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Redesigning residual cost allocation in electricity tariffs: a proposal to balance efficiency, equity and cost recovery

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Abstract- In most power systems, residual costs (including, but not limited to, residual network costs and renewable support costs), are allocated through volumetric charges. This design, whose inefficiency has been latent in the last decades, is being challenged by the deployment of distributed energy resources, through which high-consumption customers may dramatically reduce the share of residual costs they pay, leaving a deficit to be paid by other customers. In principle, the most efficient alternative appears to be to allocate residual costs through fixed charges, but if these charges are flat, tariff equity is endangered. This article analyses the problem according to ratemaking theory, reviews the different allocation methodologies considered to date, and proposes a solution, based on uneven fixed charges, that allows to achieve efficiency, equity and cost recovery in modern electricity tariffs.

Index Terms- Residual costs; Tariff design; Fixed charge; Equity; Demand elasticity; Grid defection

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