1163-60-1681 **Sebastian Jaimungal*** (sebastian.jaimungal@utoronto.ca), Toronto, Ontario M5S3G3, Canada, and **Arvind Shrivats** and **Dena Firoozi**. *A Mean-Field Game Approach to Equilibrium Pricing in Renewable Energy Certificate Markets.*

Renewable Energy Certificate markets are a market-based system designed to incentivize solar energy generation. A regulatory body imposes a lower bound on the energy each regulated firm must generate via solar means, providing them with a certificate for each MWh generated. Regulated firms minimize the cost imposed on them, by modulating their SREC generation and trading activities. As such, the market can be viewed as a large stochastic game with heterogeneous agents, where agents interact through the market price of the certificates. We study this stochastic game by solving the mean-field game (MFG) limit with heterogeneous agents. Our market participants optimize costs accounting for trading frictions, cost of generation, non-linear non-compliance penalty, and generation uncertainty. We endogenize SREC price through market clearing. Using techniques from variational analysis, we characterize firms' optimal controls as the solution of McKean-Vlasov (MV) FBSDEs and determine the equilibrium SREC price. We establish the existence and uniqueness and prove that the MFG strategies have the ϵ-Nash property. Finally, we develop a numerical scheme for solving the MV-FBSDEs and conclude by demonstrating how firms behave in equilibrium using simulated examples. (Received September 16, 2020)