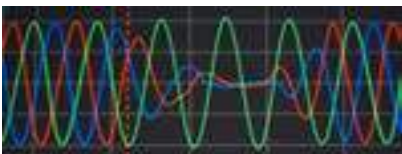


Power System Analysis and Consulting



Scope of System Related Consulting Services

Doble Engineering offers consulting services related to transmission, distribution, industrials and power plants.

1. Study the impact of harmonics on various electrical equipment by performing harmonic analysis. The presence of harmonics can be very detrimental to the health of electrical equipment including transformers. The impact on equipment gets much worse if harmonic resonance is present.
2. Harmonic filter design with complete specification.
3. Investigation of equipment failure including transformers requires a combination of relay protection evaluation including review of event reports and appropriate application of surge protection.
4. Review application of surge arresters and identify the need of line-line connected arresters in specific situations and the need to connect capacitors across surge arresters.
5. Brief insulation coordination by comparing the BIL, chopped wave and switching surge capabilities versus the protection provided by the surge arresters under each scenario.
6. Short circuit analysis to evaluate the fault interruption capabilities of circuit breakers and short circuit withstand capabilities of switches, etc. These capabilities need to be evaluated every 5 years in general to account for increased generation that are added to the system.
7. Identify situations where ferro resonance is likely.
8. Identify situations where internal transformer resonance is likely. This is done by performing harmonic analysis and the use of SFRA plots.
9. Protective device coordination involving overcurrent relays.
10. Detailed review of generator and transformer neutral grounding.
11. Recommend relay settings.

Please contact Ed Khan at Ekhan@doble.com or Mark Brown at Mbrown@doble.com for more details.



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Doble is an ISO 9001 & ISO/IEC 17025 & 17034 Certified Company.
Doble is an ESCO Technologies Company.
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