DIGITALLY ENABLED ASSET MANAGEMENT FOR ELECTRIC GRIDS

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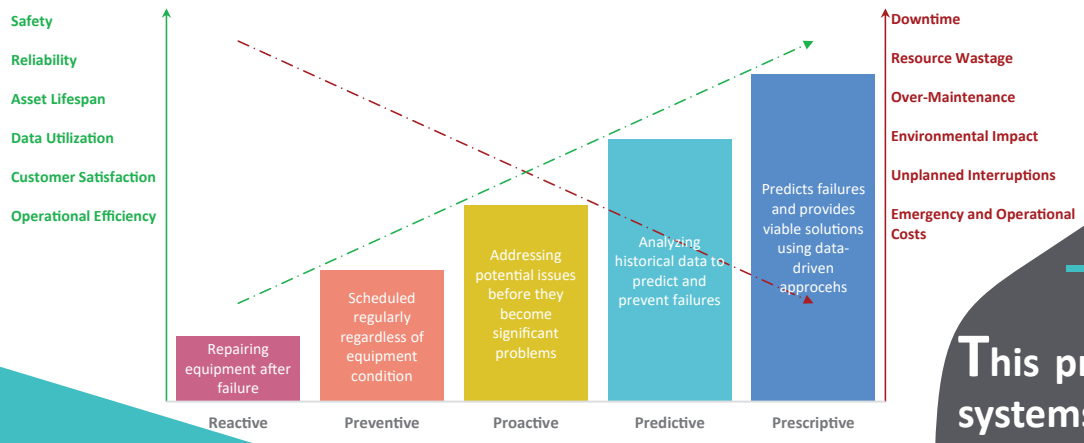
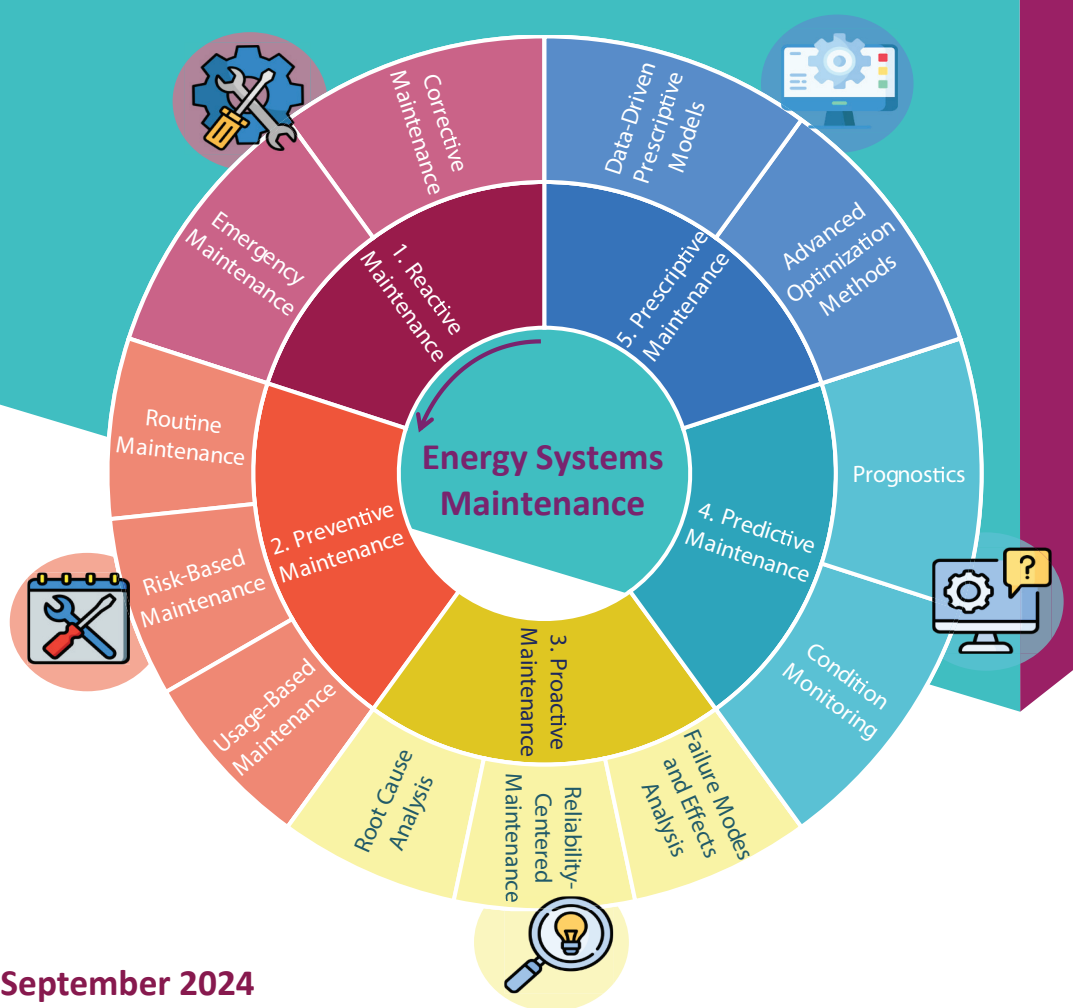


BACKGROUND

Maintenance involves the actions and procedures to preserve, repair, and ensure that all equipment and infrastructure work satisfactorily and safely. This comprises routine inspections, servicing, and remedial actions executed to forestall failures, minimize downtime, and lengthen the time of operability of an asset. Traditional maintenance techniques, such as reactive and time-based approaches, are still widely used across many industries and companies. However, these methods are inefficient and costly, as they can often result in over-maintenance for less critical assets and insufficient attention to high-priority ones. Asset management focuses on optimizing the lifecycle, performance, and investment of assets to maximize their value and ensure reliability.



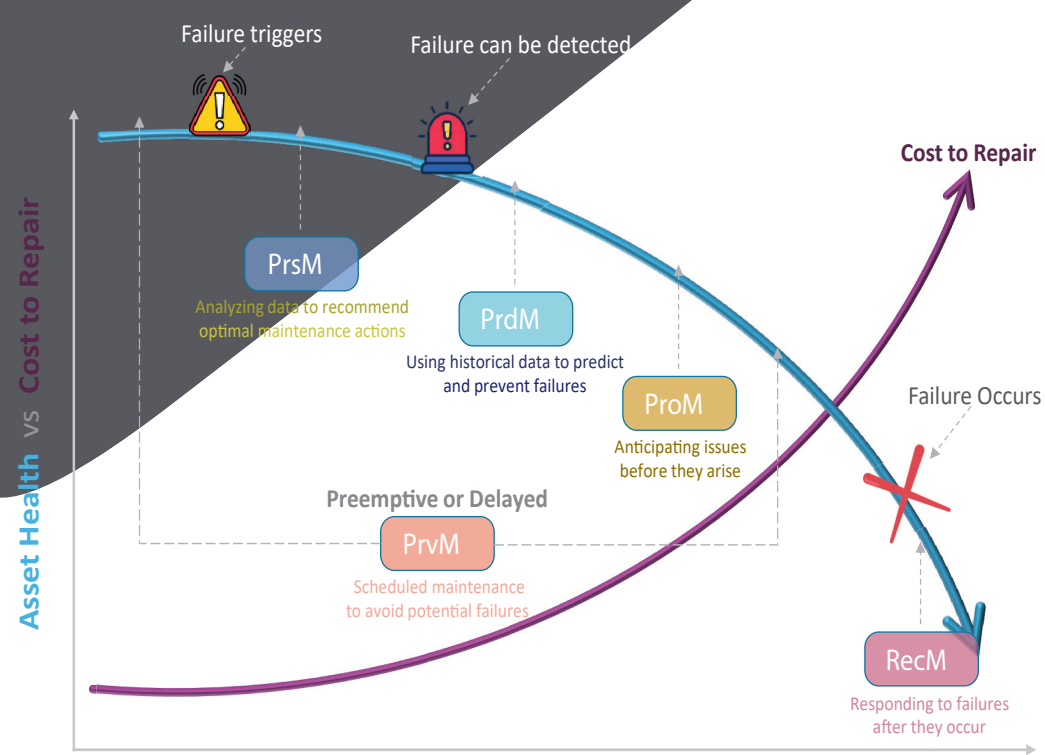
AIM & OBJECTIVES

This project aims to improve the reliability of energy systems by facilitating smart asset maintenance and management for energy systems. The goal is to develop a software-based toolset for predictive asset management.

* Explore the application of machine learning and optimization methods for smart maintenance scheduling in energy networks.
* Investigate the potential of virtual sample generation, simulation data, and real-world data to improve asset management and maintenance methodologies.
* Develop advanced data-driven models to enhance the accuracy of maintenance strategies in energy systems, with a particular focus on exploring the possibility of implementing predictive maintenance.
* Mitigate unplanned equipment breakdowns and operational disturbances to sustain continuous and reliable service delivery.
* Design a smart asset management and maintenance platform that utilizes digitalization and data analytics for real-time monitoring and maintenance operations.

METHODOLOGY

It will begin by identifying challenges in energy system maintenance and selecting relevant case studies. The next phase involves developing advanced ML models using programming languages like Python. The project will then try to implement and validate these models in real-world case studies, demonstrating their potential to optimize maintenance strategies and reduce downtime.



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