

## Enhancing EDSA's Energy Accountability and Revenue Protection for a Sustainable Power Sector

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Sierra Leone's energy sector faces a range of operational, financial, and institutional challenges that limit its ability to meet the country's growing energy demands. A major issue for the Electricity Distribution and Supply Authority (EDSA) is its financial viability, as Aggregate Technical, Commercial, and Collection (ATC&C) losses exceed 51% in 2024, posing a significant threat to the sector's sustainability. To address these challenges, the Foreign, Commonwealth and Development Office (FCDO) engaged Adam Smith International (ASI) under the Expertise to Support Economic Reform in Sierra Leone (ESER) programme. ASI subsequently procured the services of Deloitte, Ghana through a competitive bid to undertake a Revenue Protection Pilot and T4 (high tariff) Customer Management intervention to improve EDSA's energy accounting, revenue collection, and operational efficiency. This work was won and delivered by Deloitte, Ghana.

The programme supported EDSA to conduct a GIS mapping exercise in one district to capture customer data, and map it to distribution network assets for energy accounting and estimation of loss levels. To align EDSA's meter specifications, the programme supported a review of technical specifications for key metering and electrical components, including bulk metering smart meters, transformer metering panels, prepayment meters, and associated accessories. The programme also reviewed the current structure of the Revenue Protection Unit (RPU) to identify opportunities to strengthen the RPU's effectiveness in tracking EDSA's revenue leakages through illegal electricity consumption and recovering the amount. We also provided capacity building to EDSA on GIS mapping and energy accounting, to ensure EDSA were able to continue effective revenue protection improvements beyond the end of the programme. We also supported EDSA to undertake a review of its Advanced Metering Infrastructure (AMI), and delivered transformer monitoring and a field inspection of selected consumer meters to assess the integrity and performance of meters.



Photo: Final Validation Workshop for EDSA Revenue Protection Pilot (Credit: FCDO 2025)

A key milestone of the project was the successful GIS mapping of 19,583 customer locations, along with critical distribution infrastructure such as transformers, feeder lines, and substations. This initiative significantly enhanced network visibility and provided EDSA with a more accurate representation of its distribution system. Alongside this, we designed and implemented an energy accounting framework that helped track electricity flow, detect inefficiencies, and provide insights for loss reduction strategies. Our technical review of metering equipment led to revised specifications for prepayment metering systems, ensuring alignment with international standards, and improving the accuracy of metering and billing.



Photo: Training of the EDSA Staff on the data collection tool for GIS mapping by Deloitte (Credit: FCDO 2025)

To strengthen revenue protection, we proposed that EDSA create a more structured RPU incorporating smart meter analytics, specialised enforcement teams, and independent oversight mechanisms. Additionally, we recommended the creation of a dedicated T4 Customer Management Department, equipped with advanced analytics tools and enhanced field logistics, to improve data accuracy and revenue collection. The programme also developed tools and templates to enhance the work of the RPU.

The impact of these interventions was reinforced during a final validation workshop, where findings were shared with EDSA's management. EDSA's Director General acknowledged the significance of the project and reaffirmed the organisation's commitment to implementing the recommendations. Beyond immediate improvements, the project leaves behind lasting value, including a GIS database with detailed network mapping layers, staff newly trained on mapping and energy accounting and with access to various new analytical tools. These include tools and templates for energy balance calculations, transformer load monitoring, and a structured customer investigation checklist.

These resources will support EDSA's ongoing efforts to enhance operational efficiency and increase revenues, ensuring a more resilient and financially sustainable electricity sector for Sierra Leone, conducive to increasing future investment in the sector.



Photo: Briefing by Deloitte to the EDSA team ahead of commencing the GIS activity (Credit: FCDO 2025)



Field training to the EDSA staff on the GIS mapping activity (Credit: FCDO 2025)



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