Physical Asset Management Bylaw in Power Generation Sector of Electric Power Industry

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Project Summary: Ministry of Power's mission is to "deliver reliable power, water and wastewater management services to the households and industries" which is inherently asset-centric. In other words, this ministry is supposed to manage hundreds of assets that are critical to fulfill its mission. Optimizing direct and indirect costs of power production has become primary driver to manage aging asset's performance thereby overall safety of the entire plant. Delivering reliable and sustainable power in a competitive market is impracticable without "leveraging world class management systems in operation, maintenance, procurement and engineering". To this effect, Niroo Research Institute and Thermal Power Plant Holding's governmental role in policy making and determining path lines have partnered to define a project. "Developing Physical Asset Management Bylaw in Power Generation Sector of Electric Power Industry, Asset Management Assessment, and Developing corresponding Roadmap for Two Power Plants" defined to address those issues. By increasing the importance of the project, another power plant was added to be assessed by the team.

Based on world-class benchmarks, the consultant decided to recommend a widely used "excellence model" for the bylaw to be adopted by powerplants. Uptime Strategies for maintenance excellence, one of the best in class models in Physical Asset Management is first published in 1995 and the subsequent versions, reprinted in 2002 and 2015, are consistent with asset management's international standards (ISO 55000 series). The model represents three stages for excellence, the first is "leadership", the second and third are "essentials" and "excellence"

respectively. Through the improvement initiatives recommended, the companies will find their way to achieve higher levels of “asset management maturity”.

In order to be more effective, three distinct power plants were assessed by the model (introduced in the bylaw). The assessment started in each plant by self-assessment via a standard questionnaire. The questionnaire consists of 100 questions (10 questions associated with each of the 10 elements of the model). Thereafter, experienced consultants interviewed different personnel across various levels of the engineering, maintenance, finance, HR and operations departments and asked questions about the current asset management system. Afterwards, excellence roadmap and improvement initiatives were recommended by the team to the senior management.

Project Results:

- Assessment results shows that all three powerplants are in the average of Iranian industries with average scores of 3.5 to 5.5 and have a great potential to be improved to the next levels of asset management maturity and decrease the gap between world-class companies.
- These improvement initiatives are recommended in these three power-plants:
    - Developing asset management strategy and policy
    - Starting comprehensive asset management training programs (up to 20 training courses for all the engineering, mainteance and operation team)
    - Developing Maintenance and Operation Standard Job plans for mostly critical maintenance and operation tasks.
    - Optimizing Economic Order Quantity for ciritical spares of the inventory
    - Starting Root Cause Analysis Projects for critical failures and failures with the most impact on production (caused the longest lost production)
    - Implementing Reliability Centered Maintenance for the 5% of the most critical Assets
    - Studying the life cycle cost for the decisions for replacing aged assets or assets to be replaced with new technologies.

Project Documentation:

- Self-assessment in 10 elements of the bylaw model in three distinct power plants
- Assessment Report and the excellence roadmap of Qom Power Plant
- Assessment and the excellence roadmap of the Montazerqaem Power Plant
- Assessement and the excellence Roadmap of Shahid Salimi (Neka) Power Plant
- Strategic Asset Management Bylaw in Power Generation Sector of Electric Power Industry