Detection of non-technical losses through machine learning techniques

Abstract:

Non-technical electricity losses due to anomalies or frauds are accountable for important revenue losses in power utilities. Recent advances have been made in this area, fostered by the roll-out of smart meters. The objective of this work is to explore the capabilities of machine learning algorithms and smart meter data for non-technical losses detection in electricity utilities. The goal of these algorithms is to detect any type of non-technical losses, regardless of their source. This research was focused on two types of customers: industrial/large commercial (contracted power > 50 kW) and residential/small commercial (contracted power < 15 kW).

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Madalina Buzau received a B.Eng. degree in power systems from the Politehnica University of Bucharest and a M.Res. degree in electrical engineering and sustainable development from the Lille University of Science and Technology. She is currently pursuing the Ph.D. degree with the Department of Electrical Engineering, University of Seville. Her main research focus is on the usage of smart meter data and machine learning algorithms for non-technical loss detection in the utilities.