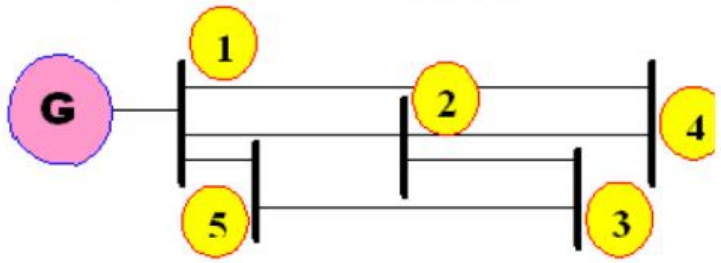
Comparison between different methods of analysis of a load flow problem for 5 Bus system



Power System of Example 2

Line data of example 2

SB	EB	R (pu)	X (pu)	$\frac{B_C}{2}$
1	2	0.10	0.40	-
1	4	0.15	0.60	-
1	5	0.05	0.20	-
2	3	0.05	0.20	-
2	4	0.10	0.40	-
3	5	0.05	0.20	-

Bus data of example 2

Bus No.	P_G (pu)	Q_G (pu)	P_D (pu)	Q_D (pu)	$\lvert V_{SP}\rvert$ (pu)	δ
1	-	-	-	-	1.02	0°
2	-	-	0.60	0.30	-	-
3	1.0	-	-	-	1.04	-
4	-	-	0.40	0.10	-	-
5	-	-	0.60	0.20	-	-

Method->	Gauss Seidel	Newton-Raphson	Simulink
Results	V1=1.020000<0.000000 V2=0.954752<-3.941284 V3=1.040000<2.000802 V4=0.923452<-8.007760 V5=0.993110<-2.072552	V(1)=1.020000<0.000000 V(2)=0.954752<-3.941318 V(3)=1.040000<2.000769 V(4)=0.923452<-8.007780 V(5)=0.993110<-2.072568	V(1)=1.0200<0.0000 V(2)=0.9548<-3.9413 V(3)=1.0400<2.0008 V(4)=0.9235<-8.0078 V(5)=0.9931<-2.0726
Comments	Took 24 iterations	Took 7 iterations	Took 3 iterations

Method->	decoupled	Fast decoupled
Results	V(1)=1.020000<0.000000 V(2)=0.954752<-3.941315 V(3)=1.040000<2.000769 V(4)=0.923452<-8.007785 V(5)=0.993110<-2.072564	V(1)=1.020000<0.000000 V(2)=0.954752<-3.941316 V(3)=1.040000<2.000768 V(4)=0.923452<-8.007787 V(5)=0.993110<-2.072569
Comments	Took 9 iterations	Took 9 iterations