

Title: Improvement of frequency management practices in India

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Description:

The objective of the project is to suggest improvements to the Indian electricity market. India is in the process of introducing new frequency management practices. The current operational practice has several shortcomings. The inability of the current system to maintain nominal frequency has affected the ability to transmit power efficiently. In addition, energy shortages are not sufficiently handled leading to unscheduled and frequent power interruptions.

The goal of this research is to demonstrate the availability of cost-effective methodologies to maintain nominal frequency even during energy shortages. The proposed mechanism comprises of an optimization based generator scheduling that accounts for energy shortage in the system. Along with scheduling, stand-by generation is procured for frequency control. In addition, we introduce a dynamic pricing mechanism for frequency control, as opposed to the current fixed pricing mechanism. We study the operational cost and frequency performance of such a system with regards to the current mechanism.