

# ERSA Research Brief

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## The household effects of very large electricity tariff hikes in Zambia

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Under-pricing of electricity is prevalent in nearly 70 percent of all sub-Saharan African countries. Consequently, the electricity sectors are financially unviable and unable to maintain or expand the electricity infrastructure, leading to unendurable power deficits and outages in the region. The economic costs of under-pricing electricity services are wide-range: from widening fiscal deficits; to diverting budgets from more important social investments such as education or health.

Significant policy shifts are required to make the regional electricity sectors viable and relevant in supporting social and economic development. In particular, reforming and raising electricity prices to cost-reflective levels would help eliminate financial losses and attract investments into the electricity sectors. However, increases in electricity prices would negatively affect household welfare in most countries. This concern raises valid policy questions such as: what are the likely welfare impacts of electricity price increases? Or, who would be most affected; and what policy options are available to counter such adverse effects?

This paper describes the distribution of electricity subsidies and simulates the welfare impacts of rising electricity prices in low income countries. We use Zambia as a case study given the recent 75% increases in electricity prices in that country. Firstly, we find that the electricity subsidies are quite regressive, with more than 60% of the subsidies going into the richest quintile households compared to less than 1% which is transferred to the poorest 20% households. The unequal distribution of the subsidies is largely driven by the fact that access to the grid in the first place is skewed toward the richer urban households who enjoy geographical proximity to the main grid networks in Zambia. Furthermore, the current policy of providing electricity subsidies to all households, works out to benefit the richer households, who consume larger amounts of electricity compared to the poorer households. These two factors largely drive the disproportionately larger provision of electricity subsidies to richer households.

Second, our simulation of a 75% electricity price hike using a popular partial equilibrium model shows that the electricity hikes adversely impact household welfare. Our model takes into account both the direct and indirect effects of electricity price increases. The direct effect arises from the increase in electricity expenditure due to electricity price increases. The indirect effects on the other hand arise from the increases in the prices of all other goods and services that use electricity as an intermediate input. The total average effect is a 4.6% decline in real household expenditures. Most strikingly, the poorest household decile suffers the largest reduction in household welfare of 11.2%. The richest decile only experiences a 3.7% decline in real welfare. Naturally, the welfare losses lead to increases in moderate and extreme poverty by about 0.7 and 0.6 percentage points respectively.

The simulation of possible mitigation programmes shows that transferring the realised electricity subsidy savings to the poorest half of the households reduces extreme poverty by 4.2 percentage points. A second policy simulation that transfers the electricity fiscal savings as above but also doubles the social cash transfer pay-outs to the poorest 50% of the population reduces extreme poverty by 10.7 percentage points. Overall, either simulation results in a net reduction in extreme poverty. The first scenario which is budget neutral is preferred, especially in low income countries simultaneously battling the twin challenges

of high budget deficits and poverty rates.

Based on the findings in this paper, we recommend that electricity reforms focus on targeting any electricity subsidies to the poor households to help improve equity in the distribution of electricity subsidies. In addition, we recommend the acceleration electrification programmes in rural and impoverished areas to help improve access among the poor. Furthermore, governments must consider budget-neutral options of increasing electricity tariff rates to market levels and transferring the realised fiscal savings as social grants to poor households. This budget neutral strategy is particularly useful in countries trying to fight the twin problems of high-budget deficits and high poverty rate as is the case in Zambia and most other sub-Saharan countries.