

Shadow Pricing of Electric Power Interruptions for Distribution System Operators in Finland

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Abstract Increasing distributed generation and intermittency, along with the increasing frequency of extreme weather events, pose a serious challenge supply security in the electric power sector. Understanding the costs of interruption is vital for enhancing power system infrastructure and planning the distribution grid. Customer rights and demand response are additional reasons to study the value of power reliability. We make use of the directional distance function and shadow pricing method for a case study from Finland with the aim of calculating the cost of one minute of power interruption from the perspective of the distribution network operator. The sample consists of 78 distribution network operators from Finland based on cost and network information between 2013 and 2015..

Keywords power interruption; distribution system operator; interruption cost; shadow price

JEL Classification L42

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