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Dynamic Pricing

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Real-time pricing: dispelling the risk myth, seeing the opportunities

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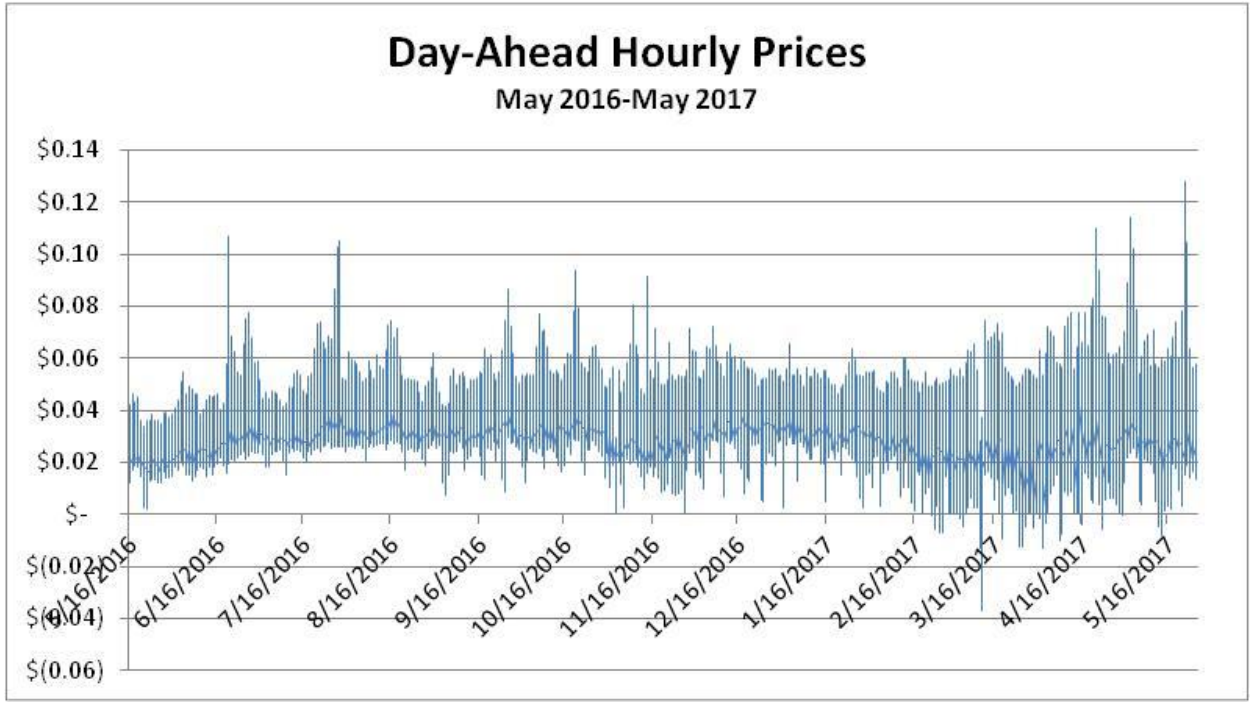
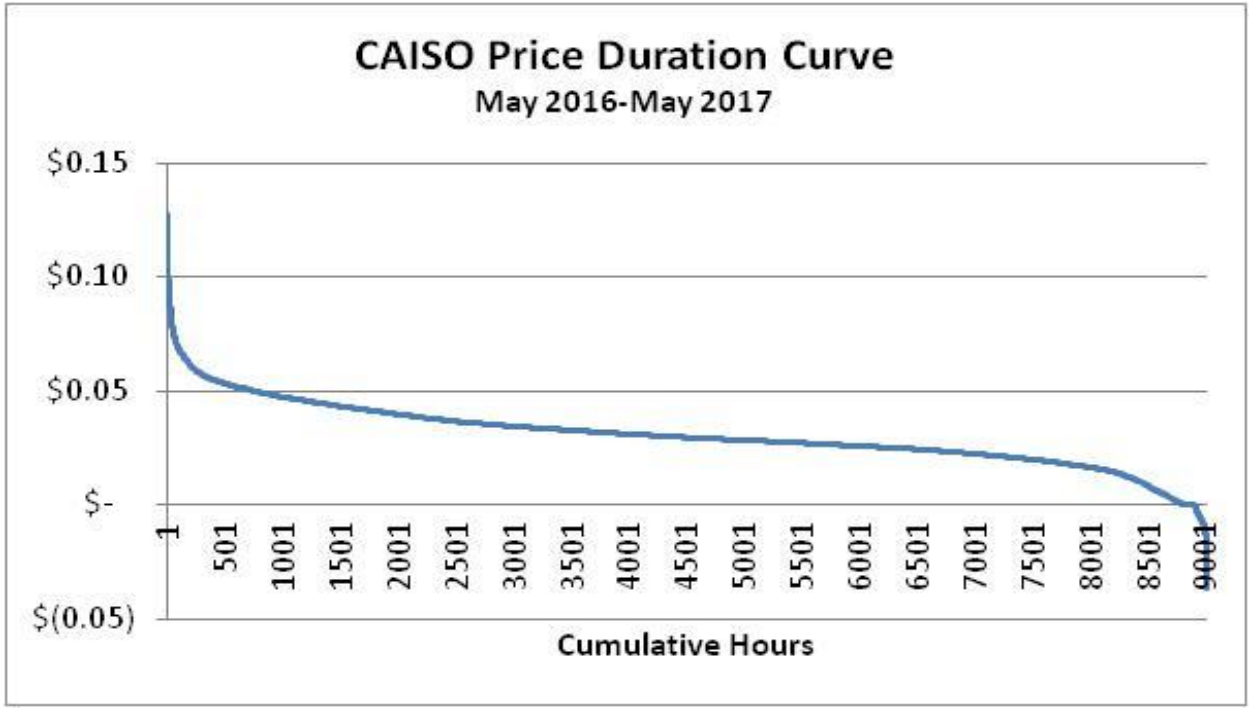
There's a lot of variation – but within bounds…



…and with bigger differences focused a few hours per year

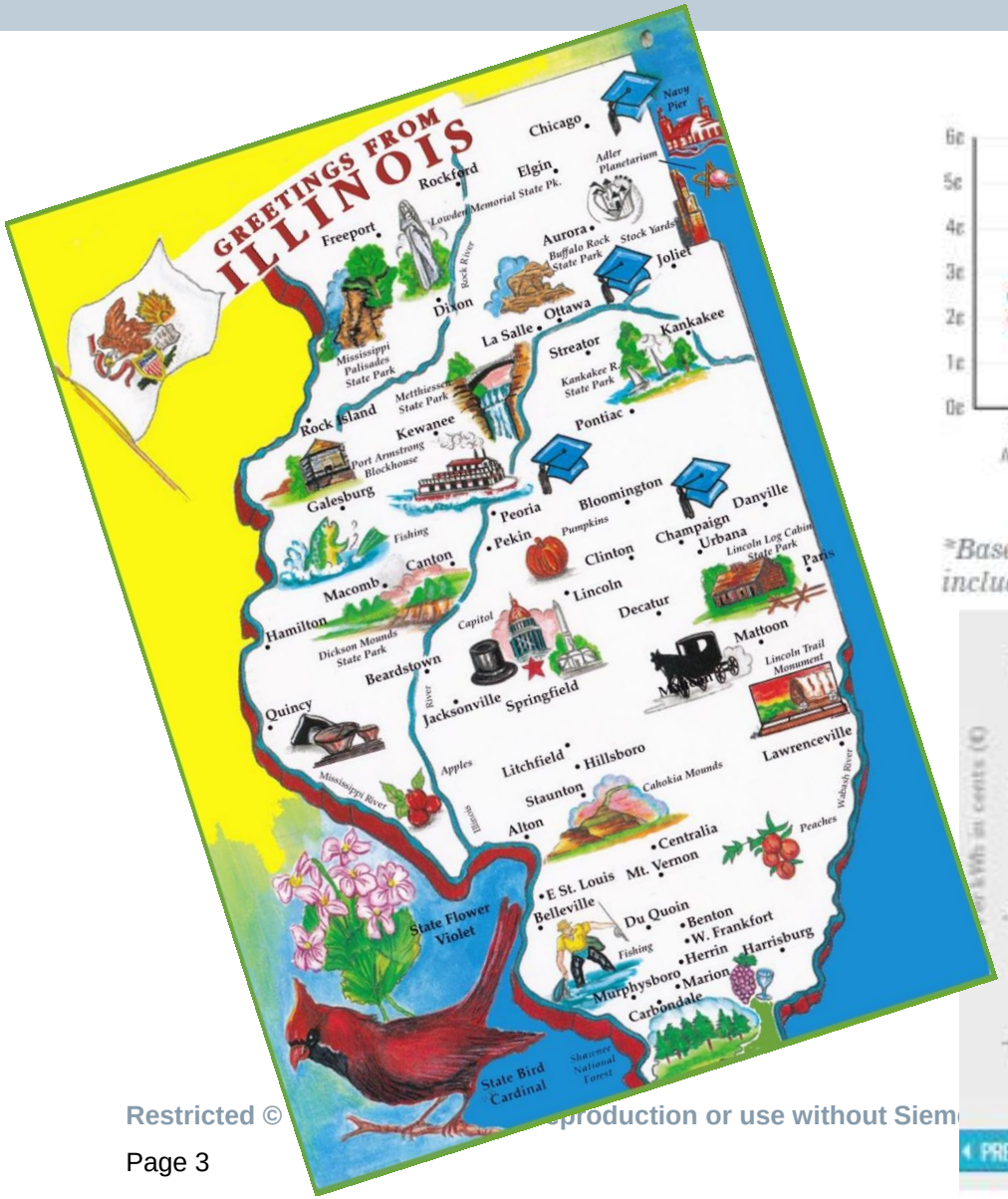


Average: 3 cents/kWh

Maximum: 13 cents

Minimum: -4 cents

Some implementation learnings



*Based on average prices for January 2012 through April 2015. Nonsummer months include October through May. Summer months include June through September.

Why is there a benefit, on average, during all hours?

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Value of a call option (Black-Scholes formula):

$$\text{value of call option} = N(d_1)\ S - N(d_2)\ Ke^{-rt}$$

where:

$$d_1 = \frac{\ln(\frac{S}{K}) + rt + \frac{\sigma^2 t}{2}}{\sigma\sqrt{t}}$$

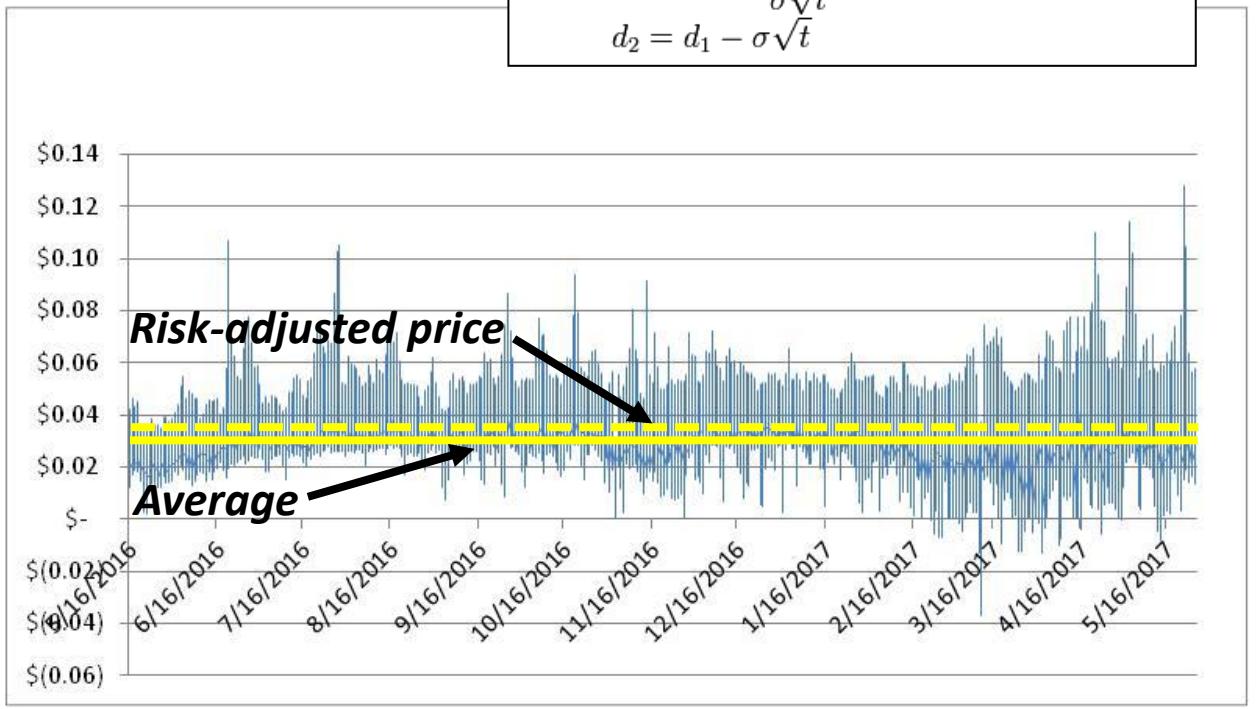
$$d_2 = d_1 - \sigma\sqrt{t}$$

How Big Is the Risk Premium in an Electricity Forward Price? Evidence from the Pacific Northwest

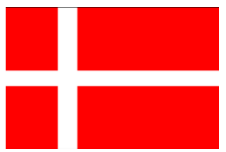
The numerous benefits of electricity forward trading come at a cost to consumers when a forward price contains a risk premium. An analysis based on the theory of cross hedging suggests that there is a risk premium of about 5 percent in the forward price for delivery at the Mid-Columbia hub of the Pacific Northwest.

Source: E3 in the Electricity Journal

Hedging visualized –



Consider, also, the cost of regulation…



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Thank You

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