# An Aumann-Shapley approach to allocate transmission service cost among network users in electricity markets

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**Abstract-**

**This work presents a new methodology for the allocation of transmission service cost among network users in energy markets. The proposed method is based on an optimization/game-theoretic framework (Aumann-Shapley) that retains the desirable properties of other existing methodologies such as the Average Participations Factors (APF) and Long Run Marginal Costs (LRMC). The approach is shown to be computationally feasible and presents desirable characteristics in terms of economic coherence and isonomy. Computational results are presented for the Brazilian power system and compared with those obtained by three other methodologies: LRMC, APF, and the current method adopted in Brazil.**

**Index Terms- Aumann-Shapley pricing, cooperative game theory, transmission pricing, transmission service cost allocation.**

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