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Juran quality model in energy management

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The 2022 energy crisis significantly challenged the operational management of domestic higher education institutions, highlighting the need for systematic and sustainable energy management strategies. This research proposes the adaptation of the Juran Quality Model, grounded in the principles of Quality by Design (QbD), to the implementation and optimization of ISO 50001 energy management systems. The study focuses on three dimensions: quality planning through stakeholder expectation mapping, quality control via the development of energy performance indicators, and quality improvement by integrating risk-based approaches.

Stakeholder analysis, KPI development, and integrated risk management form the methodological core, ensuring that energy management aligns with both operational efficiency and sustainability objectives. By bridging traditional quality management practices with contemporary energy standards, this research aims to create a measurable and systematic framework that enhances organizational performance, supports ISO 50001 certification, and strengthens ESG reporting within higher education institutions. The findings are expected to contribute to the interdisciplinary understanding of quality-driven energy management and inform strategic decision-making in the higher education sector.