

Author:
Niklas Svensson

Impact of inverter-based resources on distance protection

Question 1.02 Are risks of distance protection maloperation or failure to trip limited to transmission lines directly connected to the wind power plant or do you see broader implications for protection further away from the wind power plant point of connection to the transmission grid?

Yes and no. The risk for maloperation is definitely much higher at the line end where IBR (wind power plant) is connected compared to remote end maloperation, if the remote end is strong i.e. connected strong system with a significant degree of fault current from synchronous generators. In such a system the risk for maloperation at the remote line end to IBR connection the risk for distance protection maloperation due to IBR impact is very low and beyond this point it can be neglected. The situation becomes different if the remote end is weak and if the grid beyond there has a high degree of fault current from IBRs. Under such conditions the risk for maloperation at the remote end and beyond is likely increased when more IBRs are connected.