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## Solar Photovoltaics: 60,000 Job Losses from Solar Import Tariffs is a Manufactured Myth

The solar PV landscape is global in scope and subject to industry/competitive dynamics of supply, demand and pricing on a worldwide scale, but it is local in terms of economics that tie it to vagaries of the local markets from solar irradiance to policy, to electricity pricing, to customer profile, to financing, and to other variables. The on-going U.S trade investigation against Chinese solar cell/module imports for anti-competitive and unfair trade practices has accordingly generated a lot of heated commentary in terms of its negative impact on U.S. solar PV installations and consequently on jobs. Below we dissect a recent report sponsored by the Coalition for Affordable Solar Energy (CASE), an anti-tariff solar industry group, which is causing investor concern. We believe U.S. market demand will see some pressure if import tariffs are imposed, but not the extreme level the study implies.

### Jobs loss pegged at 60,000 by 2014 is nothing but a CASE of Disinformation

- We note that a study released by The Brattle Group on January 30, 2012, "The Employment Impacts of Proposed Tariffs on Chinese Manufactured Photovoltaic Cells and Modules" sponsored by CASE falls into the alarmist category with its claims that >60,000 solar PV jobs would be lost by 2014 as a result of U.S. imposition of import tariffs.
- The Brattle Group study notes that demand drop with the imposition of a tariff would drop to 3,159 MW in 2014 in a 100% tariff scenario with a high demand elasticity and low supply elasticity versus a normal demand at 4,894 MW.
- In such a scenario the study pegs job losses by 2014 at ~60,500 with direct/indirect job losses accounting for ~30,900, and the remaining ~29,600 coming from the loss of induced jobs.

The 60,000 jobs loss claim quoted ad nauseam is a myth, and based on prior work on solar PV value chain job potential **we find the study's assumptions highly questionable and conclusions at best misleading and at worst feeding on imaginary fears.**

### Points of contention: Are assumptions tied to goal-see the conclusions?

- We note that **The Brattle Group study's core assumptions on: (1) price elasticity of domestic demand, and (2) price elasticity of domestic supply, are highly suspect** owing to paucity of industry data, market immaturity, and the market complexity arising from multivariable interactions along multiple dimensions as mentioned above. The report clearly acknowledges lacuna noting, "our review of the literature and discussion with the industry experts did not yield formal elasticities for any of the consumer categories" and "due to the constantly evolving marketplace for PV, much of this data is subject to significant uncertainty and cannot be predicted with precision" **but it proceeds anyway to make unrealistic assumptions to drive 60,000 blind conclusions.**
- Second, **the study acknowledges that "most substantial growth is expected in the utility sector** as utilities invest to meet Renewable Portfolio Standards (RPS) requirements and solar targets" **but in the same breadth dismisses it** by assuming that import tariffs would cause utilities to cancel up to 50% of their total planned PV investment in the pipeline or 1.75GW (equating to a price elasticity of -5). The study does not even countenance that regulatory bodies could allow corridor pricing that can wax/wane so electric utilities commitment to RPS mandates is economically viable.
- Third, **the study notes that China's may retaliate** to the U.S. imposition of tariffs on solar cells/modules with tariffs on U.S. exports of polysilicon to China (~\$863M in 2010), **and summarily draws the conclusion that polysilicon exports cannot be redirected resulting in precisely 10,881 job losses.** We love the precision despite the uncertainty of data!
- Fourth, **the study pegs ~1 induced job loss for 1 direct/indirect job lost, which we believe is alarmingly high.** For reference, even the liberal estimates by the Council of Economic Advisers for the American Recovery and Reinvestment Act of 2009 (ARRA) and its attendant \$787B in U.S. Government fiscal stimulus pegged induced job creation effects at ~0.55 for every 1 direct/indirect job. Applying even ARRA's generous multiple trims Brattle Group's induced job loss estimate by over 40% to ~17,400. Further, ARRA estimates were for the broader economy, and when narrowed to the energy industry, job losses are even smaller as electricity generation multiplier effect is lower than the overall economy.
- Finally, **the study notes that at the extreme end the negative domestic revenue impact is ~\$2.6B. Given flawed assumptions in all of the above, it is meaningless and lacks credibility.**



### **The Sun will still rise, and the sky won't fall if the U.S. imposes tariffs on Chinese solar cells/modules**

While the imposition of import tariffs is bound to have a near-term negative impact on domestic demand, the bigger and more meaningful issue is, how will the solar PV market react? More specifically:

- Supply (domestic and overseas) response to price (not tied to demand)
- Supply (domestic and overseas) response to demand
- Demand response to price (not tied to supply)
- Demand response to supply
- Price response to supply
- Price response to demand

In addition to the above market related interactions, we believe potential policy, financing, and competitive adjustments can bring to bear solutions that are more sensible than the CASE induced self-serving gloom and doom conclusions. Accordingly, we conclude that U.S. and overseas solar industry/companies will adjust to the altered dynamic of import tariffs as they have with the reduction of subsidies every year, and if anything will emerge stronger based on innovation and healthy competition.

The U.S. is a continental sized solar PV market that is immature for now but is a hotbed of solar innovation and is set on a path to become one of the largest markets in the coming years. As such, the imposition of import tariffs on unfair competitive and trade practices will balance the market asymmetry from the supply side, and the price dynamic will play its own role wherein it will propel action in rooting out inefficiencies that reside in the downstream portion of the market so that the installed system cost is reasonable enough to deliver decent project returns.

#### **We note that the broad contours of the U.S.-China solar trade issue center around:**

- Substitution of market mechanism with state sponsored capitalism by China
- China's policy framework that leads to asymmetric and below cost pricing that destroys innovation/competition.
- Adhering to agreed and acceptable principles that enable free and fair trade/competition.

#### **More importantly, the trade dispute is NOT about:**

- Parochial interests of solar PV upstream versus downstream,
- Defending bad business models,
- Misreading of the competitive advantage of nations.

By being rabidly anti-tariffs despite all evidence pointing to anti-competitive and below cost dumping by Chinese solar PV manufacturers, CASE is not only being willfully blind, but is increasingly becoming irrelevant to the solar trade debate. More importantly, its blind allegiance to Chinese manufacturing/sourcing irrespective of the plentiful evidence unfair competitive and trade practices raises uncomfortable questions on its motives. **Conclusion: CASE does not have a valid case - case closed.**

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