

Global PV mix offers remedy for quarterly mood swings

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ABSTRACT

Recently, PV demand forecasting has seen greater contributions from countries that had previously been lumped together in the rest-of-world (RoW) bucket – a category previously reserved for the collective PV demand from countries or regions outside of major (FiT-stimulated) European PV markets. Research has shown that PV adoption outside Europe will not simply increase overall PV demand levels, but will assist in smoothing out erratic demand cyclicity.

Introduction

At first glance, the increased gigawattage of demand being added from the rest-of-world (RoW) grouping provides an essential component in driving long-term industry growth scenarios. Non-European PV demand is forecast to increase from approximately 30% to 60% of global PV demand between 2011 and 2016.

However, more tangible benefits of having an increased number of countries feeding into the global demand mix extend beyond just the significant 'growth' potential this situation offers to the PV supply chain. Of these various benefits, perhaps the one that will provide the greatest level of comfort to the PV supply chain will be a collective 'smoothing' effect in quarterly demand swings. This should have a positive effect on factory shipment schedules and hopefully provide an end to some of the boom-and-bust cycles that have negatively impacted the fortunes of the PV supply chain during 2010 and 2011.

Europe captures the headlines, but masks the long-term objectives

Demand from key European countries has dominated the global PV industry in recent years. During 2011, demand from Germany and Italy represented 50% of worldwide demand. This created over-dependence on the quarterly phasing of demand from these regions; this trend continues to dominate short-term corporate tactics and thinking through 2012 as the impact of pending FiT revisions is played out.

In fact, just three countries (Germany, Italy and China) provided 66% of the Q4'11 global PV demand of 10.6GW. European PV demand accounted for 64% of the Q4'11 total, only marginally down quarter-on-quarter compared to Q3'11 (71%) and year-on-year compared to Q4'10 (80%). As a result, any policy change (predicted or not) in just one or two of these countries can dramatically alter the outcome for all PV participants in any given quarter – or indeed, for the full calendar-year period.

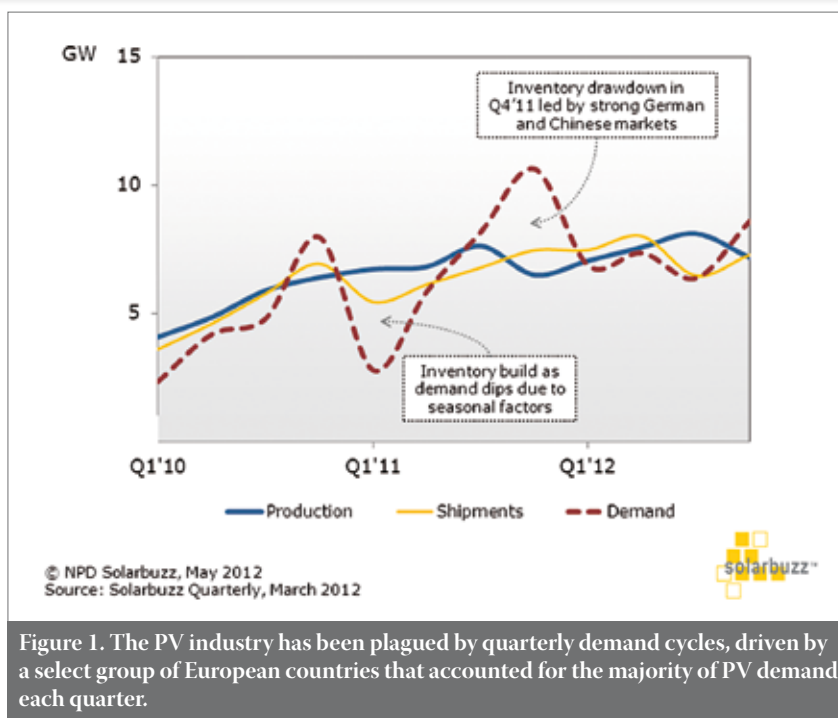


Figure 1. The PV industry has been plagued by quarterly demand cycles, driven by a select group of European countries that accounted for the majority of PV demand each quarter.

Transitioning from an over-dependence on European PV demand cannot come quickly enough for the PV industry. Today, PV policy risk across European countries can at best be summarized as 'moderate to high', while policies across all non-European regions fall more into the 'low risk' or 'moderate risk' categories.

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The consequence of start-stop demand variations has typically been a surge in inventory levels: often first seen in the downstream/demand side, followed by a similar spike in the upstream/supply portion of the value chain as manufacturers react too late to any rapid downturn in end-market demand. While creating havoc with production and

shipment schedules, the full impact is felt most when significant reductions in employee headcount are announced after consecutive quarters of negative demand growth. And of course, the events of 2011 have shown just how quickly ASPs can be eroded as a result of any increase in either upstream or downstream inventory channels.

Fig. 1 illustrates the global supply/demand balance between Q1'10 and Q4'12, showing the dramatic demand cycles that have plagued the PV industry in the past few years, with strong inventory build during Q1'11 followed by an equally emphatic drawdown at the end of last year.

Moving on from single-market demand volatility

Irrespective of the overall demand levels forecast for 2013–15, global PV demand is certain to be comprised of a much greater number of countries feeding into the overall demand figure. Furthermore, since all countries' demand levels are still

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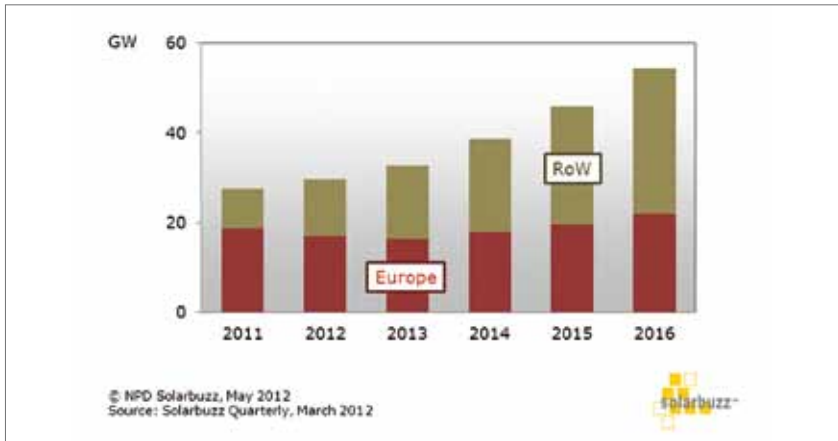


Figure 2. The contribution of PV demand from European countries is forecast to decline significantly out to 2016, with a greater number of countries contributing to the overall global demand.

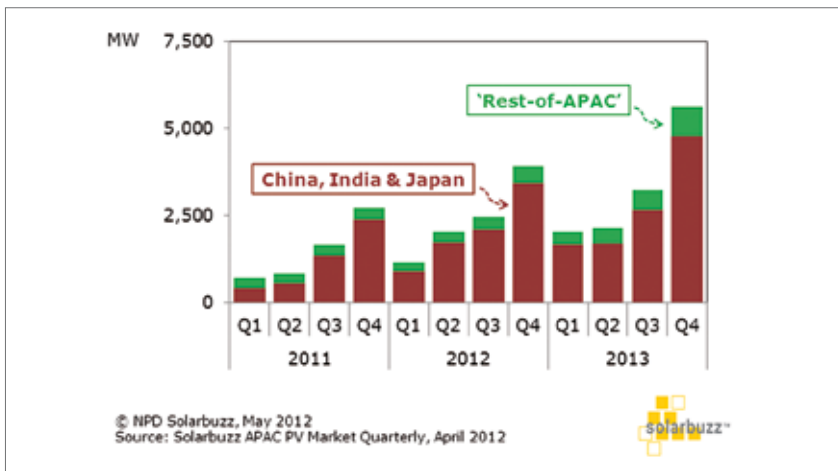


Figure 3. Demand from China, India and Japan is forecast to dominate APAC PV demand out to Q4'13, with regional seasonality and policy structures impacting the overall APAC quarterly demand phasing.

largely policy driven, there will inevitably be quarterly cycles at the country-specific level before and after any policy-related expiration.

However, unlike previous years, the effect of strong cyclic demand changes in any one country will now have a much softer impact on global PV demand. Therefore, the industry's obsession with pending uncertainty from single markets such as Germany should become less important to suppliers' overall global strategies and production/shipment schedules.

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Fig. 2 shows the expected transition in global PV demand levels to 2016, when comparing demand from Europe with the RoW category (defined in this graphic as all demand from outside Europe). The share of European PV demand is projected to

decrease from 69% in 2011 to 40% by 2016, as policy-related changes take effect to curb market growth rates during 2012 and 2013.

The shift in annual demand to non-European countries provides one source of comfort to PV suppliers. But the real benefit will likely be played out when the quarterly phasing of demand unfolds beyond 2012. The expectation is for less severe quarterly demand spikes than seen during 2010 and 2011, in particular when Q4'11 demand was four to five times higher than Q1'11 – a situation that will provide a more stable demand environment to plan production schedules and fab utilization rates.

Indeed, such an environment should enable more controlled module inventory levels, and lessen the requirement for distributors and dealers to act aggressively at quarter- or year-end to cut inventory levels. Transitioning inventory management to a process that is dictated by supply-chain corporate strategy – and not by unpredictable macroeconomic external influences – would be a considerable achievement for the PV industry moving forward.

Another feature that should be removed through PV globalization is that of single-country or single-region seasonality. In recent years, the impact of mild or harsh winter months has introduced one extra variable to take into account, over and above any year-end policy expiry dates.

APAC end-market growth to the rescue

No region characterizes the broader geographic contribution to PV more today than emerging growth across the APAC region. PV demand here is forecast to grow 60% year-on-year during 2012, driven by recent upward revisions to expected demand from China this year (see Fig. 3).

However, short-term cyclicality in the collective APAC demand during 2012 and 2013 is to be expected here also. Again, seasonality and policy deadlines are the culprits driving large quarterly demand variations. This is illustrated by the decline in Q1'12, largely attributed to strong seasonality in ground-mount installations in China, which typically peak in Q4 due to weather conditions and policy structures.

In fact, with a range of incentive terms across the APAC region being revised or expiring in early 2012, many project segments are forecast to experience slight declines in Q1 and Q2'12, as reduced incentive terms take effect. This creates the linear 'ramp' in demand across 2012 shown in Fig. 3, with a large quantity of module shipment occurring during Q2 and Q3'12 ahead of year-end installations within China.

By 2016, however, the demand from the APAC region is forecast to reach approximately 25GW, with the majority of growth coming from China, Japan and India, driven by national incentive programs. By 2016, China and Japan combined are now forecast to account for 70% of APAC demand.

North America drive to self-sustaining status offers further hope

Through a combination of diversified and innovative policies/regulations at the federal/state levels, the US PV market has experienced steady growth until now. The diversification of initiatives has made the US market less vulnerable (and less dependent) on any single national incentive program. And almost by default, this has helped to avoid some of the significant boom-and-bust demand cycles discussed earlier for the major European PV countries. In fact, by avoiding the temptation to introduce FiT-type programs, US authorities have sought to create and implement incentives that were tailored specifically to meet local conditions and requirements.

The case study in this regard is California. Prior to implementing the California Solar Initiative (CSI) – the nation's largest ratepayer-funded program – California had operated several renewable energy programs. Back in 2006, the state represented 63% of the national market (140MW). But some of the legacy programs were operated on an annual basis with limited budgets, which caused undesirable stop-start demand cycles with further instability within the industry.

“The diversification of initiatives has made the US market less vulnerable.”

Now, one of the key components of the initiative is that incentive levels are automatically reduced over the duration of the program in 10 steps, based on the market demand (MW volume of confirmed reservations issues). The incentive levels are then tailored to adapt to dynamic market conditions: the greater the market demand, the faster the incentive level declines and the slower the market grows with reductions in incentives.

Most importantly, industry participants – from PV module makers to installers and consumers – understand the projected rate reduction schedule, and therefore market demand (reservation status) conditions are constantly updated, providing predictability and stability. Compared to some of the other PV-leading countries, the US PV market has witnessed relatively steady growth (see Fig. 4).

It has, however, already experienced two setbacks. The 30% Investment Tax Credit (ITC) originally became available in 2006 for residential and corporate taxpayers for two years (2006 and

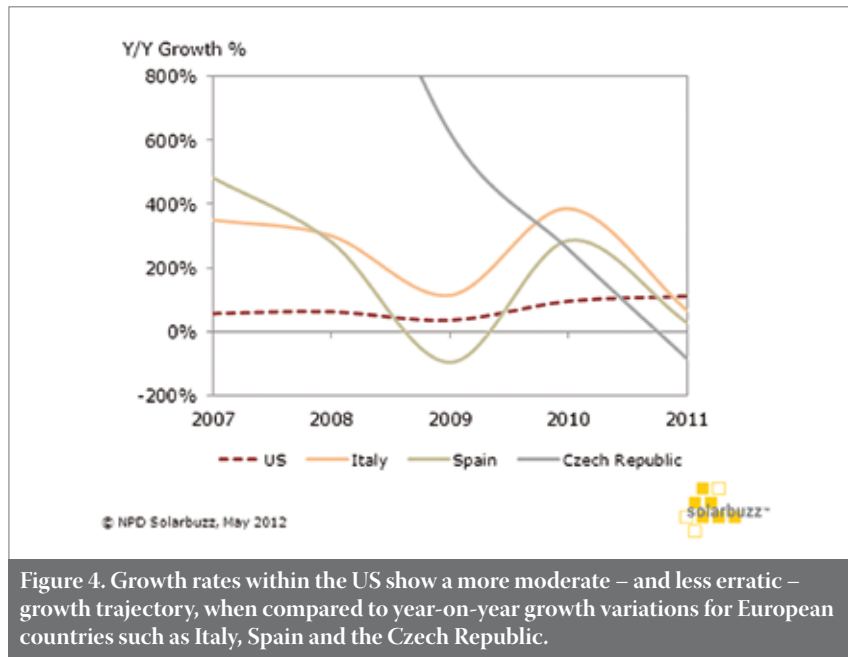


Figure 4. Growth rates within the US show a more moderate – and less erratic – growth trajectory, when compared to year-on-year growth variations for European countries such as Italy, Spain and the Czech Republic.

2007), but congress extended this to 2008. During 2008, the industry was left waiting nervously, not knowing whether the ITC would be extended. This caused a surge in PV installations. In December 2008, the government extended the ITC for eight years at a fixed rate of 30%, leading to a slowdown in market growth. Similarly, the recent expiry of the Federal Cash Grant caused a surge in installations at the end of 2011 in order to qualify for the grant in time. It is anticipated that the market in 2012 will see considerably slower growth rates.

However, the success of the CSI program does highlight that the market can grow against a backdrop of reduced incentive rates when presented in a predictable and transparent manner. Combined with the other non-European PV market growth, it is hoped that quarterly global demand phasing will start

to become less pronounced and more predictable, and that the days of dramatic quarterly demand cycles from policy changes in any single country will be issues only for the PV historians to ponder over.

About the Author

As vice president, **Dr. Finlay Colville** leads the NPD Solarbuzz team of analysts dedicated to PV market research and strategic consulting activities. Since 2010, he has co-authored the PV Equipment Quarterly report. He previously served as Director of Strategic Marketing for Coherent, Inc.'s solar business unit. Dr. Colville holds a B.Sc. in physics from the University of Glasgow and a Ph.D. in nonlinear photonics from the University of St. Andrews.

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