



The benefits of eliminating trade barriers on environmental goods: preliminary results

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Around 21% of environmental goods are subject to tariff rates above 5%



Environmental goods (EGs) can be divided into two categories, which are not mutually exclusive:

- Goods that are integral to the delivery of environmental services.
- Environmentally preferable products (EPPs): single-used products whose primary purpose is not environmental but environmental benefits arise at some point in their life cycle.

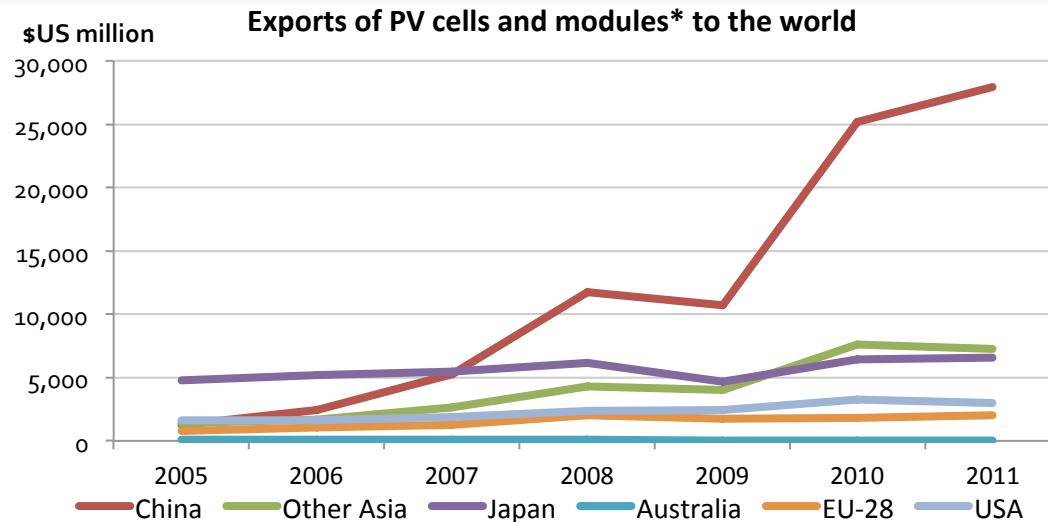
Limitations:

- How to define what is 'preferable'?
- How to classify goods with multiple end-uses, not limited to environmental purposes? (e.g. pipes for solar hot water systems vs. pipes also used for oil).

Global trade in EGs was estimated at nearly \$500 billion in 2011 (ICTSD 2013). However, estimating such as figure is complex because there are no international harmonized product codes beyond the UN 6-digit harmonized system.

Tariffs on EGs are usually low, although some WTO Members charge tariffs as high as 35% on some EGs. Tariff protection is typically higher in developing countries.

Global trade in environmental goods: Photosensitive semiconductor devices, PV cells and LEDs (HS 854140)

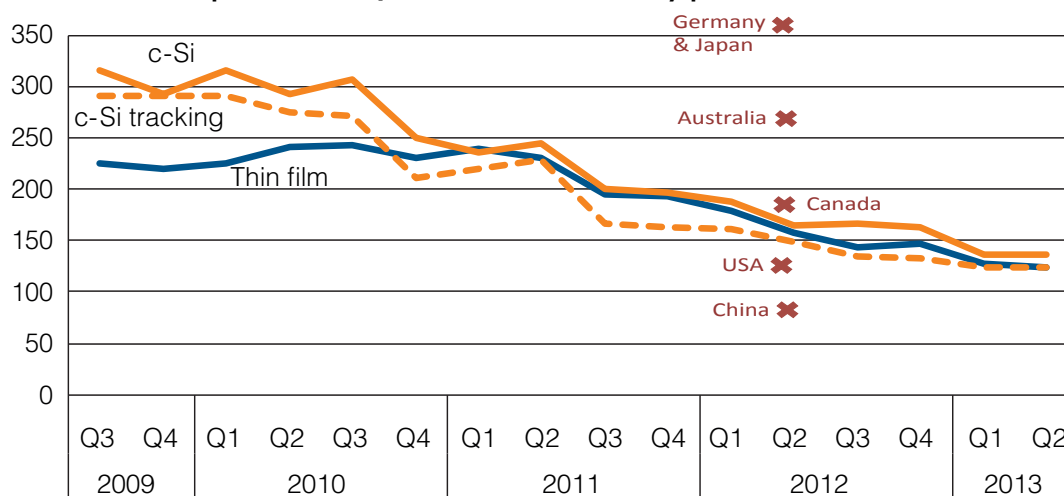


The market for solar panels grew rapidly over the period 2005-2011, with global solar annual capacity increasing at more than 80% a year.

Numerous support measures ranging from FIT, capital cost subsidies, carbon taxes and renewable energy targets also drove the recent growth.

Module and component costs have been declining. This has pushed levelised cost of energy (LCOE) of solar PV down over the past two decades, in a global market dominated by China.

LCOEs (developed market); household electricity prices (selected countries)



In Germany, Italy, parts of Australia and Canada, PV has reached grid parity : LCOEs of solar energy are now lower than retail electricity price. However, the competitiveness of PV installations is not entirely determined by LCOE, but the conditions for the sale of excess electricity back into the grid and other factors such as the structure of network charges.

Key questions to be examined

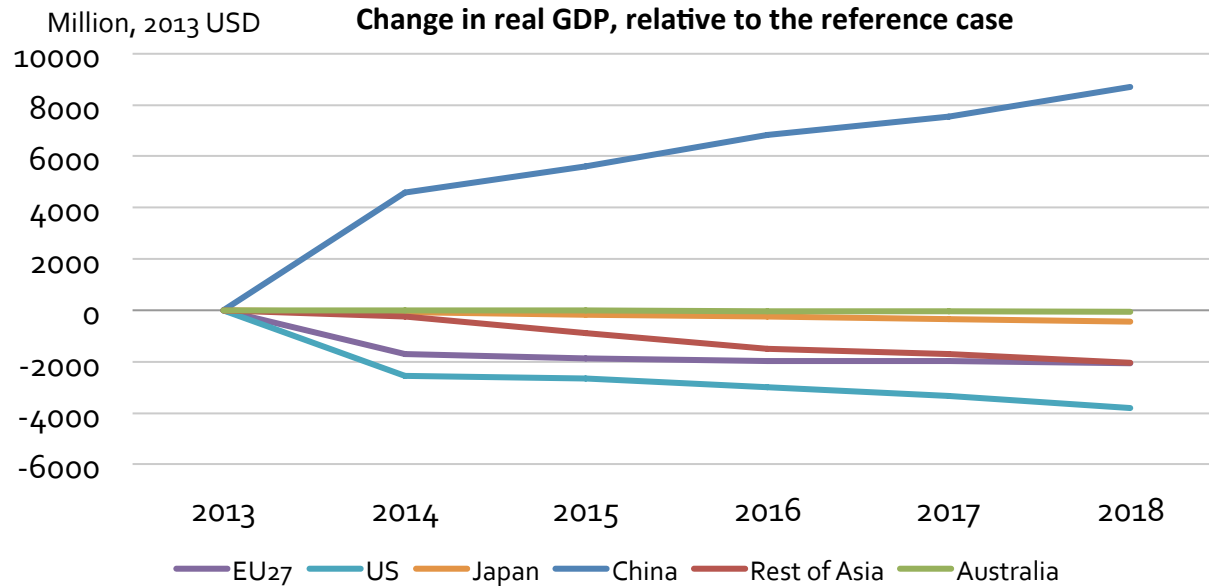
Context: Some silicon PV products from China were sold in the US at dumping margins (amount by which the export price is less than the normal value). In response, the EU and the US have applied anti-dumping and anti-subsidy tariffs. The WTO declared that this response violates the rules of international trade and could increase the costs of solar products in the US by 14%.

- **Question 1:** What are the implications on supply and demand if the current anti-dumping and anti-subsidy tariffs were removed?
- **Question 2:** How many tonnes of GHG emissions could be reduced if there are no anti-dumping and anti-subsidy tariffs? Is it significant?
- **Question 3:** Neoclassical trade theories suggest that trade liberalization brings benefits to consumers and contributes to growth. Are these theories applicable in this context?
- **Question 4:** Would the EU and the US be better- or worse-off if the current anti-dumping and anti-subsidy tariffs were removed?

We used a dynamic general equilibrium model with two scenarios (2014-2018):

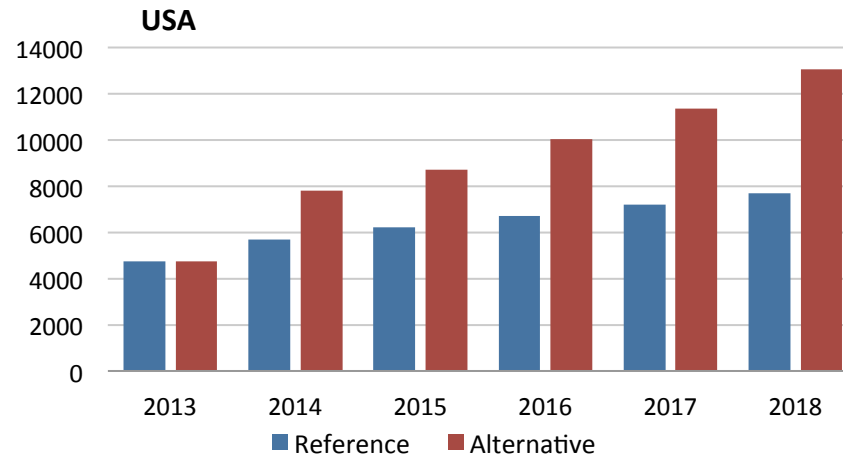
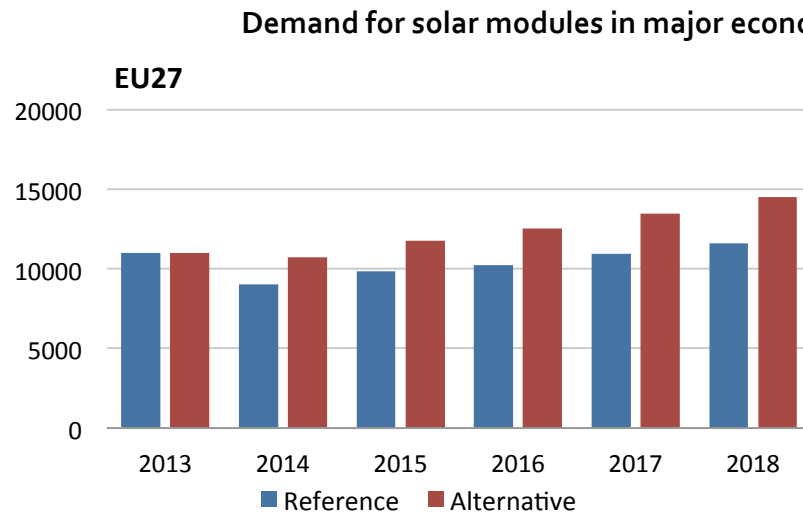
- Reference case: trajectory of the world economy **WITH** anti-dumping and anti-subsidy measures: US (30% import duty on Chinese solar modules), EU (30% duty on Chinese solar modules if a 7GW quota is exceeded).
- Alternative scenario: trajectory of the world economy **WITHOUT** anti-dumping and anti-subsidy measures by the US and the EU

Results



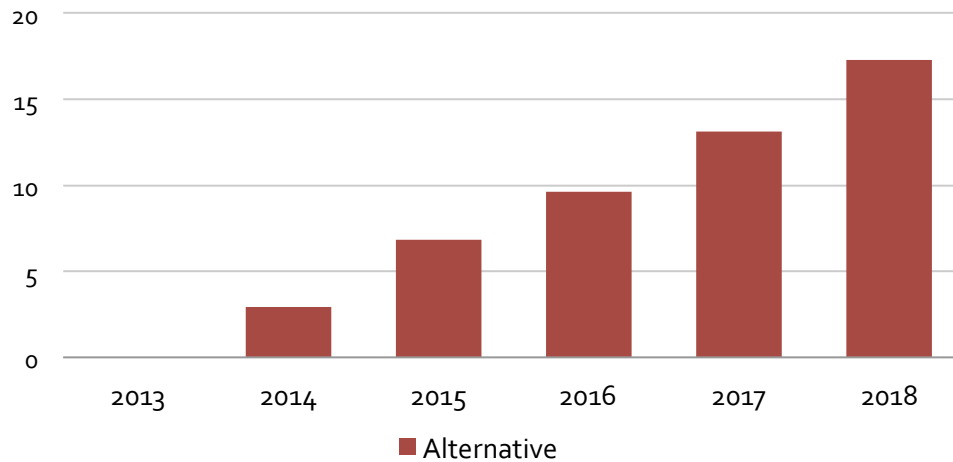
GDP in the EU and the US is projected to fall because more than 80% of solar modules are imported. No other energy technologies would make the EU and the US so dependent on China.

Increase in demand under the alternative scenario is driven by lower prices, resulting from tariff removal and capacity expansion.



Results

Mt CO₂ Reduction in GHG emissions, relative to the reference case



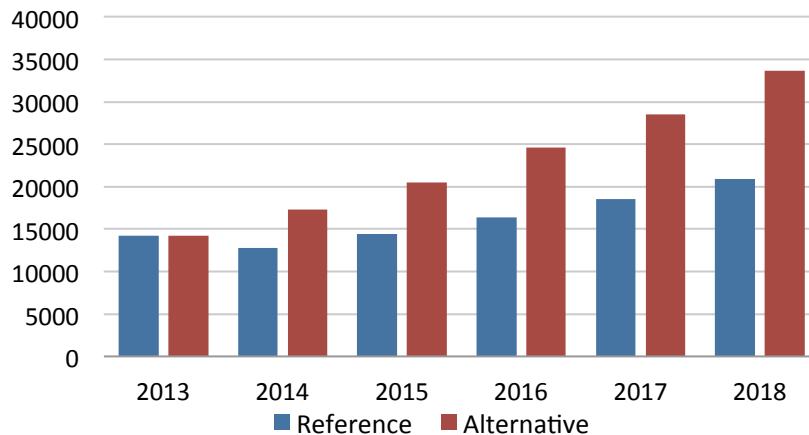
Over the projection period (2014-2018), global emissions could be reduced by nearly 50 Mt of CO₂ in additional under the alternative scenario.

Under the alternative scenario, production in the US increases, despite losing market share to imported modules.

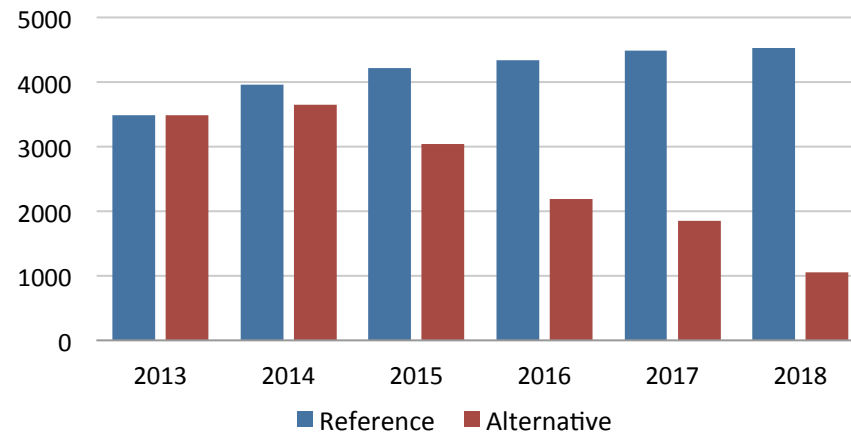
Taiwan, Malaysia, Korea and the Philippines are major competitors with China. Under the alternative scenario, exports from these countries will decrease while imports in India and rest of South East Asia will increase.

Net exports of solar modules in major economies (MW)

China



Rest of Asia (excluding Japan)





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