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Abstract In any retail market, Load Serving Entities (LSE) and consumers can benefit from an effective dynamic pricing mechanism.Consumer's price responsiveness and uncertainty of Wholesale Electricity Market (WEM) prices can offer unexpected profits forLSE. LSEs are incentivised to procure a portion of their energy demand from Energy Storage Systems (ESS) due to increasingrenewable penetration at the distribution end. LSE's decisions become complex while handling uncertainty arising from suchconstantly varying conditions. Sale price dynamics optimization could minimize undesirable impact of these uncertainties andmaximize LSE's profit. However, this optimization is subject to severe WEM price uncertainty. In this perspective, this paperproposes a sale price dynamics optimization model to maximize LSE's profit while immunizing LSE against severe uncertainty ofWEM prices. Information Gap Decision Theory (IGDT) framework is considered to explicitly model severe price uncertainty anddetermine robust and opportunistic decisions. Impact of Renewable Energy (RE) availability along with Battery Energy Storage(BES) operations on procurement decisions is analyzed. Results highlight that the proposed model ensures consumer benefit andincreases LSE's profit. Correlation variation between demand and WEM price profile establishes effectiveness of the proposedmodel. RE and BES enhance robustness of procurement decisions.

Keywords decision-making, electricity, energy storage, information gap decision theory, load serving entities, price uncertainty, procurement, renewable energy, retailer, selling price.