

## GAME SOLUTIONS FOR DISTRIBUTION NETWORK COST ALLOCATION

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### ABSTRACT

With restructuring of the power industry, a large number of distributed generators are expected to join the distribution system. This increases the complexity for network cost allocation models. The traditional cost reflective pricing mechanisms like MW-Mile method lead to high network use-of-system and upfront charges for the distributed generators, which is hindering their growth. This prompts for development of network usage evaluation models that promote distributed generation. Cooperative Game Theory provides stable and simplistic models for cost allocation in such environment. The paper provides a game theoretic model to allocate the distribution network costs based on Nucleolus and Shapley Value approaches. The game solutions are able to provide justified yet lower cost allocations for Distributed Generators. Consistent results qualify the application of game theoretic approaches for such systems. Comparisons with a traditional methodology assert easy implementation of the proposed approaches.