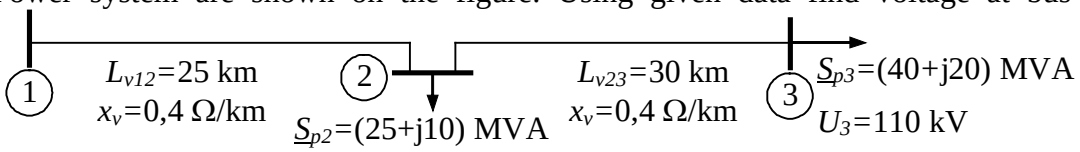
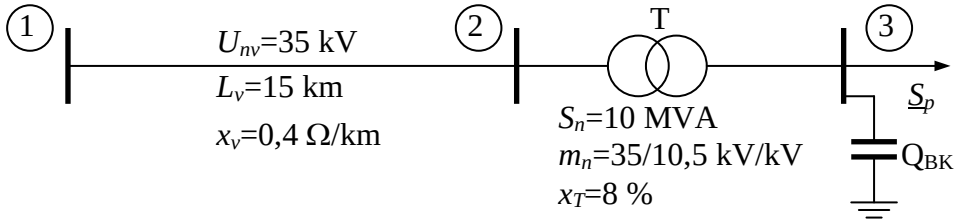
ELEKTRIJADA 2008: ANALIZA ELEKTROENERGETSKIH SISTEMA

1. Power system are shown on the figure. Using given data find voltage at bus 1.

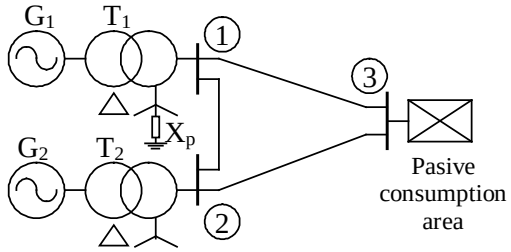


2. Power system, shown on the figure, suply consumtion area with constant power $\underline{S}_p$=(5+j3) MVA. Voltage magnitude at bus 1 is U_1=36 kV=const. With shunt capacitor bank on the bus 3 voltage magnitude at bus 3 is U_2=10,5 kV. Find reactive power of shunt capacitor bank. Find system power loses before and after installation of shunt capacitor.



3. Simply power system is shown on the figure. In the case of single phase to ground fault at bus 1 find phase current on line with transformer T_2.

Voltage at bus 3 before fault was U_{1fr}=1 r.j



System data are (p.u.):

$G_1 \equiv G_2$:	$X_d=X_i$=0,15	X_o=0,05
$T_1 \equiv T_2$:	$X_d=X_i$=0,05	X_o=0,05
$V_{12} \equiv V_{13} \equiv V_{23}$:	$X_d=X_i$=0,1	X_o=0.3
Reactor:	X_p= 0,01	

4. For nesimetrical system are known:
$\underline{I}_A+\underline{I}_B+\underline{I}_C$= 1,0 r.j. /240°; $\underline{I}_B/\underline{I}_A$= 1,0 r.j. /120°; $\underline{I}_C$=1,0 r.j. /180°.
Find current at phases *A* and *B* and all simetrical coponent. Draw current vector diagrams for all phases and symetrical systems.

5. Simply power system is given on the figure. Find state variables after first iteration using Newton-Raphsons method for load flow calculation. Find power injection at buses 1 and 2 and power loses.