

879 – The effect of Harmonics on Ground Fault Protection

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Abstract: This paper will take about one of major challenges with ground fault protection devices and the harmonics produced by variable speed drives. The paper will talk about the challenges and solutions to reduce the impact of harmonics in electrical systems. Also, the paper will talk about the impact of harmonics in electrical systems and how we can reduce its impact from energy point of view and other aspects. This is a real test occurred at our Facility in Saudi Aramco. We have tackled this issue by implementing some of industry recommendations to resolve the high harmonics and power quality issue. In my paper, I will talk about how the harmonics impacted our ground fault protection relays resulted in faulty and spurious ground fault trips and impacted the production. Also, the paper will talk about energy loss opportunities due to power quality issues such as harmonics. Finally, the paper will summarize our innovative solutions and efforts to minimize the risk of repeat outages due to harmonics, increase customer satisfaction while maximizing safety, efficiency and reliability.