GIS AS A TOOL FOR EFFECTIVE ENERGY AUDIT AND STRATEGY FOR REDUCING ATC&C LOSSES

Esri IMGIS 2021
On-Demand User Presentation

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Energy Audit

Energy Audit is a business analytics technique used by electricity distribution companies to compare the energy supplied against the energy consumed and to determine the **aggregate technical, commercial and collection (ATC&C) losses.**

The Concept of ATC&C Losses

- **Technical losses** occur due to inherent properties of the equipment used for transmission and distribution of electricity.
- **Commercial losses** occur when the billing process fails to capture all billable energies.
- **Collection Losses** occur when utilities fails to recover revenues in consonance with the billed energy.

Our critical key business **performance indicator** at Eko Electricity Distribution Company is to **reduce** the **ATC&C Losses** to a target threshold of one-digit value (<10%) within the next five (5) years.

Challenge

- **Billing** and **collection** involves human intervention and most of the times **human error**, intentional or non-intentional occurs, causing revenue losses.

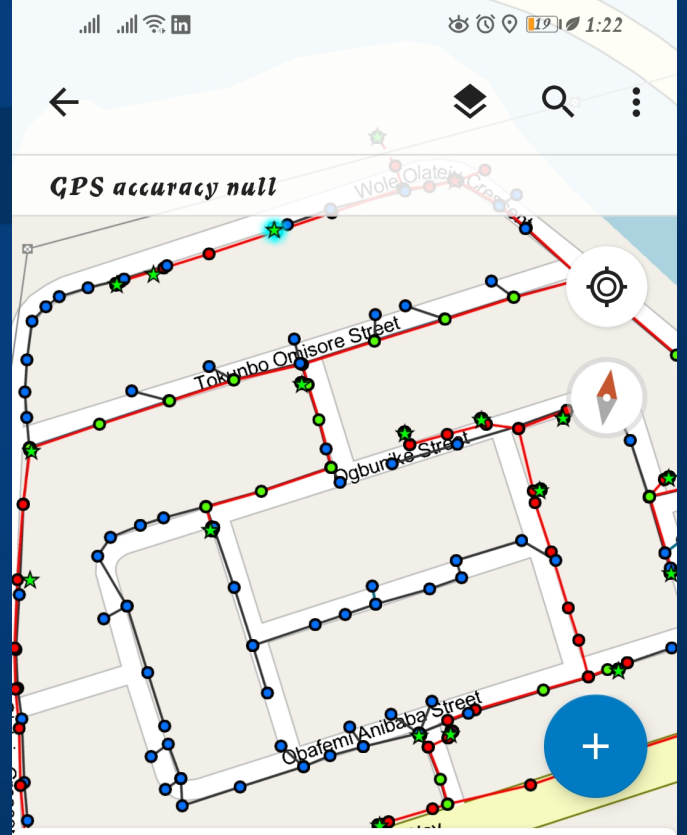
- **Distribution transformers** are often **relocated** from one feeder to another due to maintenance issues, overloading and cable faults, which usually results in **unreliable** energy auditing.

Solution:
GIS as a Strategy for Energy Audit

- With the aid of **ArcGIS Online solutions**, we were able to enforce the capturing of all updates, network augmentation and modification projects by field workers. Thus, ensuring **customer indexing** - the accurate tagging of consumers to their respective feeders and transformers.

Solution:
GIS as a Tool For Reducing ATC&C **Losses**

We were able to solve this problem by introducing **Esri Geospatial technology** as a strategy to reduce ATC&C losses; assisting the meter readers with **GIS mapping** to locate all meter assets easily and ensure that their location coordinates match with the consumer meter location, to avoid guessed and estimated billing.



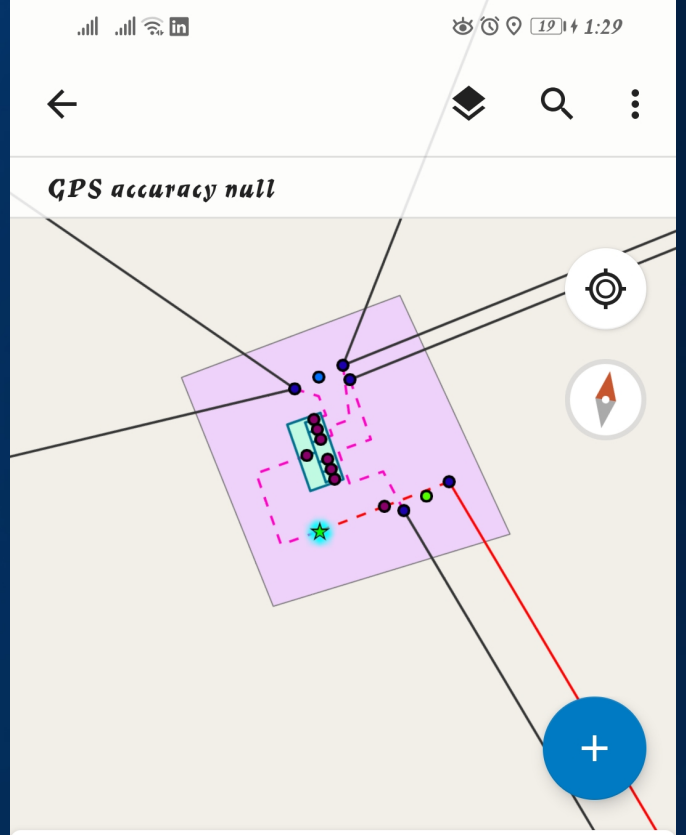
Transformer: WOLE...

6.448475°N 3.455338°E 24.9 km

AncillaryRole
-

Enabled
True

FeederID
Wole Olateju



Transformer: OBAFE...

6.445565°N 3.456684°E 25.3 km

AncillaryRole
-

Enabled
True

FeederID
Wole Olateju

EKEDP ASSET DATA

Legend

ALL_ASSET_DATA - Transformer

Subtype

- GMT
- Isolation Transformer
- PMT
- Power Transformer
- <all other values>

ALL_ASSET_DATA - InstrumentTransformer

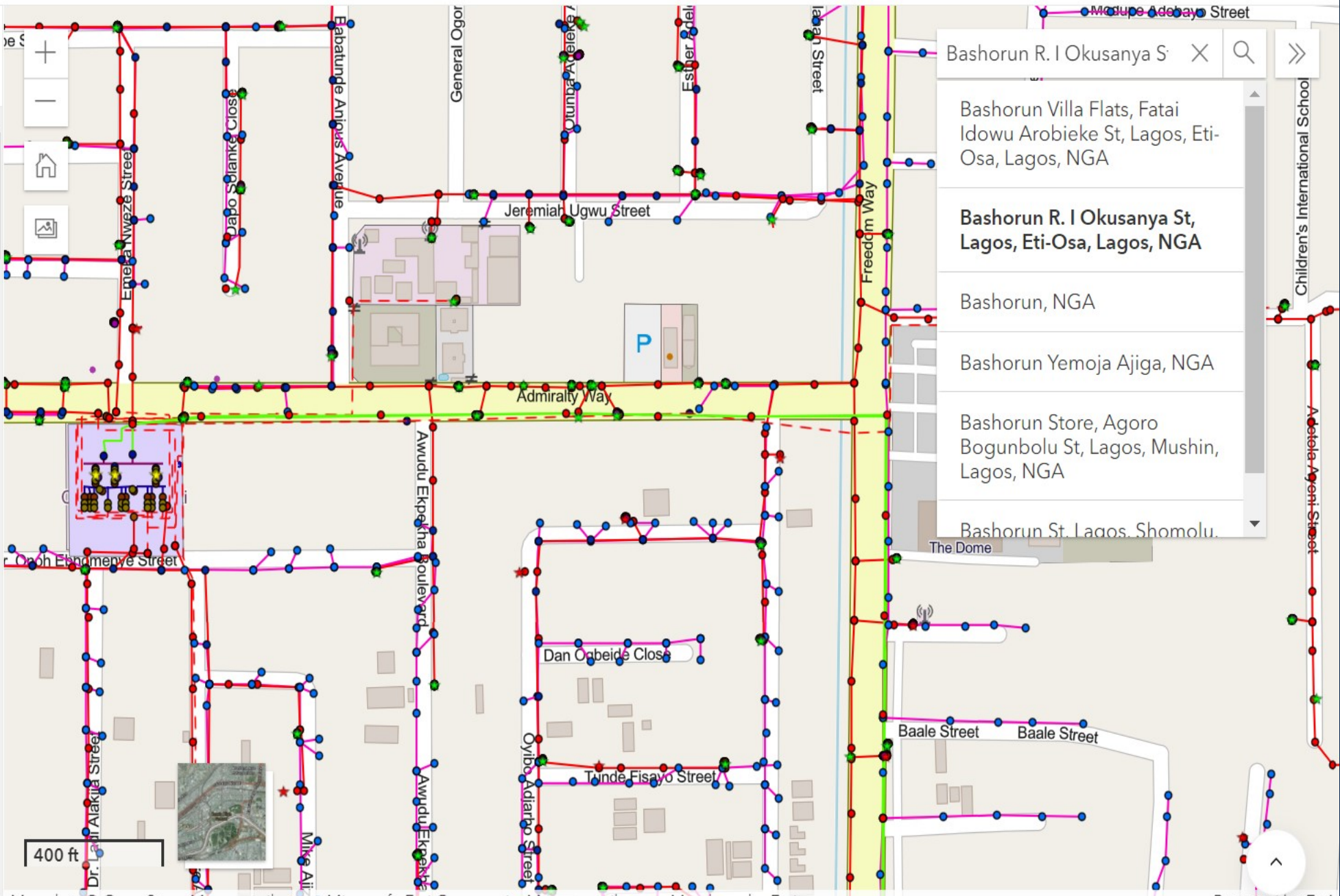
Subtype

- Current Transformer
- Voltage Transformer
- <all other values>

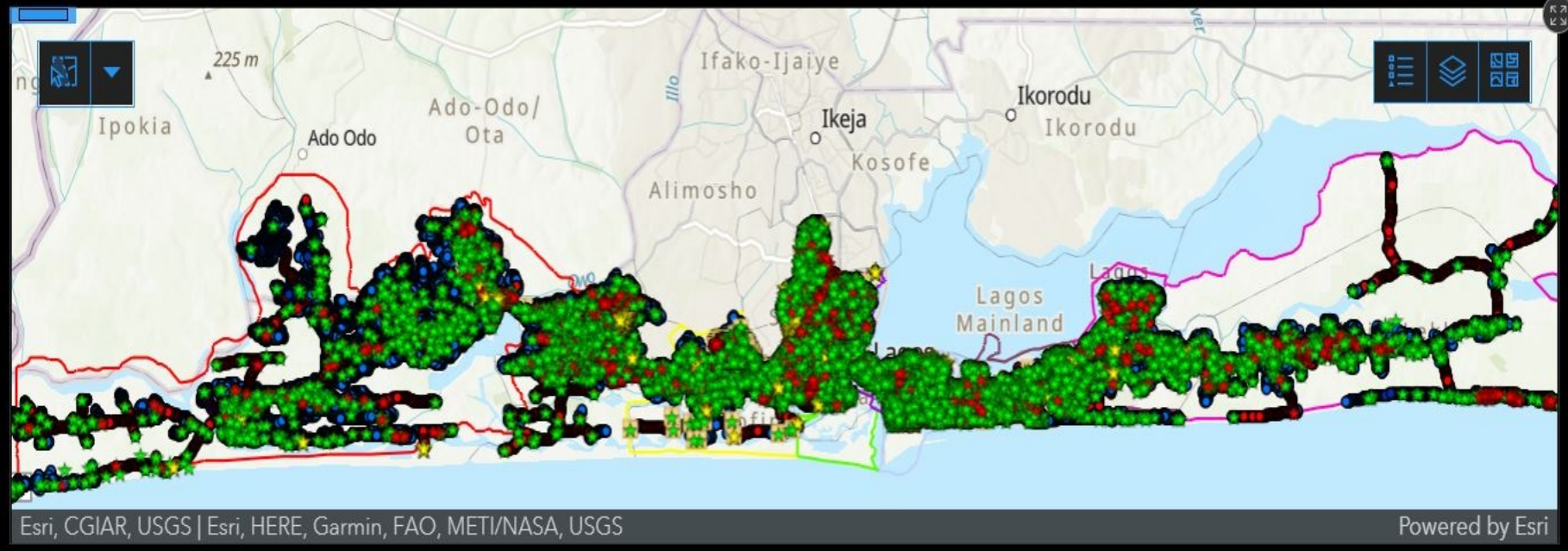
ALL_ASSET_DATA - Fuse

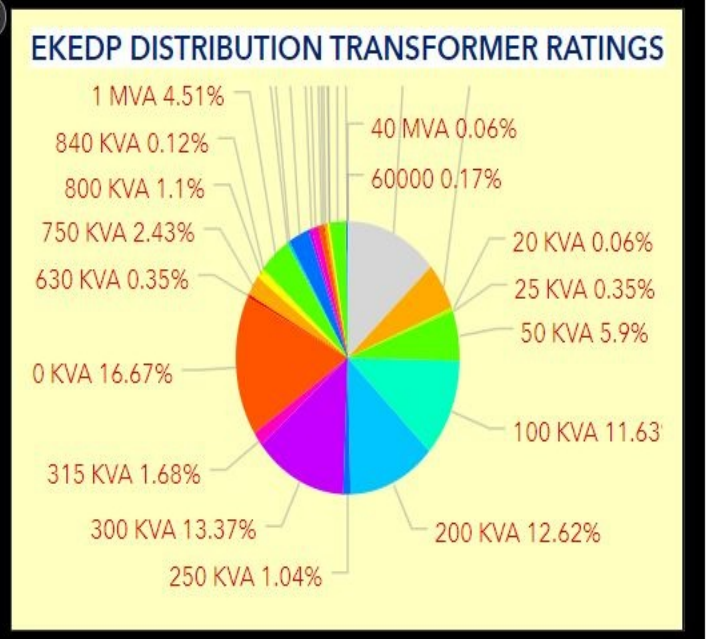
Subtype

- 11kV DOF
- 11kV HFU



EKEDP ASSET DATA VALIDATION PROGRESS



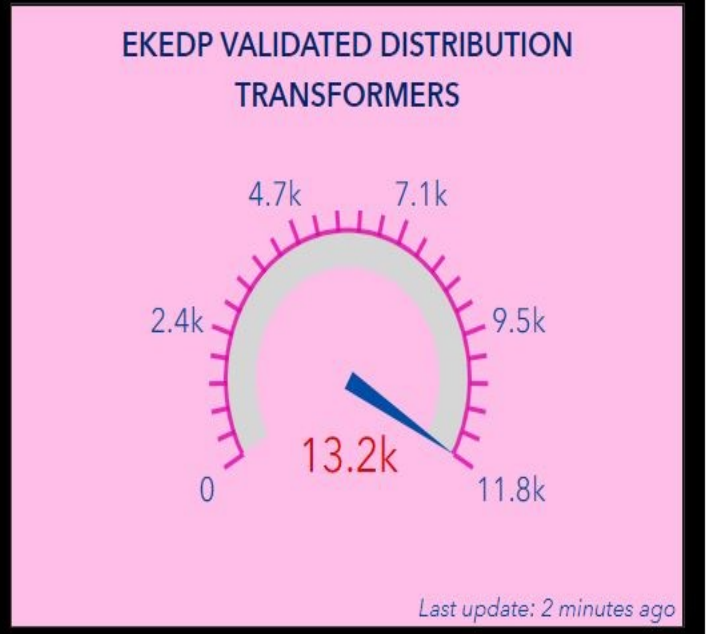


EKEDC
EKO ELECTRICITY DISTRIBUTION PLC

DT COUNT

13.2k

11.3k



EKEDC

EKO ELECTRICITY DISTRIBUTION PLC

Ask a question about your data

Try one of these to get started

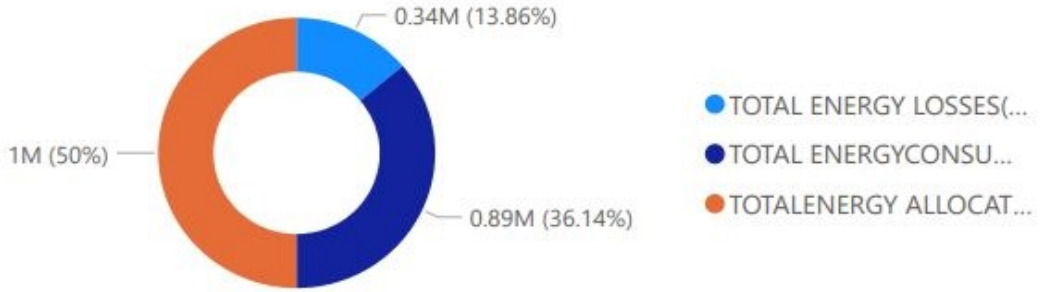
most recent table 1

average percentage energy loss

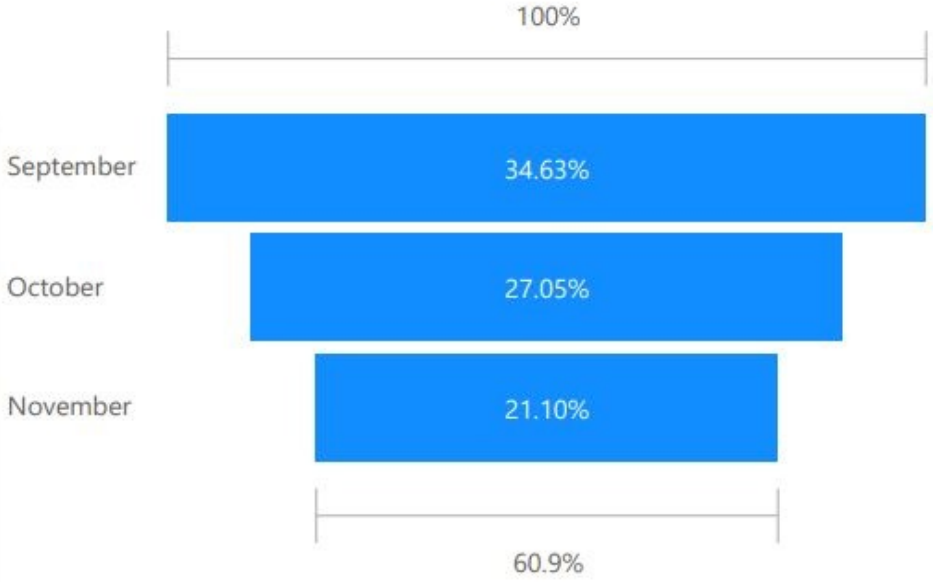
maximum percentage energy loss

Show all suggestions

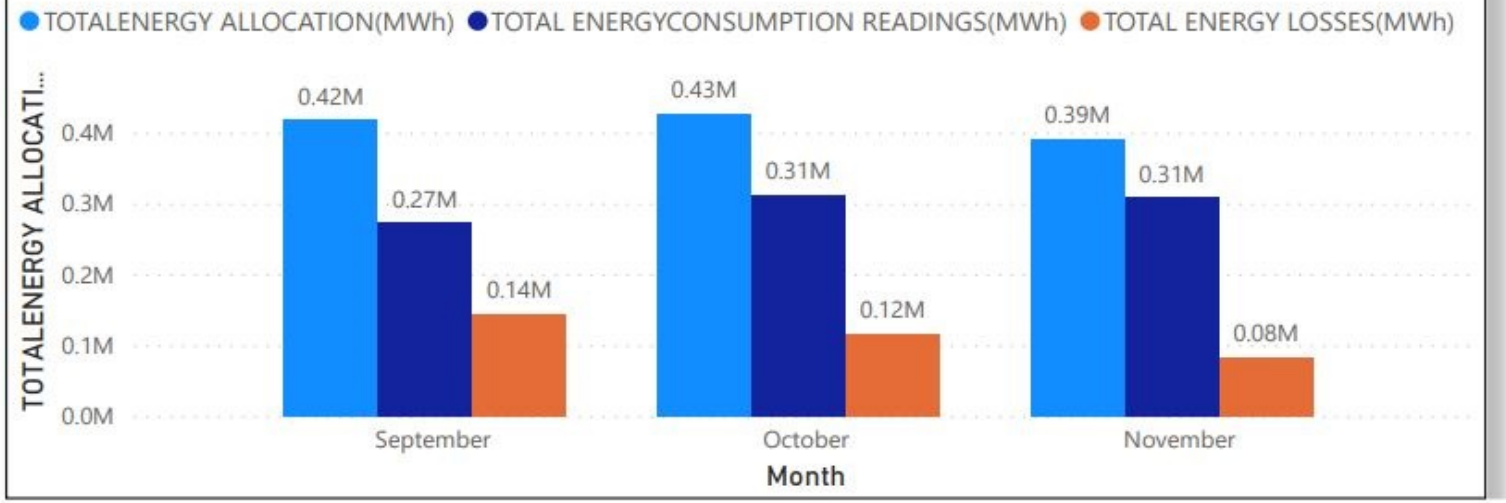
TOTAL ENERGY LOSSES(MWh), TOTAL ENERGYCONSUMPTION READINGS(MWh) and TOTALENERGY ALLOCATION(MWh)



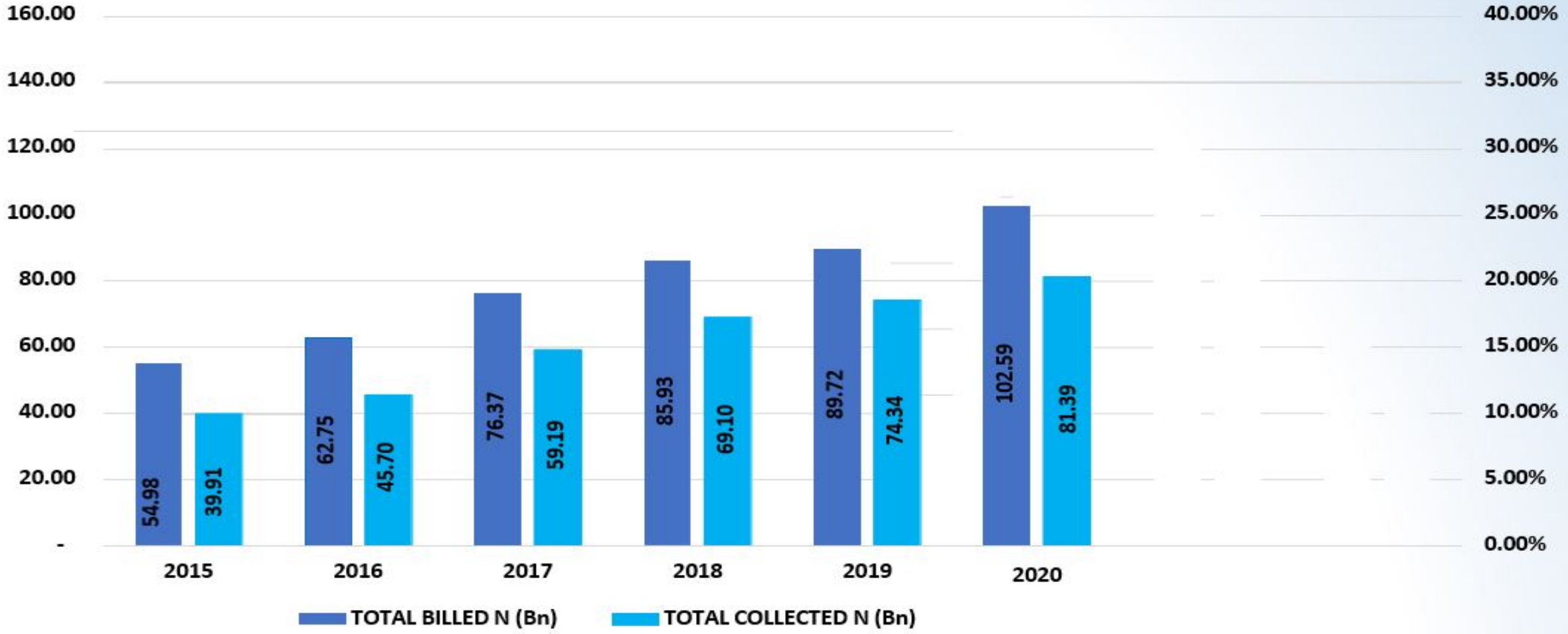
PERCENTAGE ENERGY LOSSES by Month



TOTALENERGY ALLOCATION(MWh), TOTAL ENERGYCONSUMPTION READINGS(MWh) and TOTAL ENERGY LOSSES(MWh) by Month



EKEDC Billing and Collection Performance Dashboard



We have achieved significant reduction rate in ATC&C of 15% over the past 6 years. From a starting ATC&C of **35.37%** in 2015 to **30.05%** at the year-end 2020. This would have been less but for the COVID-19 pandemic which caused a dive downwards in our business activities there by affecting our performance for the year.

ekedp.maps.arcgis.com/home/index.html

Home Gallery Map Scene Notebook Groups Content Organization

Damilare Ojo
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Eko Electricity Distribution Plc

DT Harmonization LiveDashboard

EKEDP Asset Data At A Glance

2020 Geo-Energy Dashboard

Edit home page

esri

THE SCIENCE OF WHERE