Abstract

Wholesale electricity market designs in practice do not provide the market participants with adequate mechanisms to hedge their financial risks. Demanders and suppliers will likely face even greater risks with the deepening penetration of variable renewable resources like wind and solar. This talk explores the design of a centralized cash-settled call option market to mitigate such risks. A cash-settled call option is a financial instrument that allows its holder the right to claim a monetary reward equal to the positive difference between the real-time price of an underlying commodity and a pre-negotiated strike price for an upfront fee. Through an example, we will illustrate that a bilateral call option can reduce the payment volatility of market participants. Then, we will design a centralized clearing mechanism for call options that generalizes the bilateral trade. We will illustrate through an example how the centralized clearing mechanism generalizes the bilateral trade. Finally, the effect of risk preference of the market participants, as well as some generalizations will be discussed.