

An Econometric Analysis of Electricity Demand Response to Price Changes at the Intra-Day Horizon: The Case of Manufacturing Industry in West Denmark - DTU Orbit (08/11/2017)

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The use of renewable energy implies a more variable supply of power. Market efficiency may improve if demand can absorb some of this variability by being more flexible, e.g. by responding quickly to changes in the market price of power. To learn about this, in particular, whether demand responds already within the same day, we suggest an econometric model for hourly consumption-and price time series. This allows for multi-level seasonality and that information about day-ahead prices does not arrive every hour but every 24th hour (as a vector of 24 prices). We confront the model with data from the manufacturing industry of West Denmark (2007- 2011). The results clearly suggest a lack of response. The policy implication is that relying exclusively on hourly price response by consumers for integrating volatile renewable electricity production is questionable. Either hourly price variation has to increase considerably or demand response technologies be installed.

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