Guzman Assignment 4

Gu Wu UNI: gw2406

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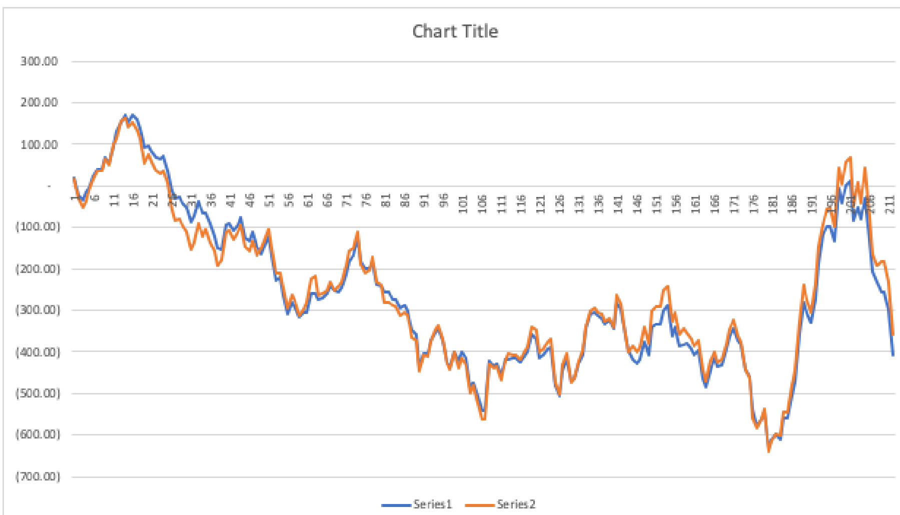
1. Hedging Using Product 2 and 3
I first calculate the PnL using product 1 to hedge, assuming holding 100 MW of physical power. Since we are doing weekly rebalancing, we also need to set up the time when we do rebalancing. Once we have those determined, we can run linear regression on the prices of product 2 and 3 to product 1 and get their coefficients. I basically interpret the coefficients as hedging ratios, namely we need to hedge my shorting equivalent number of shares as the coefficients. Once a week goes by, we need to run linear regression on the prices of product 2 and 3 to product 1 and get their coefficients again to update their coefficient and re balance accordingly.



As we can see from the figure above, we actually achieve a very good hedging comparing to the case where we were to use product 1, which is evident in the difference between the orange line and blue line.