

Application of Linear Programming to Investments in the Electric Power Industry

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Abstract: Decision-making in complex systems often involves allocating limited resources under multiple economic, technical, and policy constraints. Linear programming (LP) provides a systematic and computationally efficient framework to optimize such decisions. This paper presents a general LP-based methodology for investment optimization, highlighting how it can structure resource allocation, minimize costs, and balance competing objectives. Illustrative examples from the electric power sector demonstrate the framework's practical applicability, but the focus remains on the underlying modelling approach. The study emphasizes the transparency, flexibility, and methodological rigor of LP, making it a versatile tool for decision-making across diverse domains of applied science [2-6].

Keywords: Linear Programming; Decision-Making Framework; Investment Optimization; Resource Allocation; Optimization Methodology; Illustrative Applications; Computational Efficiency