Attachment #1

Voltage Simulation for Case EOF_LOC4

LOCA Simulation for 50/50 mode - Circuit 767 Details

12B Transformer Feeding Bus 12B

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1.0 Objective

This attachment is associated with Design Analysis 4525-2 "Adequacy of Electric System Voltages" Rev 1. The results of an additional LOCA voltage simulation is presented in this attachment. In particular, case EOF_LOCA was repeated with breaker 12BY opened. This new case (EOF_LOC4) quantifies the performance of circuit 767 during a LOCA condition when the offsite power system is configured in the normal 50/50 configuration and the grid voltage is at its minimum value of 116Kv. It was not necessary to quantify the performance of circuit 751 for this condition since a more limiting case (DOF_LOCA) gives acceptable results.

2.0 Results

For the EOF_LOC4 case, 480 volt bus voltages, including the 1E buses, remain above 414 volts. The lowest 480 bus voltage is 431.5 on Bus 16. The voltages at motor terminals 16S and 16C are 429 and 430.5 respectively. The lowest MCC voltage is 421.9 on MCC 1D.

The lowest 4160 bus voltage for the EOF_LOC4 case was 3964 on Bus 12B which is well above the 3600 volt limit.

3.0 Conclusion

The EOF_LOC4 case demonstrates that circuit 767 will be able to maintain adequate voltages during LOCA conditions for the normal 50/50 configuration even during worst case grid voltage conditions.

MINIMUM VOLTAGES BELOW 200.0 PERCENT

NODE	PHAS	MINIMUM VOLTAGE /PU	/KV	/ 100.	
S13AE	ABC	1.009	67.0	100.9	
S13A	ABC	1.009	67.0	100.9	
767	ABC	0.969	19.3	96.9	
12BTP	ABC	0.968	19.3	96.8	
12BT	ABC	0.966	2.3	96.6	
12BY	ABC	0.966	2.3	96.6	
12BY2	ABC	0.966	2.3	96.6	
12BTS	ABC	0.966	2.3	96.6	
12BX	ABC	0.955	2.3	95.5	
12BX2	ABC	0.955	2.3	95.5	
12B	ABC	0.953	2.3	95.3	
SST16	ABC	0.951	2.3	95.1	
16	ABC	0.899	0.4	89.9	L
16C	ABC	0.897	0.4	89.7	L
16S	ABC	0.894	0.4	89.4	L
1D	ABC	0.879	0.4	87.9	L
SST17	ABC	0.952	2.3	95.2	
[illegible]	ABC	0.934	0.5	93.4	L
[illegible]C	ABC	0.933	0.5	93.3	L
17S	ABC	0.934	0.5	93.4	L
11B	ABC	0.953	2.3	95.3	
11BC	ABC	0.950	2.3	95.0	
11BS	ABC	0.948	2.3	94.8	
SST15	ABC	0.953	2.3	95.3	
15	ABC	0.918	0.4	91.8	L
15C	ABC	0.918	0.4	91.8	L
15S	ABC	0.911	0.4	91.1	L

EOF_LOC4, OFFLINE, P&Q, BUSZ 50/50 MODE AUG 28 1990
LOCA LOAD 116KV TUE, 16:01

TAL NODES	TREE NODES	LOOPS	TNSF	SWCH	ASYNC GENS	SYNC GENS	ASYNC MOTS	SYNC MOTS
55	27	0	7	4	0	0	0	0

	SOURCE	LOSSES	GENERATION	MOTOR LOAD	CHARGING CAPACITANCE	
KW	9.88M	127.82	0.00	0.00		
KVAR	5.14M	923.19	0.00	0.00	9.37	0.00
PF	0.887					

ACTUAL STATIC LOAD

BY CATEGORY	1	2	3	4
KW	0.00	0.00	0.00	9748.97
KVAR	0.00	0.00	0.00	4226.23

MAX V-LN	1.009 PU,	66.97 KV,	100.9/ 100.0 V	AT NODE S13AE	PHASE A
MIN V-LN	0.948 PU,	2.28 KV,	94.8/ 100.0 V	AT NODE 11BS	PHASE B
MAX V-LL	0.934 PU,	0.45 KV,	93.4/ 100.0 V	AT NODE 17	PHASE CA
MIN V-LL	0.879 PU,	0.43 KV,	87.9/ 100.0 V	AT NODE 1D	PHASE AB

NOMINAL STATIC LOAD

BY CATEGORY	1	2	3	4
KW	0.00	0.00	0.00	9872.27
AR	0.00	0.00	0.00	4341.66
DEFSC	0.00	0.00	0.00	0.00
DEFPF	1.00	1.00	1.00	1.00

ACTUAL STATIC LOAD

BY CATEGORY	1	2	3	4
KW	0.00	0.00	0.00	9748.97
KVAR	0.00	0.00	0.00	4226.23

	GENERATORS		MOTORS	
	ASYNCHRONOUS	SYNCHRONOUS	ASYNCHRONOUS	SYNCHRONOUS
KW	0.00	0.00	0.00	0.00
KVAR	0.00	0.00	0.00	0.00