

Renewable Energy Integration and its Impact on Cloud Resource Efficiency

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Abstract: *Cloud computing has become an indispensable part of modern computing infrastructure, providing scalable resources to businesses and users worldwide. However, the increasing energy demands of cloud data centers have raised significant concerns regarding operational costs and environmental sustainability. Integrating renewable energy sources such as solar, wind, and hydro into cloud data centers offers a promising approach to enhance energy efficiency while reducing carbon footprints. This review paper discusses strategies for renewable energy integration, examines its impact on cloud resource efficiency, explores relevant models and formulas, and highlights future research directions.*

Keywords: Cloud Data Centers, Energy Efficiency, Green Cloud Computing