

✓ System 'test\_case\_1' initialized at 60.0 Hz, 100.0 MVA  
✓ Added bus 'bus1' - 20.0 kV - type: slack  
✓ Added bus 'bus2' - 230.0 kV - type: pq  
✓ Added bus 'bus3' - 230.0 kV - type: pq  
✓ Added bus 'bus4' - 230.0 kV - type: pq  
✓ Added bus 'bus5' - 230.0 kV - type: pq  
✓ Added bus 'bus6' - 230.0 kV - type: pq  
✓ Added bus 'bus7' - 18.0 kV - type: pv  
✓ Added Transformer 'T1' between bus1 and bus2  
✓ Added Transformer 'T2' between bus6 and bus7  
✓ Added Conductor 'Partridge' (D=0.642 in, GMR=0.0217, R=0.385, l=460.0)  
✓ Added Geometry 'G1' - [A(0.0,0.0), B(19.5,0.0), C(39.0,0.0)]  
✓ Added Bundle 'B1' using conductor 'Partridge'  
✓ Added Transmission Line 'Tline1' using bundle 'B1' and geometry 'G1'  
✓ Added Transmission Line 'Tline2' using bundle 'B1' and geometry 'G1'  
✓ Added Transmission Line 'Tline3' using bundle 'B1' and geometry 'G1'  
✓ Added Transmission Line 'Tline4' using bundle 'B1' and geometry 'G1'  
✓ Added Transmission Line 'Tline5' using bundle 'B1' and geometry 'G1'  
✓ Added Transmission Line 'Tline6' using bundle 'B1' and geometry 'G1'  
✓ Added Load 'load3' with P=-110.0 MW, Q=-50.0 MVar on Bus 'bus3'  
✓ Added Load 'load4' with P=-100.0 MW, Q=-70.0 MVar on Bus 'bus4'  
✓ Added Load 'load5' with P=-100.0 MW, Q=-65.0 MVar on Bus 'bus5'  
✓ Added Generator 'Gen 1' on Bus 'bus1' with Vset=0.0, X1=0.12, X2=0.14, X0=0.05  
✓ Added Generator 'Gen 2' on Bus 'bus7' with Vset=0.0, X1=0.12, X2=0.14, X0=0.05  
✓ Running Power Flow...