

**INTERNATIONAL COLLOQUIUM
“BUILDING SMARTER SUBSTATIONS”**

Smart substation information model - challenges in the development of a Building Information Modeling (BIM) based software for substation design

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SUMMARY

Due to the increased demand, old grid structures and the development of power electric systems with a need for larger and more complex substations at different voltage levels, there is a high need for shorter project times, control of costs and flexibility against changing demands. To face these future demands, a new philosophy for substation planning is necessary. As a solution, the Building Information Modeling (BIM) philosophy was identified. This paper describes the challenges of applying the BIM philosophy to a substation engineering software, thereby allowing the experts involved from all disciplines, e.g. substation design, building modeling, building service engineering etc., to cooperate in designing and building substations - using a smart information

model. This paper describes using a software based on the concept of object oriented programming as the key to solve the challenges and workflows i.e. using a substation BIM software to update, upgrade extend or retrofit a substation. With the new philosophy, it is possible to manage behaviors with the parameters of each object to build a smart substation model and to get a substation BIM solution. With this concept, different types of substation projects, like new substation projects and extension projects or upgrades of already existing substations can be handled and created rapidly.

KEYWORDS

Computer aided design, electrical substations design, building information modeling, greenfield, brownfield, clearance.

1 INTRODUCTION

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