

Regulatory Impact of Prepaid Metering on Urban Utility Access

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Abstract

Energy access is fundamental to the development of sustainable cities and communities. The paper investigates the implications of widespread adoption of prepaid electricity metering in urban cities. In response to revenue recovery concerns and demand-side management, the Electricity Company of Ghana (ECG) and Northern Electricity Distribution Company (NEDCo) prioritized prepaid systems, raising critical questions about consumer vulnerability and broader sustainability in urban utility service delivery. In alignment with SDGs 7 and 11, we investigate the influence of the metering transition on energy poverty, and sustainable living particularly within urban-poor communities. Using a mixed-methods approach, the research analyses secondary data from ECG and NEDCo reports with the findings from customer satisfaction surveys. Findings suggest that while prepaid metering enhances urban consumer's energy usage, it equally introduces access barriers to sustainable living for the urban poor. Furthermore, we find that social inequalities are created by upfront payment burdens, limited tariff comprehension, and digital exclusion that make the urban poor to resort to biomass and unclean traditional energies. Such issues also contribute to intermittent energy supply and influence consumer behaviors. Hence, sustainable life in the urban poor communities requires targeted regulatory interventions to curtail carbon emissions from traditional fuels by reducing inequalities in urban energy access. The study proposes the introduction of installment-based prepaid meter payment options that allow users to top up in smaller, more manageable amounts while retaining service for sustainable living. These recommendations emphasise the need for urban utility reforms integrated with urban planning to support socially inclusive, resilient, and sustainable living.