EE491 Homework 6

Due October 15 2020 at 9 am

1) Let us consider the first power system in Homework 3. Assume PG2 = 1.0 and V2 = 1.06 if QG2 < 0.3, PL2 = 0.4 and QL2 = 0.3, PL3 = 0.6 and QL3 = 0.5. Carry out one iteration of Newton-Raphson algorithm now including the Q limit for bus 2. Start from DC solution as the initial condition.

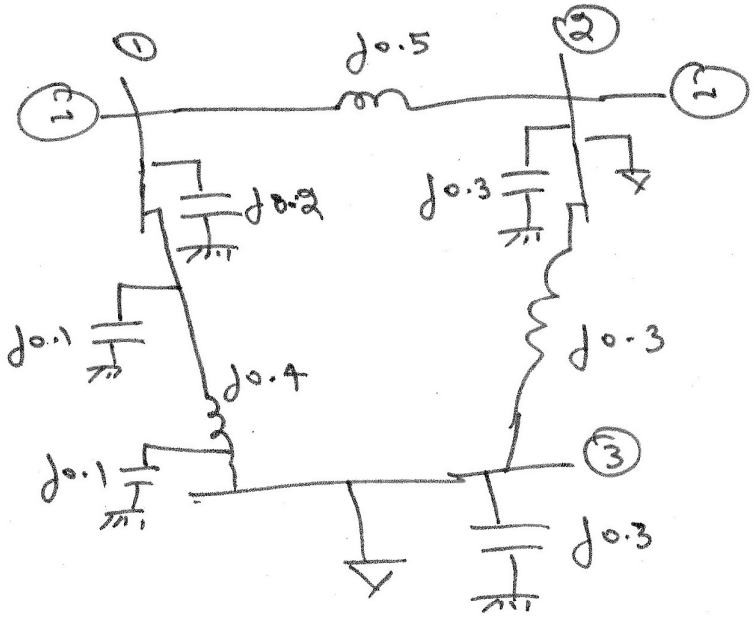
2) Fast decoupled power-flow: Let us reconsider the first two of the power systems in homework 3.

For System 1), assume PG2 = 1.0 and V2 = 1.04, PL2 = 0.3 and QL2 = 0.1, PL3 = 0.6 and QL3 = 0.2.

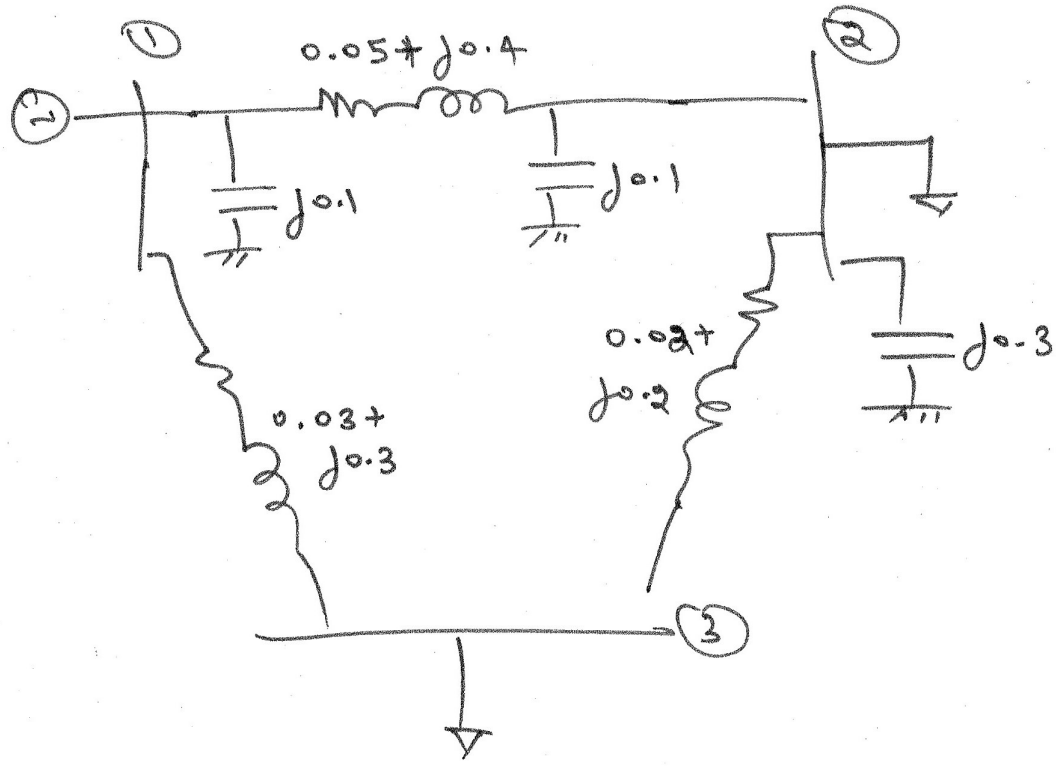
For system 2), assume PL2 = 0.6 and QL2 = 0.1, PL3 = 0.4 and QL3 = 0.1.

For these two power systems, using the DC power-flow solution as the initial condition, carry out two iterations of the fast decoupled power-flow algorithm. Is the solution within an acceptable tolerance of 0.001?

1)


1
2
3
j0.5
j0.2
j0.3
j0.1
j0.4
j0.3
j0.1
j0.3

2)


1
2
3
0.05+j0.4
j0.1
j0.1
0.02+
j0.2
j0.3
0.03+
j0.3