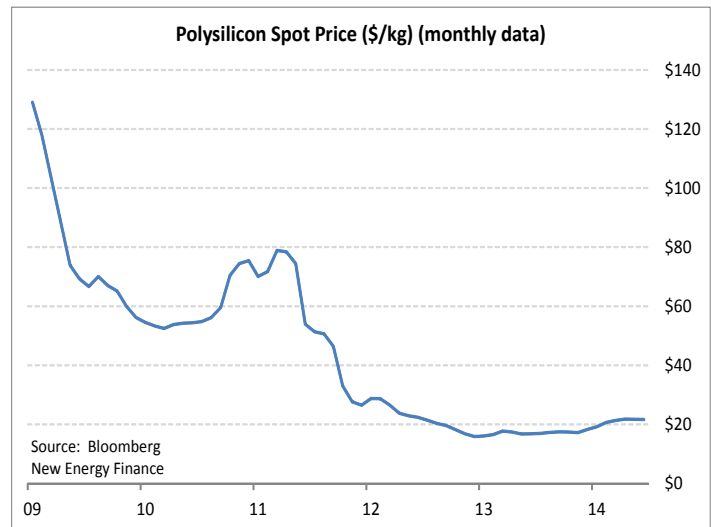
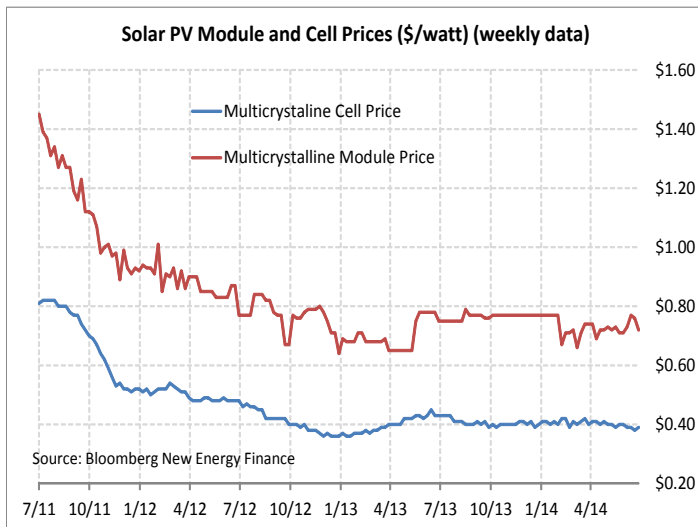
Meanwhile, multicrystalline solar module prices posted a record low of 64 cents per watt in Dec 2012, recovered to a 14-month high of 79 cents in Aug 2013, and have since moved sideways in the low 70-cent range, according to data from Bloomberg New Energy Finance. Solar module prices are currently at 72 cents, mildly above the record low of 64 cents posted in Dec 2012.

Spot polysilicon prices posted a record low of \$15.83 per kilogram in Dec 2012 and then recovered to the \$17 area

by spring 2013, according to data from Bloomberg New Energy Finance. Polysilicon prices showed further strength in late 2013 and closed the year at \$18.32, up +15.4% y/y. Polysilicon prices in early 2014 continued to move higher and posted a 2-year high of \$21.80 in April, backing off a bit to \$21.69 by June.

Solar pricing in 2013-14 has stabilized mainly because of stronger demand and reduced production capacity after the 2011-12 shakeout forced smaller and higher-cost producers out of the market. In addition, the large players are now calibrating their production more closely to demand.

The price of thin-film modules made by First Solar and others faded in early 2014 and posted a record low of 58.2 cents in early June 2014, according to Bloomberg New Energy Finance. Thin-film module prices later in June then recovered a bit to 61.2 cents per watt.



Solar PV Annual New Installations

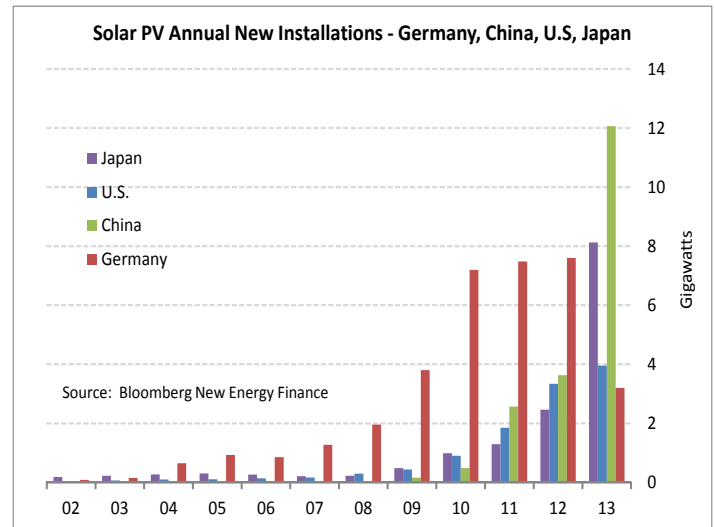
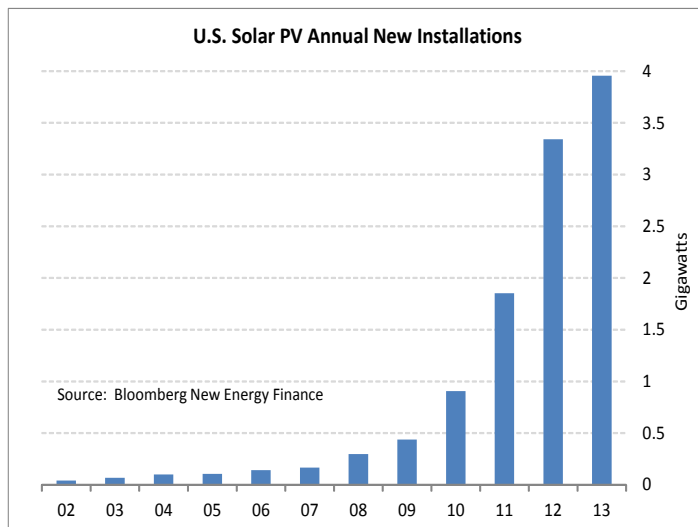
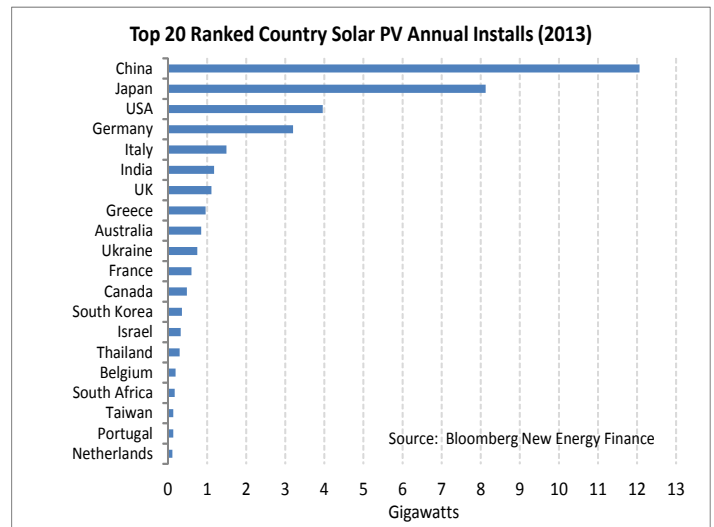
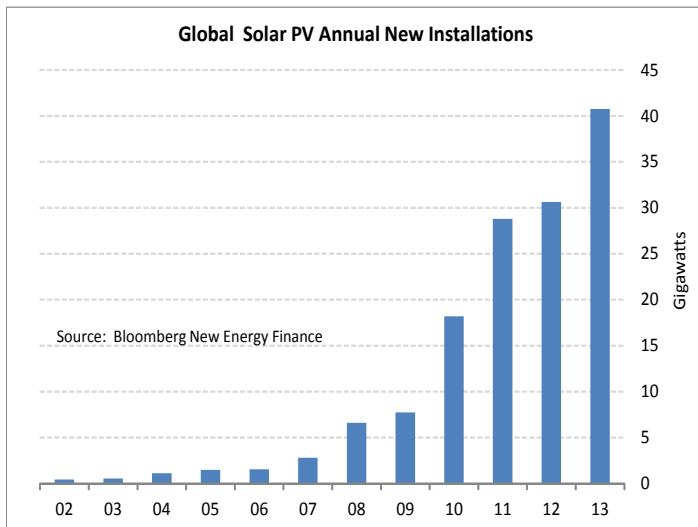
Global new solar PV installations in 2013 grew by +33% y/y to a record 40.7 gigawatts (GW) from 30.6 GW in 2012, improving sharply from the poor +6% y/y growth rate seen in 2012, according to Bloomberg New Energy Finance. Global solar PV installations have grown by a compounded annual rate of +44% over the last 5 years and have risen six-fold from 2008.

China leapfrogged Germany into the number one world spot for annual PV installs with 12.0 GW of installs in 2013, up by +232% from its 2012 level of 3.6 GW. Japan took second with 8.1 GW of new installs in 2013, up by +230% from 2.5 GW in 2012. The U.S. stood third in new installs at 4.0 GW.

The sharp increase in installs in China, Japan and the U.S. more than offset the declines in Europe caused by reduced subsidy support. German installs in 2013 fell by -58% to

3.2 GW from 7.6 GW in 2012, although that was still large enough to put Germany in fourth place for world installs. Italian installs fell by -58% to 1.5 GW from 3.6 GW in 2012. French installs fell by -44% to 600 MW from 1.1 GW in 2012. The diversification of solar PV installs beyond Europe was a very healthy development for the solar industry.

U.S. solar PV installations in 2013 grew by +18% to a record high of 4.0 GW from 3.3 GW in 2012, according to data from Bloomberg New Energy Finance. U.S. PV installations over the last 5 years have grown by a compounded annual growth rate of +68%. SEIA is forecasting that U.S. PV installs will grow by an annual compounded growth rate of about +30% over the next three years to 9.2 GW by 2016. The states with the largest new PV solar installations in 2013 were California (2,621 MW), Arizona (421 MW), North Carolina (335 MW), Massachusetts (237 MW), and New Jersey (236 MW), according to the SEIA.



Solar PV Cumulative Installations

The amount of cumulative PV electricity generation capacity across the world grew sharply by +40% y/y to 146 gigawatts (a gigawatt is 1 billion watts) by the end of 2013, according to data from Bloomberg New Energy Finance. In just five years, global cumulative solar PV electricity generation capacity has increased by nine-fold from 16.8 gigawatts in 2008 to 146.0 gigawatts in 2013, representing a compounded annual growth rate of +43%.

Germany at the end of 2013 had the world's largest amount of cumulative installed solar electricity generation capacity by far at 35.4 gigawatts, according to Bloomberg New Energy Finance. Germany's cumulative solar electricity capacity in the past 5 years has risen more than five-fold from 6.1 GW in 2008 to 35.4 GW in 2013.

China moved into second place in 2013 with 19.1 GW of installed PV, representing 13.1% of installed global PV capacity. China's cumulative solar electricity capacity in the past 5 years has risen 136-fold from 140 megawatts in 2008 to 19.07 GW in 2013.

Italy was in third place in 2013 with 18.0 GW of installed PV, representing 12.3% of world capacity. Japan was in fourth place in 2013 with 15.6 GW of installed PV, representing 10.7% of installed global PV capacity.

The U.S. was in fifth place in world PV cumulative capacity in 2013 at 12.5 GW representing 8.6% of world capacity. U.S. cumulative solar electricity capacity over the past five years rose by more than nine-fold from 1.37 GW in 2008 to 12.5 GW in 2013 and showed an annual compounded growth rate of +47%.

