World Academy of Science, Engineering and Technology
International Journal of Industrial and Systems Engineering
Vol:9, No:08, 2015

Inventory Policy with Continuous Price Reduction in Solar Photovoltaic Supply Chain

Authors : Xiangrong Liu, Chuanhui Xiong

Abstract : With the concern of large pollution emissions from coal-fired power plants and new commitment to green energy, global solar power industry was emerging recently. Due to the advanced technology, the price of solar photovoltaic(PV) module was reduced at a fast rate, which arose an interesting but challenge question to solar supply chain. This research is modeling the inventory strategies for a PV supply chain with a PV manufacturer, an assembler and an end customer. Through characterizing the manufacturer's and PV assembler's optimal decision in decentralized and centralized situation, this study shed light on how to improve supply chain performance through parameters setting in the contract design. The results suggest the assembler to lower the optimal stock level gradually each period before price reduction and set up a newsvendor base-stock policy in all periods after price reduction. As to the PV module manufacturer, a non-stationary produce-up-to policy is optimal.

Keywords : photovoltaic, supply chain, inventory policy, base-stock policy
Conference Title : ICSCIM 2015 : International Conference on Supply Chain and Inventory Management
Conference Location : Amsterdam, Netherlands
Conference Dates : August 06-07, 2015