

ABB in Pakistan

Customer Success Story - primtech



"primtech is an excellent substation engineering tool having both drafting and analytical capabilities for making optimum design improving overall cost and lead time of substation projects."

M. Hassan Ejaz
Head of Design & Proposal
Power Systems
ABB in Pakistan

primtech – the solution for optimized substation design

primtech speeds up workflow and allows ABB to achieve a better engineering efficiency

About ABB

The ABB Group of companies operates in around 100 countries and employs about 130,000 people. ABB provides power and automation technologies for utility and industrial customers worldwide. ABB in Pakistan, established in 1992, is a flag bearer of the ABB Group. The company manufactures and sells among others high- and medium-voltage switchgear and apparatus. ABB's portfolio includes power products like transformers, switchgear, circuit breakers, cables and associated equipment. The company offers turnkey systems and services for power transmission and distribution grids, and for power plants.

Benefits of primtech

Using primtech opens up the following opportunities:

- Raise design standard to compete
- Quick and easy design of 3D substation models
- Reduce risk of collision and control minimum distance
- provide optimum efficiency
- re-use symbols and modules leading to savings in both time and money
- work successfully on large customer projects

The Challenge

The steadily increasing demand for energy and the need of an uninterrupted power supply lead to an expansion of power supply networks and opening of new areas. These recent developments result in an increasing demand for substations.

Substations play an important role in power distribution and, with transformers, they form the link between the different voltage levels on the one hand and, on the other, provide a selective activation and deactivation of single aerial power lines and cable routes. The design of substations is a sophisticated and complex task which requires the exact positioning of electrical devices within the plant. In order to remain competitive pure design in 2D with a purely 2D tool is not sufficient any more. Design and planning, even with a 2D CAD system, is time consuming and prone to errors. Only experienced engineers are able to detect various important constraints in a 2D view, such as risk of collision and minimum distance. In addition, the design engineer is forced to switch constantly between the different 2D-views in order to get a complete overview of the substation.

Furthermore, the substation design process is mainly characterized by the adoption and modification of objects – a task which has to be

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done individually for every single object when using a 2D software.

The transfer of the modifications throughout all views is very difficult and subject to errors. The engineer gets no support from the 2D system to keep his data consistent and therefore has to edit every single drawing, plan and BOM.

ABB required a better and more sophisticated solution since they had to implement a substation project within a short time. The project required the design of a 25 bay 132/220/500 kV substation in half the usual time.

The Solution

Speed up workflow and design

ABB turned to primtech, because the engineers knew the product's capabilities would speed up the design process. primtech, developed in Germany, enabled ABB to easily select the necessary components e.g. high-voltage equipment, substructures, cable ducts, wires, pipes, clamps and even streets and fences from the comprehensive library and place them as intelligent 3D objects on a voltage-dependent grid. The intelligent objects support the engineers during the design process and provide an intelligent linkage by wires and pipes of the individual components.

Due to the easy and intuitive handling and the 3D detailing levels inherent in the system the workflow was made much faster and easier at ABB. M. Hassan Ejaz, the Head of Design and Proposal for Power Systems division, ABB in Pakistan says: "the introduction of primtech leads to a drastic improvement in reducing engineering manhours and to a better engineering efficiency. Another important advantage is the global database which provides various 3D objects and modules".

Advanced user within 5 days

ABB needed 5 days of introduction and training before they were able to realize their 25 bay substation project successfully.

On this basis, M. Hassan Ejaz and his team designed a 3D substation model of which primtech automatically generated drawings and BOMs.

A 2D solution is by far not as effective as primtech. A design engineer at ABB in Pakistan says: "2D CAD took too much time with approx. 8 hours to create a single drawing, but with primtech, with everything already in its library, the time was saved by more than 50 percent." And he added "primtech has also helped me enhance my engineering skills by properly designing the substation".

Handle large substations

The handling of large substations in a common CAD system is a difficult and time consuming process. primtech enables the engineers to design even very large substations within short times. For example, their first substation designed with primtech, contained more than 700 wire connections, 15.000 meters of wires and about 1.700 clamps.

The Result

Cost reduction and intelligent re-use of modular objects for various projects

By using primtech, ABB in Pakistan has elevated its design standards in an increasingly competitive marketplace. M. Hassan Ejaz summarizes at the end of the project: "by using primtech, ABB in Pakistan has a better engineering efficiency and consistency among various sequence of engineering drawings enabling us to reduce 'Cost of poor Quality' – COPQ".

primtech has met their expectations and has been established as ABB in Pakistan's major substation design tool, in order to be better and more efficient in the designing process.

For more information

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