Cost assessment of clean generation incentives in Mexico for solar PV projects.

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ABSTRACT

Mexico recently opened the electric generation sector to competition. In addition, regulations to reach clean generation goals were implemented. These regulations include Clean Energy Certificates (CELs) obligations (similar to the Renewable Portfolio Standards in the United States), and the obligation of electricity suppliers to go into long term contracts with generators to guarantee the required electric energy and CELs supply. These contracts are procured through an auction mechanism. The purpose of this research is to i) estimate the cost of reaching the goals through the implemented policy, and ii) evaluate if the projects could be economically feasible by competing in the market without the aiding regulation.

This research looked at three different solar PV projects that will operate under long term contracts for the provision of electric energy and CELs. The revenues of the projects under the contract terms were modeled and contrasted with projected Locational Marginal Prices (LMPs). In addition, a discounted cash flow analysis was done for the three projects, both under long term contract conditions and short term market conditions. Two projects were found to be financially feasible under short term market conditions. The LMPs price was between $1.50 and $5.00 USD higher than the long term contract price. One project was not feasible under short term market conditions. To be feasible in the short term market, the LMPs needed to be over USD$2.00 higher. The price paid in the contract for this third project was approximately $1.50 USD/MWh higher than the projected LMPs. These results show that the policy implemented is being efficient, since the projects that were feasible without the incentive, would have sold their energy for a higher price without the auction mechanism. In addition, the project that was not financially feasible under short term market conditions, would have needed a higher incremental cost, to be reflected on the CEL, than the incremental costs achieved through the auction mechanism.

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