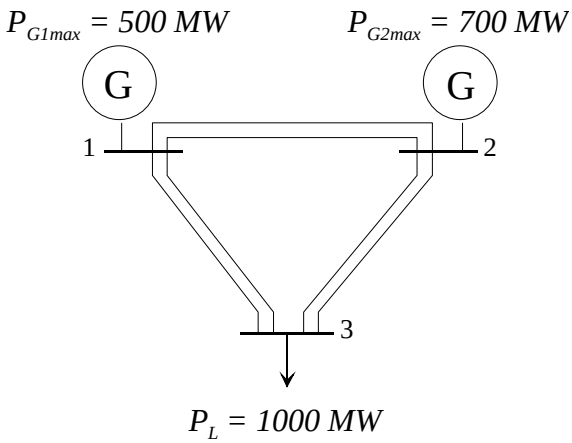
APPLICATION OF METHOD : TRANSMISSION LOAD RELIEF (TLR)

Assume the following 3-bus systems:



Lines characteristics:

Maximum transferable power: $C_{12} = C_{23} = 2\ C = 600$ MW ; $C_{13} = C = 300$ MW
Lines reactance: $x_{12} = x_{23} = x/2$; $x_{13} = x$

Bilateral transactions: T_{13} (P_{G1}) ; T_{23}(P_{G2}) avec $P_{G1}+P_{G2}=P_L$

Solve the following points:

1) For the linearized case, calculate the power expressions of P_{12}, P_{23} and P_{31} as a function of angles θ_1 and θ_2 as well as function of power P_{G1} and P_{G2}.

2) Determine the production plan that maximize P_{G1} and P_{G2}.