

Please follow below the structure of *.m files to read, understand and use the code. This code complies with the paper "CONTROL AND PREDICTION FOR BLACKOUTS CAUSED BY FREQUENCY COLLAPSE IN SMART GRIDS".

Explanation of each *.m file.

main.m: call all main *.m files and set calculating and plotting scenario.

readdata.m: read all data from excel files. These data should come from a power flow calculation.

Kron.m: create the admittance matrix and do the Kron reduction.

para_norm.m: normalise and calculate parameters that are used in the dynamic.m.

dynamic.m: simulate the dynamic process, also includes a steady state calculation which is a preparation for the transient state calculation.

rk4.m: classical Runge-Kutta method to solve the swing equation for steady state.

rk4_repeat.m: repeat classical Runge-Kutta method to get a more accurate result for steady state, also consider power change.

turbinegovernor.m: the smart control scheme.

swing.m: swing equation including loads.

