

# Development of Risk-Based Standardized WBS (Work Breakdown Structure) for Mechanical and Electrical Works of Coal-Fired Steam Power Plant Construction Project in Indonesia to Improve Time Performance

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## Abstract

The construction of a Coal-Fired Steam Power Plant is one of Indonesia's National Strategic Project programs in the Acceleration of 35,000 MW Electricity Infrastructure Provision, which has a high urgency to be realized in a short period. However, many significant factors arose during mechanical and electrical works that cause delays in Coal-Fired Steam Power Plant construction projects in Indonesia. Therefore, contractors need to plan the project carefully by anticipating all possibilities to minimize potential delays. WBS is a hierarchical decomposition of the scope of work into a series of smaller components to make it easier to assess, measure, manage, communicate, and form the basis for project planning. With WBS, delay risks can be identified in smaller elements up to the resources level to avoid project time overrun effectively. This study aims to develop a risk-based WBS standard to improve mechanical and electrical works' time performance in Coal-Fired Steam Power Plant construction projects. Data was collected using questionnaire surveys from contractors involved in Coal-Fired Power Plant Construction Projects and using risk analysis. The result of this study is a WBS standard for mechanical and electrical works of a Coal-Fired Steam Power Plant construction project that contains the scope of work up to the level of work packages, alternative methods/designs, activities, and resources. This study also identifies the highest potential risks as the basis of the WBS standard to prevent, reduce, or eliminate possible events that can delay the completion of the Coal-Fired Steam Power Plant construction project.

## Keywords

WBS standard, Risk factors, Mechanical and electrical works, Coal-Fired Steam Power Plant and Time performance.

## Biographies

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