



## Energy Policy Seminar Series, Spring 2013

### Postdoctoral Fellow Joern Hoppmann on Feed-in Tariffs and Clean Energy

Feed in tariffs for solar power in Germany have been very effective in supporting the expansion of solar photovoltaic capacity in Germany, Belfer Center Fellow Joern Hoppmann said in a presentation of his research on Monday, March 11.

Hoppmann's research paints a complex picture of the costs and benefits of the solar feed-in tariff program that Germany has been supporting since 2000. Germany, comparable to Alaska in the amount of sunshine it receives every year, now has a full third of the world's solar capacity installed within its borders, incentivized by a feed-in tariff program which guarantees twenty years of above-market-rate payments for solar energy produced (often on rooftops) and provided to the grid. The program is funded by a surcharge on electricity paid by most German electricity consumers.

The cost of this program is impressive, Hoppmann observed, currently running at approximately 8.7 billion Euros per year, adding approximately 2.8 Euro cents per kilowatt hour to the cost of electricity in Germany, and averaging out to a cost of 517 Euros per ton of avoided CO2 emissions.

Noting that if abating CO2 is the only goal, large-scale deployment of solar is not yet the most cost-effective option in Germany, Hoppmann looked at other measures of effectiveness as well. At the time of the program's inception, it was hoped that the tariffs would support Germany's position as one of the leading manufacturers of photovoltaic (PV) technology in the world. The results on this front have been mixed, with China taking the lion's share of PV manufacturing but Germany hanging on to a strong position in the market for solar inverters and manufacturing equipment.

On the other hand, Hoppmann said, the increased demand fueled by the German FIT program played a significant role in cost decreases, as solar photovoltaic technology has had a chance to mature, producing a set of global benefits that are difficult to quantify.

Even this result, however, might have a downside--a possible risk of strong market support through feed-in tariffs is that it may prematurely lock the PV industry into a in a particular technology, whereas a stronger focus on supply-side support might allow alternatives to flourish and help potentially more cost-effective technologies emerge in the long run.

Hoppmann noted that the program has broad support within Germany, with a majority of those surveyed stating that the premium paid for solar energy was either about right or too low.

Hoppmann spoke as part of the Energy Policy Seminar Series, which is jointly sponsored by the Energy Technology Innovation Policy research group of the Belfer Center on Science and International Affairs and the Consortium for Energy Policy Research at the Mossavar-Rahmani Center for Business and Government.

