

## **Case study on designing a comprehensive fire protection system for KY Power Station**

### **ABSTRACT**

The KY Power Station relies on two gas turbines to generate electrical energy. In addition, fuel storage is also required to ensure uninterrupted power supplies. As a power generation plant and the existence of fuel storage, an efficient fire protection system is essential. This paper presented a comprehensive review of the existing research on fire protection systems. Utilising the reviewed as basis, this paper also described the five types of KY Power Station fire protection systems as the case study. Specifically, the five fire protection systems are; Water Spray Fixed System, Foam Protection System, Automatic Carbon Dioxide Extinguishing System, Pressurized Fire Hydrant and lastly Automatic Fire Detection and Alarm System. Even though a station may require more than one fire protection systems as illustrated by the case study, this paper observed that the existing researches focused mainly on designing the individual system of different fire protection system according to standard. This paper found that there is lacked of research on optimising these individual fire protection systems. The optimisation usually requires development of mathematical model. Therefore, there is a need for development of mathematical model for the individual fire protection system. These different types of fire protection systems are independent but they are equally important. Thus, there is also a need to look into global optimisation in designing the fire protection system.