DISTANCE PROTECTION IMPLEMENTING SEL-421

Abstract:

Transmission Lines are a very important and integrated part of any Power System, as they are the main source for transmitting power. Thus protection of Transmission lines not only becomes important but also very critical, so we need to have a approach that is redundant which gives back-up protection along with the primary protection and helps in protection of Transmission Lines in times of Fault. At the same time it is also very important to note here that protection of Transmission Lines itself is not enough in the sense that, if in a system there has been a fault, however, if a false trip occurs on the other sections of the Transmission Lines and taking it out of service causing a blackout can even work against the Utility, as the customer is in a position to file litigation against the Utility for its negligence that may lead to financial hole for the Utility.

The Project deals with developing a Protective scheme implementing an “SEL-421” Relay, primarily a Transmission Line protection application product. As we talk about the redundancy in the Transmission Line for the purpose of “Protection” at the same time also avoiding any unwanted operation i.e. a false trip causing a Transmission Line out of service. Developing Level-3 protection i.e. protection up to zone-3, overcoming the problem of Load Encroachment and developing a testing strategy to check the proper operation of the Relay is the purpose of the Project.

This presentation will give a background on distance protection. Discussion will include the applications of SEL-421 relay and related work in progress. Also discussed will be the other applications of this relay and the work that can be done on developing the other protective zones that deals with Power Swings and Synchrophasors.

About the presenter:

Pruthviraj Solanki is currently pursuing his M.S. in Electrical Engineering at the Michigan Technological University. He received his B.E.in Electrical and Electronics Engineering from Visvesvariah Technological University, India in June 2007. Work experience includes association with Thittanix Instruments, Bangalore-India “value added” partner for Siemens. Research interest includes power system protection, power flow studies and renewable technology.