ELECTRICAL ACCIDENTS AND ELECTROCUTION NATIONWIDE: CAUSES, CHALLENGES, CONSEQUENCES AND PREVENTION

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PRESENTATION OUTLINE

1. Introduction
2. Electrical Accidents & Electrocution
3. Technical standards in NESI
4. Infractions and their manifestations
5. Challenges
6. Parting shots
7. Conclusion

INTRODUCTION

- **Available statistics indicate that electrical accidents occur Daily due to four major reasons namely: unsafe acts by the public, negligence by utility companies, wire snaps and vandalism.**
- **Enforcement of material, construction and maintenance standards is key to curbing of accidents in the Electricity Industry. The difficult task of standards enforcement is compounded by the presence of many private individuals in materials distribution and construction.**
- **This presentation highlights infractions especially in distribution networks which invariably cause supply instability, equipment failure, high ATC&C losses and expose electricity users to avoidable accidents.**

ELECTRICAL ACCIDENTS AND ELECTROCTUION

- **Electrocution is death or serious injury caused by electric shock, (electric current passing through the body). The word is derived from "electro" and "execution", but it is also used for accidental death. The word is also used to describe non-fatal injuries due to electricity.**
- **The term "electrocution" was coined in 1889 in the US just before the first use of the electric chair and originally referred only to electrical execution and not to accidental or suicidal electrical deaths. However, since no English word was available for non-judicial deaths due to electric shock, the word "electrocution" eventually took over as a description of all circumstances of electrical death from commercial electricity.**

ELECTROCTUION CONT'D

- **Depending on individual threshold of tolerance; current from 25mA can cause death**
- **Electrical parameters namely current, voltage, resistance and frequency are important determinants of injury in their own right and by virtue of their interaction.**

ELECTRICITY IS A GOOD SERVANT BUT BAD MASTER

- In everyday life we encounter situations which expose us to possible accidental contact with live power lines which could give rise to unintended flow of electricity through the body
- In Nigeria, incidents of electrical accidents occur daily, though most of them are unreported.
- Accidental contact with live power lines/equipment on different levels of voltage and the duration of such contact will determine the severity of injury or death.

ELECTRICAL ACCIDENTS STATISTICS

Electrical Accidents Statistics: 2015-2018(September)

Item description	2015	2016	2017	2018(Sept)
Unsafe act by public	43%	54%	43%	49%
Wire snap	16%	22%	26%	18%
Negligence (Utility)	22%	12%	12%	14%
Vandalism	13%	12%	17%	13%
Injuries	70	77	77	29
Deaths	113	140	113	75

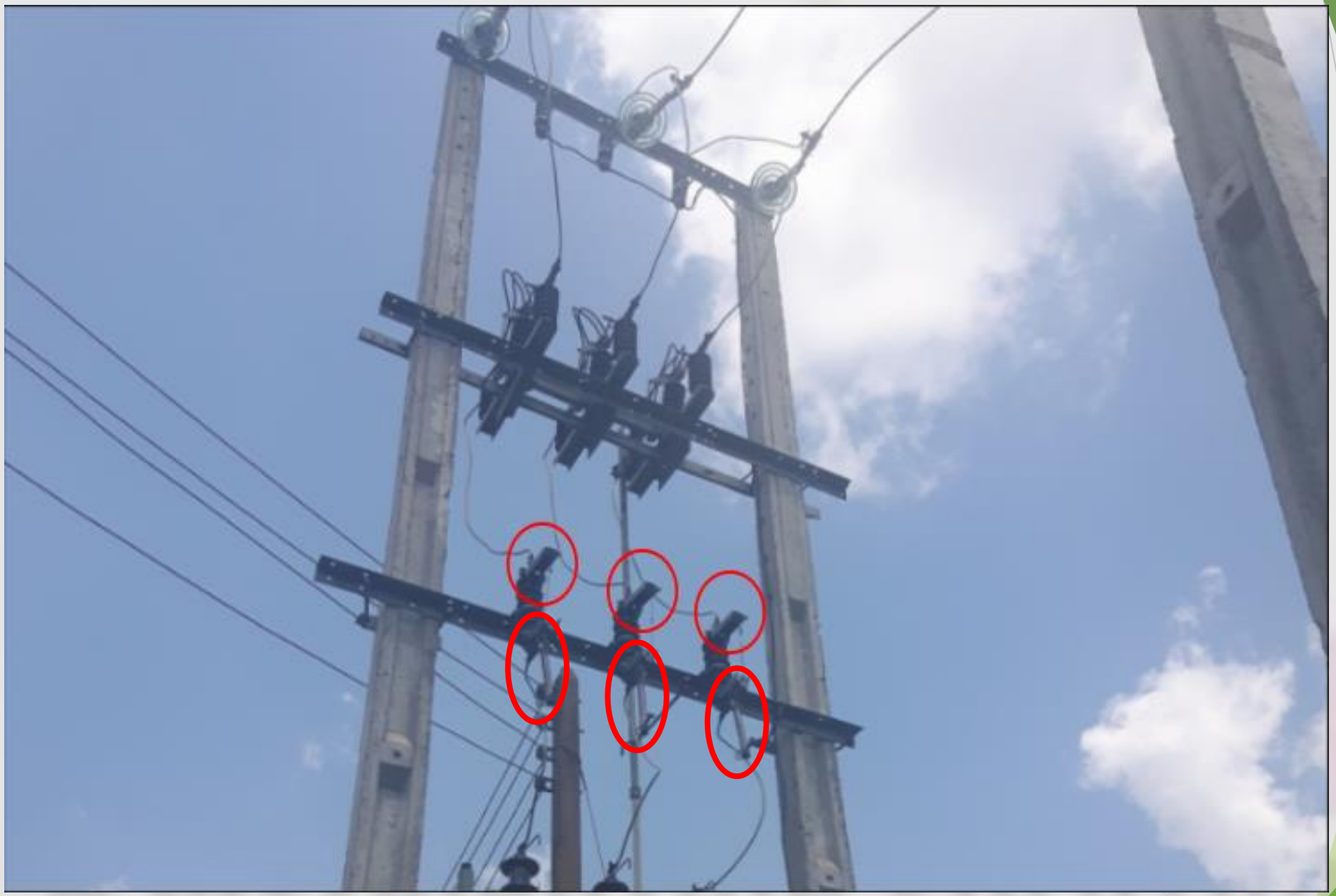
Courtesy: NERC and used as baseline information

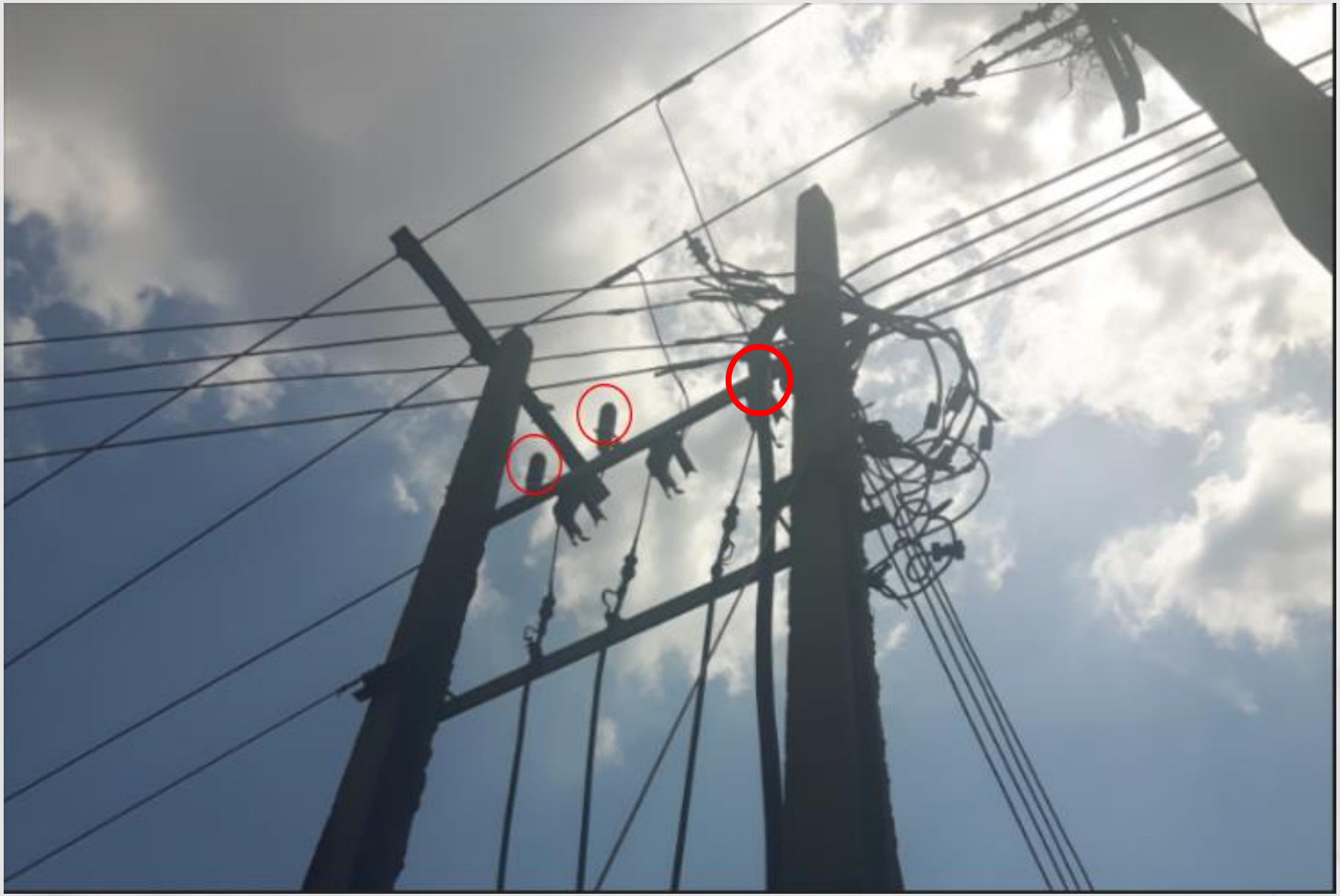
TECHNICAL STANDARDS IN NIGERIAN ELECTRICITY SUPPLY INDUSTRY (NESI)

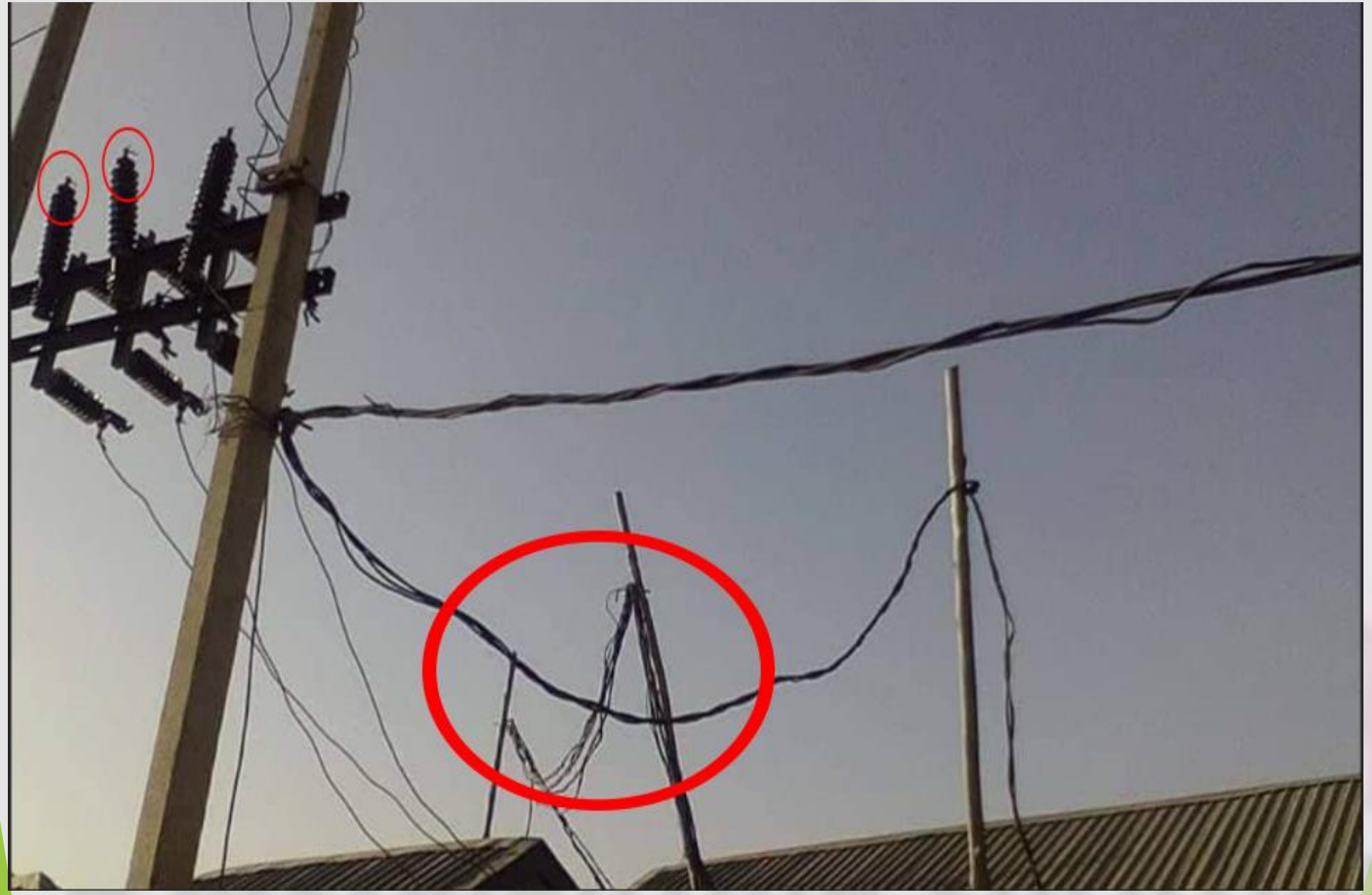
- **Specifications and standards exist for electrical materials and construction works in the electricity supply industry.**
- **The Nigerian Electricity Management Services Agency (NEMSA) is statutorily charged with the enforcements of technical standards in the entire electricity industry.**
- **Abuse of electrical materials standards and construction specifications is on the increase.**

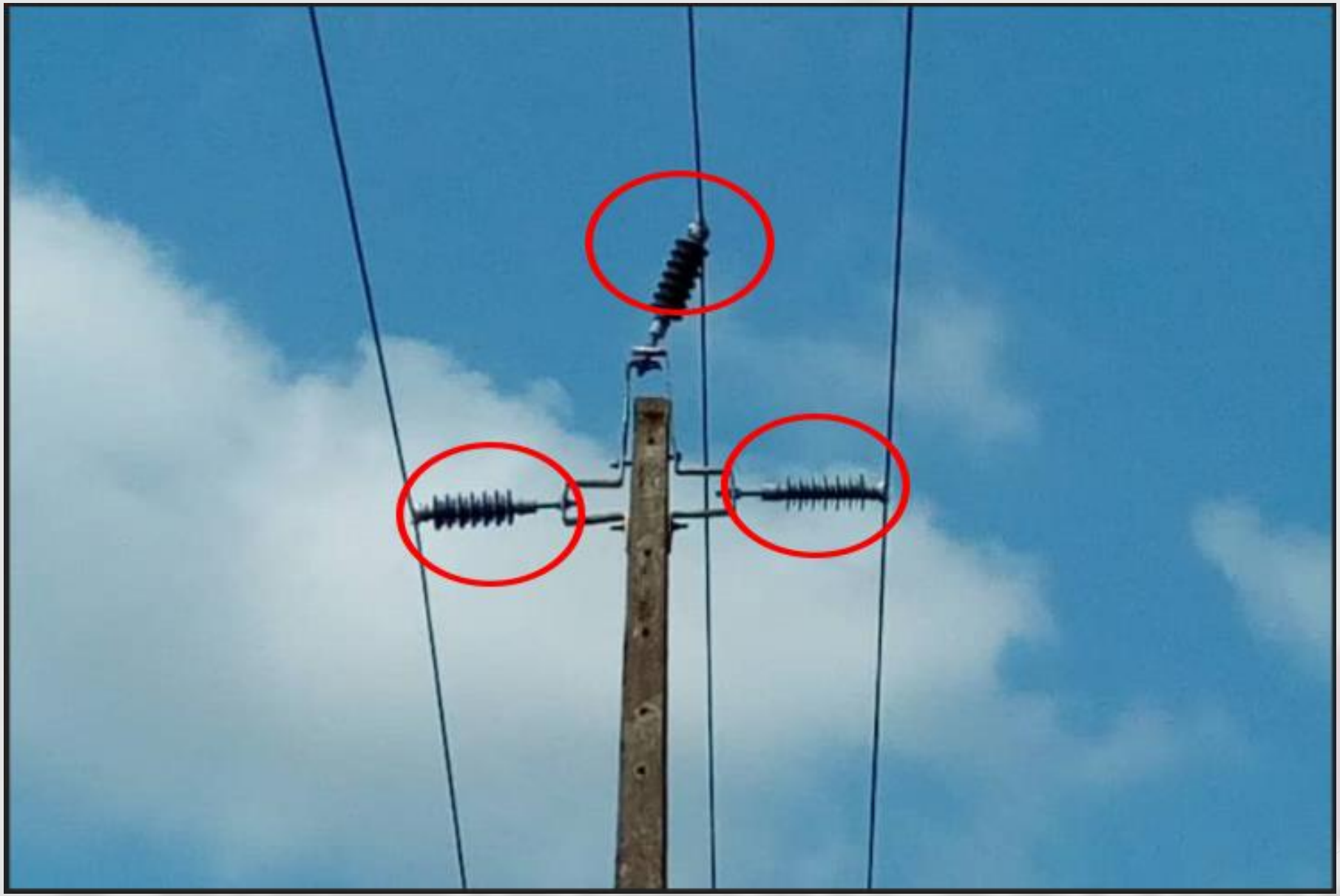
ABUSES/ INFRACTIONS AND THEIR MANIFESTATIONS

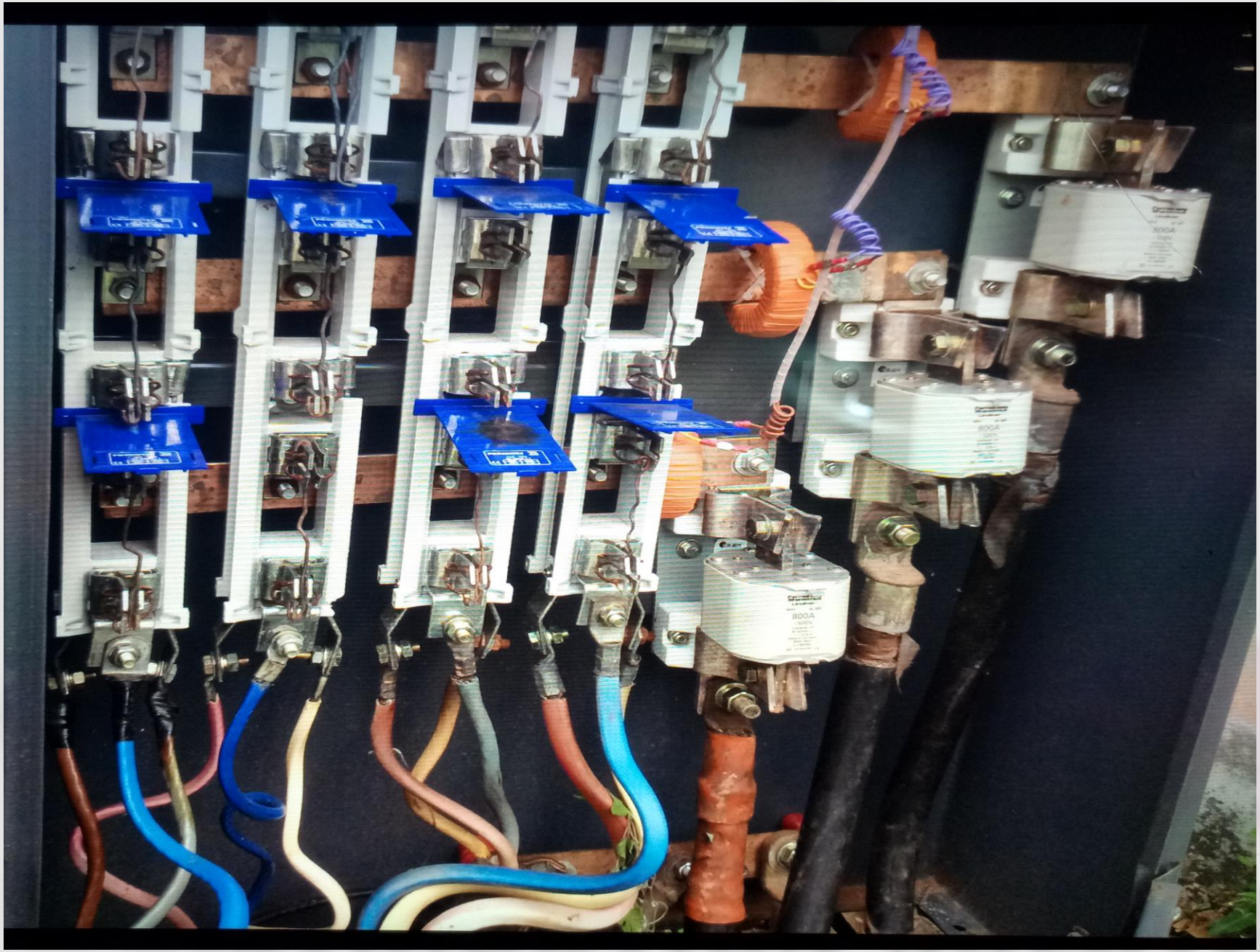
- **Highlights of infractions and their consequences**










800A
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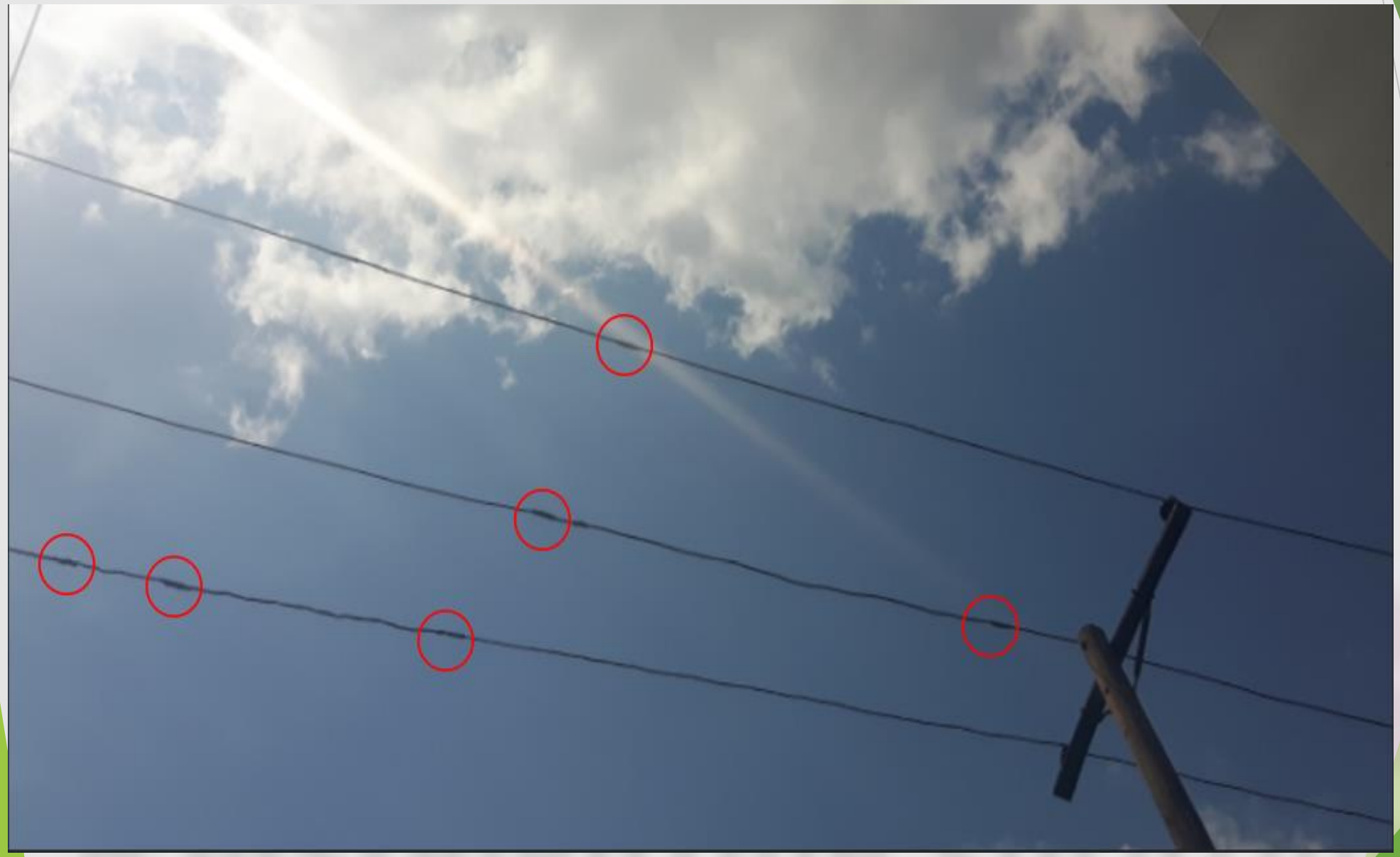

A TYPICAL SCENARIO THAT CAN LEAD TO AVOIDABLE ACCIDENT AND DEATH

CHALLENGES

- **Poor cash flow hinders funding of manpower training, equipment standardization, network upgrade and maintenance.**
- **Next generation of operatives may not have requisite skill and knowledge to manage and maintain expanding networks with their complexities**

PARTING SHOTS

- **DISCOs**
- **There are measures that can improve performance, shrink losses and enhance profitability (explore and exploit)**
- **Grid energy will be under intense pressure in the coming years.**
- **Possibility of grid “energy dump” is high**
- **Must invest in capacity building as a business survival imperative.**
- **Exchange programs involving HSE personnel is recommended for consolidation of gains and cross pollination of ideas**

PARTING SHOTS CONT'D

- **NEMSA**
- **NEMSA's efforts in the field is commendable. However, more needs to be done to enhance compliance with technical standards.**
- **You must be seen and felt in the field more than you are heard from your offices.**
- **NERC**
- **More dialogue, continuous review of operating Regulations to accommodate interests of all stakeholders.**
- **…**

CONCLUSION

- **Frank engagements, realistic expectations by investors and sincerity of purpose by all stakeholders will engender a better and sustainable power industry.**

THANK YOU