IET Generation Transmission & Distribution, vol.18, no.12, pp.2155-2170, June, 2024.

A review of asset management using artificial intelligence-based machine learning models: applications for the electric power and energy system

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Abstract-

Power system protection and asset management present persistent technical challenges, particularly in the context of the smart grid and renewable energy sectors. This paper aims to address these challenges by providing a comprehensive assessment of machine learning applications for effective asset management in power systems. The study focuses on the increasing demand for energy production while maintaining environmental sustainability and efficiency. By harnessing the power of modern technologies such as artificial intelligence (AI), machine learning (ML), and deep learning (DL), this research explores how ML techniques can be leveraged as powerful tools for the power industry. By showcasing practical applications and success stories, this paper demonstrates the growing acceptance of machine learning as a significant technology for current and future business needs in the power sector. Additionally, the study examines the barriers and difficulties of large-scale ML deployment in practical settings while exploring potential opportunities for these tactics. Through this overview, insights into the transformative potential of ML in shaping the future of power system asset management are provided.

Index Terms- Power System, Asset Management (AM), Artificial Intelligence (AI), Machine Learning (ML), Renewable Energy Source (RES), Grid, and Electricity Generation.

Citation:
Bertling Tjemberg, L.; Rajora, G.L.; Sanz-Bobi, M.A.; Urrea Cabus, J.E. "A review of asset management using artificial intelligence-based machine learning models: applications for the electric power and energy system", IET Generation Transmission & Distribution, vol.18, no.12, pp.2155-2170, June, 2024.