



Think Grid

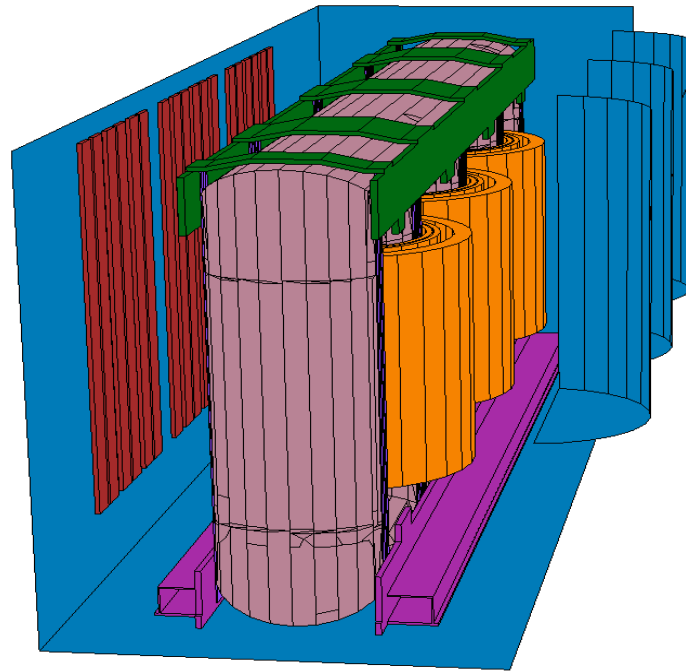
Simulation and mitigation of GIC effects:

Results

June, 2017

Imagination at work

Figure 1: 3D SLIM model of 425 MVA Generator Step Up Transformer



Simulation without Geo-magnetically induced currents (GICs)

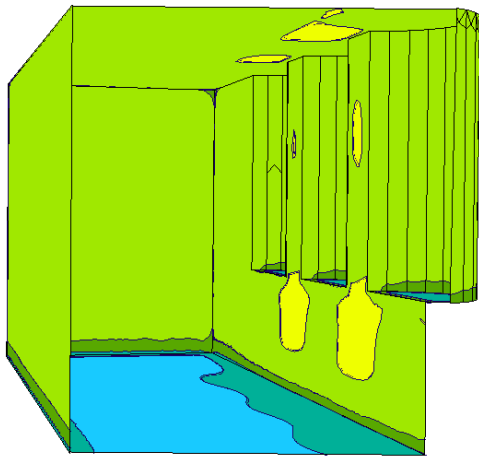


Figure 2: Calculated tank temperature distribution without GIC

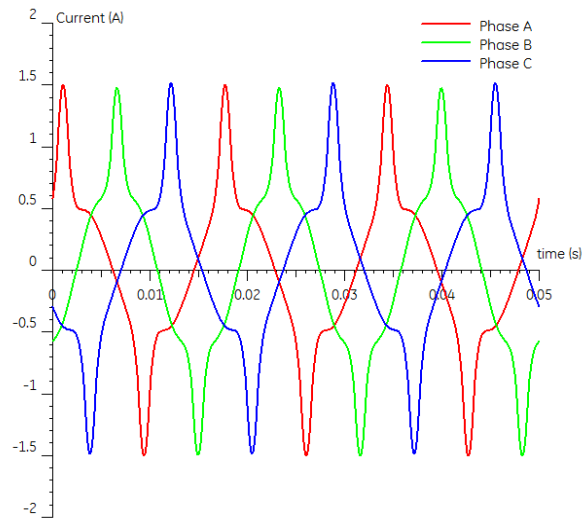


Figure 3: Magnetization current HV winding without GIC

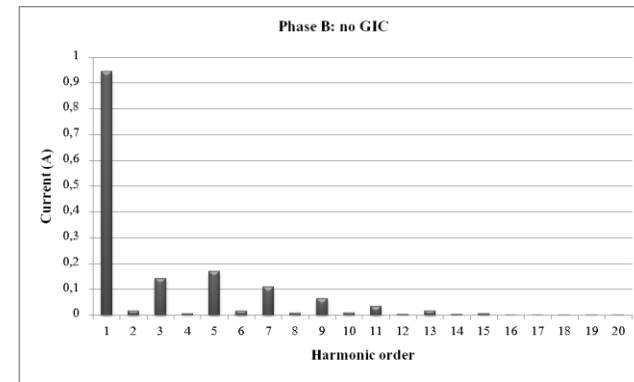


Figure 4: Harmonic spectrum of magnetization current in phase B of HV winding without GIC



Simulation with Geo-magnetically induced currents (GICs): 100 A

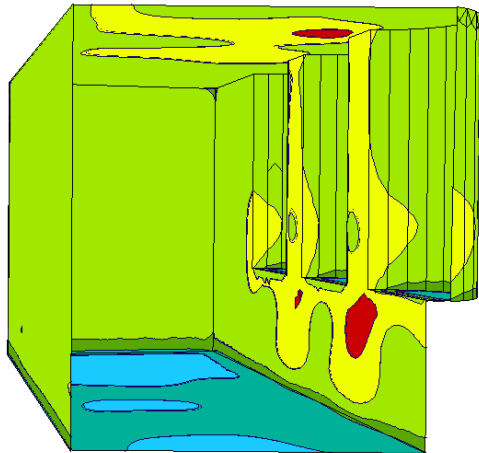


Figure 5: Calculated tank temperature distribution with 100 A GIC. Stray loss increase calculated as 43%.
Note same scale as Figure 2

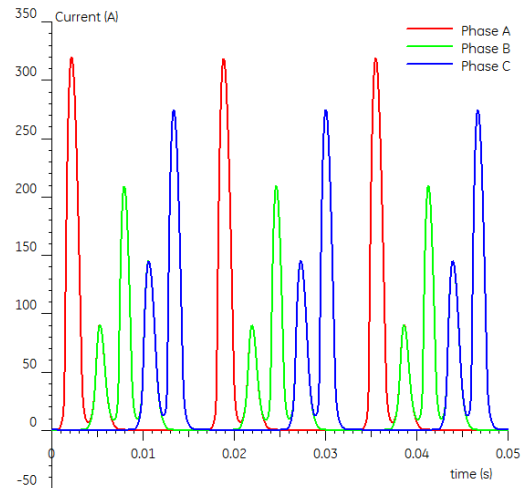


Figure 6: Magnetization current in 3 HV winding with 100 A GIC
Note change of scale from Figure 3

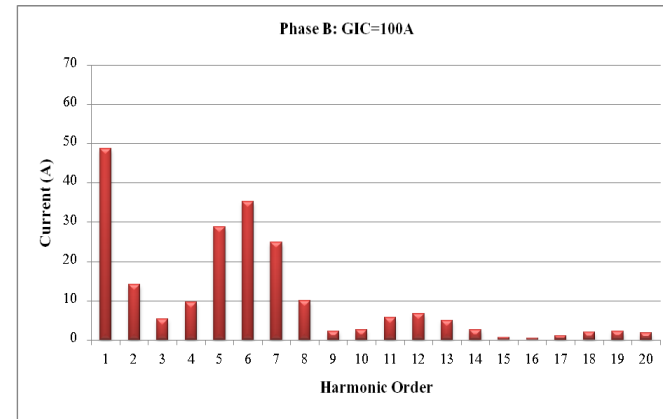


Figure 7: Harmonic spectrum of magnetization current in phase B of HV winding with 100 A GIC
Note change of scale from Figure 4 and introduction of even order harmonics



