

TUTORIAL SC B3 SUBSTATIONS

APPLICATION GUIDELINES FOR TURNKEY SUBSTATION PROJECTS

Abstract:

Due to deregulation in the power industry, a shortage of specialised resources worldwide, fewer utilities with in-house design resources and upgrading and investing in new infrastructure in the emerging economies, the trend to opt for a “single source” solution for building new or upgrading existing substations is on the increase. While the concept was established in the early 60’s, the turnkey option is now becoming a more common practice amongst utilities and government bodies worldwide in their effort to achieve tight deadlines for medium to large scale projects.

Opting for “turnkey” approach allows the Asset Owner, once the tendering process is complete and the contract is awarded, to turn over the project responsibility and risk to the Service Provider. In some cases, the Service Provider is required to bring innovative ideas and solutions to intricate problems and in all cases there is a high level of knowledge and experience transferred to the project.

The downside to the turnkey solution is that generally the project cost is higher than that of an in-house-build solution and the Asset Owner can pay a premium for variations and changes after the scope of the contract has been agreed.

The scope of this tutorial is to provide Asset Owners of various sizes (large and small) with guidelines and information in how to approach and how to successfully complete a turnkey project for new substations or for refurbishment /retrofitting or extension of existing ones.

The decision of opting for a turnkey project approach versus the in-house solution must be carefully evaluated. There are both benefits and drawbacks in using the turnkey method and this tutorial has endeavoured to highlight most of them.

The tutorial will guide the participants through the full turnkey process from conception to completion. The tutorial also covers the issues arising from conversion from the traditional process of completing the project in-house to the turnkey process.

Turnkey projects for new substations present significant differences from turnkey projects for refurbishment/retrofitting or extensions of existing ones and the differences are highlighted in the tutorial.

The areas of pre-qualification, preparation of specifications, the tendering and evaluation process and contract award are covered in detail and will enable the participants to adopt best practices when opting for this solution.

Finally the tutorial covers the project execution and project closure, the best practice in terms of programming, project management and dealing with project variations, what quality indicators to look for and how to review the project in relation to the original estimates of time and finance.

Two case studies are also part of the tutorial. These case studies underscore the particularities of each case with emphasis on the benefits of the turnkey approach, as well as listing any “lessons learned” for the particular case.(Case Study-1 Turnkey Replacement of 4-500kV GIS Bays at Transmission Generating Station Switchyard / Case Study-2 Contractor’s Experience of Refurbishment Turnkey Project).