PowerWorld:

- 2 files (PowerWorld Binary + PWD file). I need both!

- Edit Mode (create case).
  Run Mode (executes simulations).

- Edit Mode > Draw > Network (choose component).

  & Green arrow. Runs it again and again.
  (When system can not solve > Blackout in PowerWorld)

- Run Mode > Case Information > Power flow List (Gives a Table) -
  Rated voltage, magnitude & angle.
  Generators & loads.
3. Run Mode > Case Summary.
   (Losses in the system).

  - Run Mode > Case Information > Solution Details
    (Y bus matrix) // You can get the Jacobian.

     Right click > Copy / Paste / send > send to Excel.

Creating a case:

  - Bus 1 (Edit Mode > Draw > Network).

    Nominal voltage: ex: 13.8 kV
    Bus name: Bus 1.
    Orientation: Up
    Bus Information  □ System slack bus.
- Bus2 (Right click on Bus.
  - Add New fields around bus.
    - Bus voltage
    - Bus angle
  at chosen positions

Displays M, L0 near bus.

- Add Generator.

  [Power & Voltage Control:
    MW Output [50
    Enter value
    [Example.
    Setpoint Voltage [1
  ]

(Right)
(Right down)
(Right up)

Generator MVA Base [100.00

Limits 200 MVA → 190 MW
- 100 Mvar
  - 200 MVar.
(Generator).

Display Information:

1. Display size.
2. Orientation.

Transformer: click on bus1 drag to bus2.

Dialog bus: From Bus to Bus.

Parameters → Series reactance [0.1 pu]

Transformer Control → Phase Shift

from ↔ LV → $-30^\circ$

from → HV → $+30^\circ$
Display: Symbol size bigger.

Transformer Control

> Specify Transformer Bases & Impedance.

MVA Base: \(\boxed{200 \text{ MVA}}\)

\(\times\) rescaled in Parameter.

create Bus 3 → Transmission Line.

\(R, X, B\) in pu.

Calculate Impedances \(\Rightarrow\) from Per Distance Impedance

\[\begin{align*}
R \text{ (}\Omega/\text{mi}) &= 0.01 \\
X \text{ (} \Omega \text{h}/\text{mi}) &= 0.1 \\
B \text{ (} \Omega \text{h}/\text{mi}) &= 0.1 \\
\text{Line length} &= 100 \rightarrow 50, 20, \text{ etc.} \\
\text{Limit} &= \boxed{200 \text{ MVA}}
\end{align*}\]