

Contingency Cases for Lakadia-II Synchronous Condenser

A) N-1 Contingency

Contingency at 765kV level

1. Three Phase Fault close to 765kV bus of Lakadia-II S/s followed by tripping of one circuit of Lakadia-II – Ahmedabad 765 kV D/c line (fault persisted for 100 ms)
2. Single Phase to Ground Fault close to 765kV bus of Lakadia-II S/s followed by single pole opening (100 ms) of the faulted phase and unsuccessful re-closure (dead time 1 second) followed by 3-pole opening (100 ms) of the faulted line i.e. tripping one circuit of Lakadia-II – Ahmedabad 765 kV D/c line
3. Three Phase Fault close to 765kV bus of Lakadia-II S/s followed by tripping of one circuit of Lakadia-II – Vataman 765 kV D/c line (fault persisted for 100 ms)
4. Single Phase to Ground Fault close to 765kV bus of Lakadia-II S/s followed by single pole opening (100 ms) of the faulted phase and unsuccessful re-closure (dead time 1 second) followed by 3-pole opening (100 ms) of the faulted line i.e. tripping one circuit of Lakadia-II – Vataman 765 kV D/c line
5. Three Phase Fault close to 765kV bus of Lakadia-II S/s followed by tripping of one circuit of Lakadia-II – Kandla 765kV D/c line (LILO of Halvad – Kandla 765kV D/c) at Lakadia-II (fault persisted for 100 ms)
6. Single Phase to Ground Fault close to 765kV bus of Lakadia-II S/s followed by single pole opening (100 ms) of the faulted phase and unsuccessful re-closure (dead time 1 second) followed by 3-pole opening (100 ms) of the faulted line i.e. tripping one circuit of Lakadia-II – Kandla 765kV D/c line (LILO of Halvad – Kandla 765kV D/c) at Lakadia-II
7. Three Phase Fault close to 765kV bus of Lakadia-II S/s followed by tripping of one circuit of Lakadia-II – Halvad 765kV D/c line (LILO of Halvad – Kandla 765kV D/c) at Lakadia-II (fault persisted for 100 ms)
8. Single Phase to Ground Fault close to 765kV bus of Lakadia-II S/s followed by single pole opening (100 ms) of the faulted phase and unsuccessful re-closure (dead time 1 second) followed by 3-pole opening (100 ms) of the faulted line i.e. tripping one circuit of Lakadia-II – Halvad 765kV D/c line (LILO of Halvad – Kandla 765kV D/c) at Lakadia-II
9. Three Phase Fault close to 765kV bus of Lakadia-II S/s followed by tripping of 1x1500MVA, 765/400kV ICT (fault persisted for 100 ms)

Contingency at 400kV level

10. Three Phase Fault close to 400kV bus of Lakadia-II S/s followed by tripping of 1000MW RE generation at Lakadia-II S/s (fault persisted for 100 ms)

B) N-1-1 Contingency

1. Case 1 & 2 (consider as separate cases) + Single Phase Fault close to 765kV bus of Lakadia-II S/s followed by single pole opening (100 ms) of the faulted phase (2nd ckt of Lakadia-II – Ahmedabad 765 kV D/c line) and successful re-closure (dead time 1 second)
2. Case 3 & 4 (consider as separate cases) + Single Phase Fault close to 765kV bus of Lakadia-II S/s followed by single pole opening (100 ms) of the faulted phase (2nd ckt of Lakadia-II – Vataman 765 kV D/c line) and successful re-closure (dead time 1 second)
3. Case 5 & 6 (consider as separate cases) + Single Phase Fault close to 765kV bus of Lakadia-II S/s followed by single pole opening (100 ms) of the faulted phase (2nd ckt of Lakadia-II – Kandla 765 kV D/c line (LILO of Halvad – Kandla 765kV D/c)) and successful re-closure (dead time 1 second)
4. Case 5 & 6 (consider as separate cases) + Single Phase Fault close to 765kV bus of Lakadia-II S/s followed by single pole opening (100 ms) of the faulted phase (2nd ckt of Lakadia-II – Halvad 765 kV D/c line (LILO of Halvad – Kandla 765kV D/c)) and successful re-closure (dead time 1 second)