Cable theft solution – technical or socio-economic?

By P Maseema, City of Tshwane

Cable theft is a major problem in South Africa – with a huge impact on the overall economy. Using technology alone to find a solution is not adequate because crime is a socio-economic challenge and not a technical problem. Cable theft in Tshwane (the municipality in South Africa in which Pretoria is situated) has been reduced through the implementation of a holistic strategy.

Technology is effective as an enabler to the whole system of crime combating which should include People, Processes and Technology. Each component of the system should be effectively implemented in a coordinated fashion to ensure an effective result. An effective solution requires a detailed contextual understanding of the problem. Identifying the different factors contributing to the problem enables the discovery of relevant solutions.

Theft of electricity cables, like most theft, is more about socio-economic challenges than technical matters. Motivating factors behind theft of cables (or any other property) vary. There are people who steal cables opportunistically (steal out of ease); there are those who steal out of need and those who steal out of greed. Understanding and addressing the root causes to cable theft holistically will assist in prevention and reaction strategies rather than reaction through a technical solution as is often the case.

Cable theft motives
‘E-thieves’- stealing out of ease
E-thieves are those who steal opportunistically but do not plan the act of stealing. They will come across unprotected (unguarded) cables (before cables are connected on site, etc). On realising that there is value in the cables and with the chances of getting caught being low, they steal them. They steal because of the ease of the action and low chances of being caught however, they never planned to steal. The theft happens wherever the opportunity (of easy theft) presents itself. These thieves are not a big challenge to electricity suppliers and distributors. However, stealing is not acceptable and cannot be excused in anyway.

‘N-thieves’ or ‘Nyaope boys’- stealing out of need
‘N-thieves’ are those who steal out of need. They are usually forced by some circumstance to steal. They steal any valuable property including cables if they happen to be the most valuable or convenient property available at the time. Many ‘N-thieves’ are dependent on (addicted to) substances – such as drugs (eg nyaope, dagga, alcohol) and their plan is to steal enough to sustain their drug habit for some time. They are neither sophisticated nor knowledgeable about electricity - to the extent that they are sometimes electrocuted while trying to steal cables. They often target cables in their vicinity such as house connections. The theft usually happens close to where the thieves stay or spend their time. Residents have often awoken to find that there is no electricity in their properties – they would report a fault to the municipality only to discover that there is no cable. Such instances expose innocent children and toddlers (even adults) to electrocution due to exposed electrical wires next to their homes and in streets.

‘G’ thieves
The ‘greed’ thieves steal cables with the intention to enrich themselves. They are usually sophisticated and organised into syndicates. They treat stealing as some kind or work or profession to sustain their lives. They have extensive knowledge of the electricity network in general and their targeted theft points in particular. They have knowledgeable people who understand how electricity works and plan the best time to attack the system. They are aware that while a high power cable is more dangerous – it contains more copper and is more valuable than a smaller power cable. They understand the risk of attacking high power systems and they execute their action with precision. They are often armed and willing to kill where they deem it necessary. They use various equipment (portable grinders, vehicles, even disconnection insulating rods, etc) to steal cables. They are capable of distinguishing different types (and the associated value) of cables and other electricity network equipment at a glance. They steal cables on a major scale and may even export the cables to other countries.

Cable theft in the City of Tshwane
Cable theft in the City of Tshwane is dominated by ‘G-thieves’ who target specific vulnerable areas (eg cables in secluded mountains) and steal large quantities (often large HV cables). The vulnerable areas are hit more often, sometimes 10 times more often than other
areas. The mountainous terrain of the Tshwane area is often targeted because mountains make patrolling by vehicle on some of the lines difficult. Some areas can only be patrolled on foot and require more armed security guards. The thieves plan their action carefully and carry weapons in preparation for a possible armed reaction to a cable theft alarm. The Tshwane Metropolitan Municipality infrastructure (cables, transformers, etc) are targeted by these syndicate thieves. The Tshwane Electricity 132 kV infrastructure has been targeted many times. At times they attack a supply point (substation) and then go to a faraway cable point to take a large amount of cable - knowing that the danger of electrocution is removed. The response team will react to the initial site only to find no one there. They realise later that the cables had been stolen at other points during the power failure.

There has been an increase recently in some townships where the ‘N-thieves’ target house connections to sustain their addiction to drugs. This increase is linked to the increased use of the ‘Nyaope’ concoction (drug) by many youngsters in some townships. There are no alarms or warning systems on house connections other than the sudden failure of power supply to the house. Community members often assume that it is a normal outage or a maintenance switch-off. As most of the theft activity takes place late at night, residents come to realise – only the next morning – that cables have been stolen.

Cost of cable theft to the economy
The City of Tshwane, through Nomasonto Ndlovu, strategic executive director in the communication, marketing and events department, has stated that: ‘The City of Tshwane does not only see cable theft as a criminal act because it interferes with the normal lives of residents and functioning of job-creating industries, but also as an act of economic sabotage which it condemns in the strongest terms.’ In 2012, the City of Tshwane lost in the region of R30 M to cable theft.

Power outages caused by cable theft affect all electricity depend-
of the City of Tshwane, also assist by placing the numbers in their publications. The Customer Care cable and electrical equipment theft number is 012 358 4131/4072. Information required when reporting an incident includes: Physical address where incident took place (street name and number or location); customer’s account number (if applicable); SAPS case number (if existing); reporter’s contact details, any other relevant information.

- Keeping all lines (including installed unused lines) live to enable detection of tampering due to possible cable theft: some of the new 132 kV lines were previously stolen without raising alarm tripping feeders or disturbing operations and therefore did not show any indication of possible theft.
- The established Tshwane Copper Forum, which is attended by personnel from Electricity as well as the Metro Police: this forum includes role players from Eskom, Telkom, Spoornet, South African Police Service (SAPS), Metro Police and Tshwane Electricity. This forum exchanges information and coordinates actions to be planned and executed to combat the theft of copper and aluminium.
- The City of Tshwane has a copper theft technologically equipped centre. Technology is used to enable the fight against copper theft and results (hundreds of arrests) have proven the effectiveness of the strategy.
- Alarm systems have been installed in substations in targeted areas monitored by the Metro Police for swift response to activated alarms.
- The process of finding other socio-economic and technical solutions for monitoring and combating theft of infrastructure is continuing.
- The Executive Mayor announced during the 2013 state of the City address that plans will be taken to fight the spread of addiction to ‘Nyaope’ concoction (drug) – thus reducing prevalence of ‘N-thieves’.

Results

The number and volume of cable thefts have declined due to the applied strategies. The combined strategies of the City of Tshwane - with the recently launched cable theft technologically equipped centre - led to the arrest of more than 500 copper cable thieves in 2012. The effectiveness of the cable theft prevention strategy is a combination of ‘People, Processes and Technology’. People are critical to the provision of information about planned, executed or failed/attempted theft of cables. They react quickly to incidents and assist in having criminals apprehended and prevent property from being taken away. They coordinate all other activities to ensure effectiveness of the strategy. Processes ensure that there is allocation of roles and responsibilities. This enables efficient and effective implementation of strategies for prevention and reaction to cable theft. Technology is necessary to enable people - through defined processes –to execute their work. Technology can be used to assist in various activities, including early warning of intrusion, disturbances to the electrical network, identification of criminals (cameras), execution of delaying systems (automated pepper sprays), etc. Technology is an enabler and it is not sufficient on its own for effective implementation of cable theft combating strategies. A holistic ‘Igniting of Excellence’ coordination of various components is required for fruitful execution.

Conclusion

The problem of cable theft has an impact on the overall economy of the country. Identification of the various players and factors contributing to the problem assists in the creation of an effective solution. A holistic view takes into account all contributing factors and produces a sustainable solution. Crime is a socio-economic problem – not a technical challenge - and therefore requires a holistic solution. The improvements in combating cable theft in Tshwane are the result of the adoption of holistic strategies that include: ‘People, Processes and Technology’.

Bibliography


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