



Shahjalal University of Science and Technology (SUST)

Department of Electrical and Electronic Engineering (EEE)

Experiment name: Investigate the reactive power compensation in power grid

Experiment No: 02

Course Title: Power System -I
Course Code: EEE -326

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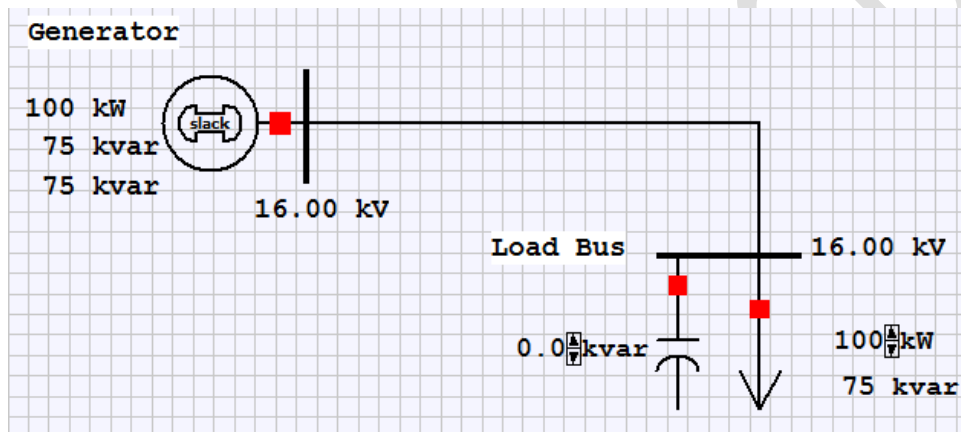


Objective: To study the reactive power compensation

Equipment: Power World Simulator v17

Procedure: Construct the following power grid system with following values-

- **Generator:** 100 KW
- **Bus 1**(one with Generator): Slack bus, Nominal Voltage 16 KV
- **Bus 2** (Load bus): Nominal Voltage 16 KV
- **Load:** 100 KW, 75 KVR
- **Switched Shunt:** Number of steps 10, KVR per step 10



The speed and size of the green arrows are proportional to the real power supplied to the load bus, and the blue arrows are proportional to the reactive power. Here reactive compensation can be supplied in discrete 10-kVar steps and load kvr can be increased by 5 kvr by clicking on the arrows in the capacitor's kvar field and the load field, and the load can be varied by clicking on the arrows in the load field.

Notice that increasing the reactive compensation decreases both the reactive power flow on the supply line and the kVA power supplied by the generator; the real power flow is unchanged



When Load supply is 100 KW, 75 KVR

Shunt Compensation	Generator Real Power (KW)	Generator Reactive Power(KVR)	Supplied Apparent Power(KV)	Power Factor

Comment:



When Load supply is 100 KW, 95 KVR

Shunt Compensation	Generator Real Power (KW)	Generator Reactive Power(KVR)	Supplied Apparent Power(KV)	Power Factor

Comment: