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Building Information Modeling (BIM) Technology in Substation Construction Progress Visualization – BIM 4D

Wolfgang EYRICH
entegra eyrich + appel gmbh
Germany

SUMMARY

Electrical power systems including substations have to be newly built and expanded continuously because of the growing demand for energy. Due to this, a new philosophy for substation planning is necessary - the Building Information Modeling (BIM) philosophy. The transition from conventional design to Building Information Modeling presents a similar challenge to the engineers as it did for the transition to Computer Aided Design (CAD) in the past. The Power industry is looking for the product -with capabilities beyond that of existing CAD solutions - that allows for BIM solutions. BIM means new investments in software and different approaches to projects. BIM is a design process that relies on an intelligent model - as the basis for design, simulation and collaboration at each stage of the project life span. It provides quality, quick and accurate execution of a wide range of different tasks including modeling, simulations, coordination, and documentation.

This paper describes using of BIM models to simulate the timeline of the construction progress. It describes the BIM 4D method - how a smart 3D model from an intelligent substation BIM software can be used to simulate and check the construction progress. With the BIM 4D method, it is possible to visualize different phases of the construction and define the necessary tasks and their duration on a timeline. With this BIM 4D method, different types of substation projects like extension projects or upgrades of already existing substations can be handled and simulated comfortably.

KEYWORDS

Substation design, BIM 4D, 3D, substation BIM, construction progress, simulation, visualization.

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contact@primtech.com