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Modeling Uncertainty to Estimate Economic Impacts of Electric Power Outages on Marble Industry

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Abstract—Industry sectors smooth operability play a key role in the economic growth of a region. However, in real life the industries suffer disruptions in operability due to different reasons, which result in the economic decay of economic region. Hence, it is essential to develop a methodology to link industry sector inoperability (production disruptions) and economic losses with the risk causing it. In this research the impact of electric power outages on marble industry is evaluated in terms of inoperability and economic losses. The probabilistic variates of electric power outages are generated deploying Monte Carlo simulation and are feed in the industry inoperability and economic losses modeling equations. The methodology is applied to marble industry to estimate the monthly economic losses which varies from 400 thousand PKR to 1.2 million PKR and inoperability of 12% to 37%, when the electricity load shedding of 26 to 78 hours is imposed monthly.

Keywords—Uncertainty Analysis, Electric Power Outages, Inoperability, Economic Losses